TA 03

ENTERED

Los Alamos
NATIONAL LABORATORY

Environmental Programs
P.O. Box 1663, MS M991
Los Alamos, New Mexico 87545
(505) 606-2337/FAX (505) 665-1812

National Nuclear Security Administration
Los Alamos Field Office, MS A316
Environmental Projects Office
Los Alamos, New Mexico 87544
(505) 667-4255/FAX (505) 606-2132

RECEIVED
MAY 2013
NMED Hazardous Waste Bureau

Date: MAY 28 2013
Refer To: EP2013-0094

John Kieling, Bureau Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

Subject: Submittal of the Periodic Monitoring Reports for Chromium Investigation and Material Disposal Area C Monitoring Groups

Dear Mr. Kieling:

Enclosed please find two hard copies with electronic files of the periodic monitoring reports for the Chromium Investigation and Material Disposal Area C monitoring groups.

If you have questions, please contact Steve Paris at (505) 606-0915 (smparis@lanl.gov) or Hai Shen at (505) 665-5046 (hai.shen@nnsa.doe.gov).

Sincerely,

Jeff Mousseau, Associate Director
Environmental Programs
Los Alamos National Laboratory

Sincerely,

Peter Maggiore, Assistant Manager
Environmental Projects Office
Los Alamos Field Office

35881

JM/PM/CD/SP/DR:sm

Enclosures: Two hard copies with electronic files:
(1) Periodic Monitoring Report for Chromium Investigation Monitoring Group, October 30–November 16, 2012 (LA-UR-13-23335)
(2) Periodic Monitoring Report for Material Disposal Area C Monitoring Group, October 30–November 16, 2012 (LA-UR-13-23334)

Cy: (w/enc.)
Public Reading Room (hard copy)
RPF (electronic copy)

Cy: (Letter and CD and/or DVD only)
Laurie King, EPA Region 6, Dallas, TX
Steve Rydeen, San Ildefonso Pueblo
Joe Chavarria, Santa Clara Pueblo
Steve Yanicak, NMED-DOE-OB, MS M894
Hai Shen, DOE-LASO, MS A316
Cheryl Rodriguez, DOE-LASO, MS A316
Steve Paris, EP-CAP, MS M992
David Rogers, EP-ET, MS M992
epccat@lanl.gov

Cy: (w/o enc.)
Tom Skibitski, NMED-OB (date-stamped letter emailed)
lasomailbox@nnsa.doe.gov (date-stamped letter emailed)
Annette Russell, DOE-LASO (date-stamped letter emailed)
David Rhodes, DOE-LASO (date-stamped letter emailed)
Cassandra Begay, DOE-LASO (date-stamped letter emailed)
Craig Douglass, EP-CAP (date-stamped letter emailed)
Jeff Mousseau, ADEP (date-stamped letter emailed)

LA-UR-13-23335
May 2013
EP2013-0083

Periodic Monitoring Report for Chromium Investigation Monitoring Group, October 30–November 16, 2012

Los Alamos
NATIONAL LABORATORY

Prepared by the Environmental Programs Directorate

Los Alamos National Laboratory, operated by Los Alamos National Security, LLC, for the U.S. Department of Energy under Contract No. DE-AC52-06NA25396, has prepared this document pursuant to the Compliance Order on Consent, signed March 1, 2005. The Compliance Order on Consent contains requirements for the investigation and cleanup, including corrective action, of contamination at Los Alamos National Laboratory. The U.S. government has rights to use, reproduce, and distribute this document. The public may copy and use this document without charge, provided that this notice and any statement of authorship are reproduced on all copies.

EP2013-0083

Periodic Monitoring Report for Chromium Investigation Monitoring Group, October 30–November 16, 2012

May 2013

Responsible project manager:

Printed Name	Signature	Title	Organization	Date
Steve Paris		Project Manager	Environmental Programs	5/21/13

Responsible LANS representative:

Printed Name	Signature	Title	Organization	Date
Jeff Mousseau		Associate Director	Environmental Programs	5/22/13

Responsible DOE representative:

Printed Name	Signature	Title	Organization	Date
Peter Maggiore		Assistant Manager	DOE-NA-00-LA	5-28-2013

EXECUTIVE SUMMARY

This periodic monitoring report (PMR) provides the results of the fiscal year 2013, first quarter, periodic monitoring event (PME) conducted by Los Alamos National Laboratory in the Chromium Investigation monitoring group. This PME was conducted pursuant to the Interim Facility-Wide Groundwater Monitoring Plan for the 2013 Monitoring Year, October 2012–September 2013, prepared in accordance with the Compliance Order on Consent.

The PME documented in this report occurred from October 30 to November 16, 2012, and included the monitoring of groundwater wells and well screens. This report also includes any results from previous PMEs that were unreported in their respective PMRs because validated laboratory data were not available (in some cases because of data release agreements). Any additional results from sampling that occurred outside the time frame of a PME are also included in this report.

Water samples collected from various locations during this PME were analyzed for metals; volatile organic compounds; semivolatile organic compounds; high explosives; radionuclides, including low-level tritium; general inorganic chemicals, including perchlorate; stable isotopes; and field parameters (alkalinity, dissolved oxygen, pH, specific conductance, temperature, and turbidity).

No surface-water locations are sampled for this monitoring group.

No results reported in this PMR from previous sampling of PME monitoring locations were above screening levels. Twelve results from groundwater samples collected during this PME were above screening levels.

CONTENTS

1.0 INTRODUCTION 1
1.1 Background 1
2.0 SCOPE OF ACTIVITIES 2
3.0 MONITORING RESULTS 2
3.1 Methods and Procedures 2
3.2 Field Parameter Results 3
3.3 Groundwater Elevations and Base-Flow Observations 3
3.4 Deviations from Planned Scope 3
4.0 ANALYTICAL DATA RESULTS 3
4.1 Methods and Procedures 3
4.2 Analytical Data 4
4.2.1 Surface Water (Base Flow) 6
4.2.2 Groundwater 6
4.3 Sampling Program Modifications 7
5.0 SUMMARY AND INTERPRETATIONS 7
5.1 Monitoring Results 7
5.2 Analytical Results 7
5.2.1 Surface Water (Base Flow) 7
5.2.2 Groundwater 7
5.3 Data Gaps 8
5.4 Remediation System Monitoring 8
6.0 REFERENCES 8

Figures

Figure 2.0-1 Locations scheduled to be monitored for this PME 11
Figure 4.2-1 Monitoring group filtered perchlorate concentrations in µg/L 12
Figure 4.2-2 Monitoring group filtered chromium concentrations in µg/L 13

Tables

Table 2.0-1 Chromium Investigation Monitoring Group Locations and General Information 15
Table 3.4-1 Chromium Investigation Monitoring Group PME Observations and Deviations 16
Table 3.4-2 Analytes with PQLs above Screening Levels 16
Table 4.2-1 Sources of Screening Levels for Groundwater and Surface Water at Los Alamos National Laboratory 17
Table 4.2-2 Chromium Investigation Monitoring Group Groundwater Results above Screening Levels 18

Appendixes

Appendix A Field Parameter Results, Including Results from Previous Four Monitoring Events if Available

Appendix B Groundwater-Elevation Measurements (on CD included with this document)

Appendix C Analytical Chemistry Results, Including Results from Previous Four Monitoring Events if Available

Appendix D Groundwater Results Greater Than Half of Screening Levels

Appendix E Analytical Chemistry Graphs of Screening-Level Exceedances

Appendix F Analytical Reports (on CD included with this document)

Plate

Plate 1 Groundwater elevations

Acronyms and Abbreviations

amsl	above mean sea level
AQA	Analytical Quality Associates, Inc.
BCG	Biota Concentration Guide (DOE)
CAS	Chemical Abstracts Service
CFR	Code of Federal Regulations (U.S.)
Consent Order	Compliance Order on Consent
DCG	Derived Concentration Guide (DOE)
DOE	Department of Energy (U.S.)
EPA	Environmental Protection Agency (U.S.)
F	filtered
gpm	gallons per minute
IFGMP	Interim Facility-Wide Groundwater Monitoring Plan
IR	investigation report
LANL	Los Alamos National Laboratory
MCL	maximum contaminant level (EPA)
MCPA	2-methyl-4-chlorophenoxyacetic acid
MCPP	2-(4-chloro-2-methylphenoxy)propanoic acid
MDL	method detection limit
N	no (best value flag code)
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NMWQCC	New Mexico Water Quality Control Commission
PME	periodic monitoring event
PMR	periodic monitoring report
PQL	practical quantitation limit
QC	quality control
RLWTF	Radioactive Liquid Waste Treatment Facility
RPF	Records Processing Facility
SOP	standard operating procedure
TA	technical area
UF	unfiltered
Y	yes (best value flag code)

1.0 INTRODUCTION

This periodic monitoring report (PMR) provides documentation of fiscal year 2013, first quarter, quarterly groundwater monitoring conducted by Los Alamos National Laboratory (LANL or the Laboratory) in the Chromium Investigation monitoring group pursuant to the Interim Facility-Wide Groundwater Monitoring Plan for the 2013 Monitoring Year, October 2012–September 2013 (2013 IFGMP) (LANL 2012, 225493), prepared in accordance with the Compliance Order on Consent (the Consent Order). The periodic monitoring event (PME) occurred from October 30 to November 16, 2012, and included sampling of groundwater wells and well screens.

This report also includes any results from previous PMEs that were unreported in their respective PMRs because validated laboratory data were not available (in some cases because of data release agreements). Any additional results from sampling that occurred outside the time frame of a PME are also included in this report.

Sections VIII.A and VIII.C of the Consent Order identify New Mexico Water Quality Control Commission (NMWQCC) groundwater and surface-water standards, including alternative abatement standards and U.S. Environmental Protection Agency (EPA) drinking water maximum contaminant levels (MCLs), as cleanup levels for groundwater when corrective action is implemented. NMWQCC groundwater standards, MCLs, and EPA regional screening levels for tap water are used as screening levels for monitoring data and are provided in this report.

This report presents the following information:

- general background information on the monitoring group
- field-measurement monitoring results
- water-quality monitoring results
- screening analysis results (comparing these PME results with regulatory standards and results from previous reports)
- a summary based on the data and the screening analysis

Information on radioactive materials and radionuclides, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to the New Mexico Environment Department (NMED) in accordance with U.S. Department of Energy (DOE) policy.

1.1 Background

The Chromium Investigation monitoring group is located in Sandia and Mortandad Canyons. Monitoring focuses on the characterization and fate and transport of chromium contamination in intermediate-perched groundwater and within the regional aquifer. The distribution of wells in the monitoring group also addresses historical releases from Outfall 051, which discharges from the Radioactive Liquid Waste Treatment Facility (RLWTF) in the Mortandad Canyon watershed. Effluent volumes were considerably reduced or eliminated in 2010 and 2011 because of process changes at the RLWTF.

Sandia Canyon heads on Laboratory property within Technical Area 03 (TA-03) at an elevation of approximately 7300 ft and trends east-southeast across the Laboratory, Bandelier National Monument, and San Ildefonso Pueblo. Sandia Canyon empties into the Rio Grande in White Rock Canyon at an elevation of 5450 ft. The area of the Sandia Canyon watershed is approximately 5.5 mi^2. Perennial stream

flow and saturated alluvial groundwater conditions occur in the upper and middle portions of the canyon system because sanitary wastewater and cooling tower effluent discharge to the canyon from operating facilities. A wetland of approximately 7 acres has developed as a result of the effluent discharge. The only known perennial spring in the watershed (Sandia Spring) is located in lower Sandia Canyon near the Rio Grande. TAs located in the Sandia Canyon watershed include TA-03, TA-53, TA-60, TA-61, TA-72, and former TA-20. A total of 264 solid waste management units and areas of concern are located within these TAs.

Mortandad Canyon is an east-to-southeast trending canyon that heads on the Pajarito Plateau near the main Laboratory complex at TA-03 at an elevation of 7380 ft. The drainage extends about 9.6 mi from its headwaters to its confluence with the Rio Grande at an elevation of 5440 ft. The canyon crosses San Ildefonso Pueblo land for several miles before joining the Rio Grande (LANL 1997, 056835). The Mortandad Canyon watershed is located in the central portion of the Laboratory and covers approximately 10 mi^2. The Mortandad Canyon watershed contains several tributary canyons that have received contaminants released during Laboratory operations, including Ten Site Canyon, Pratt Canyon, Effluent Canyon, and Cañada del Buey.

Chromium concentrations exceed the NMED groundwater standard in Mortandad Canyon regional aquifer wells R-28, R-62, R-42, and R-50. Other constituents detected above background in wells in the monitoring group include nitrate, perchlorate, and tritium. A conceptual model for the sources and distribution of these contaminants is presented in the Investigation Report for Sandia Canyon (hereafter, the Sandia Canyon IR) (LANL 2009, 107453) and the Phase II Investigation Report for Sandia Canyon (LANL 2012, 228624).

The conceptual model hypothesizes that chromium and other contaminants originate from releases into Sandia Canyon with lateral migration pathways that move contamination to locations beneath Mortandad Canyon. For this reason, intermediate-perched and regional wells beneath Mortandad Canyon are included in the Chromium Investigation monitoring group. Other areas of contamination beneath Sandia and Mortandad Canyons may be associated with Mortandad Canyon sources. These sources and the migration pathways are described in the Sandia Canyon IR (LANL 2009, 107453) and the Phase II Investigation Report for Sandia Canyon (LANL 2012, 228624).

2.0 SCOPE OF ACTIVITIES

The PME for the Chromium Investigation monitoring group was conducted pursuant to the 2013 IFGMP (LANL 2012, 225493).

Table 2.0-1 provides the location name, sample collection date, screened interval, top and bottom screen depths, casing volume, purge volume, and purge rate for each of the locations scheduled to be monitored. These locations are shown in Figure 2.0-1. Some locations on this map may not have been sampled.

3.0 MONITORING RESULTS

3.1 Methods and Procedures

All methods and procedures used to perform the field activities associated with the PME are documented in the 2013 IFGMP (LANL 2012, 225493).

3.2 Field Parameter Results

Appendix A contains the field parameter results for this PME and the four previous PMEs.

3.3 Groundwater Elevations

The periodic monitoring water-level data for the previous 2 yr are presented in Appendix B (on CD included with this document). For wells equipped with transducers, the reported water level is the water-level measurement taken earliest on the day of sampling. All manual measurements were recorded immediately before sampling. The groundwater-elevation measurements are shown graphically on Plate 1. No surface-water locations are sampled for this monitoring group.

3.4 Deviations from Planned Scope

Table 3.4-1 describes the fieldwork deviations from the planned scope of the PME. Table 3.4-2 presents a list of analytes for which the practical quantitation limits (PQLs) are greater than screening levels.

4.0 ANALYTICAL DATA RESULTS

4.1 Methods and Procedures

All methods and procedures used to perform the analytical activities of the PME are documented in the 2013 IFGMP (LANL 2012, 225493). Purge water is managed and characterized in accordance with waste profile form 39268, a copy of which was included in Appendix F of a previous PMR (LANL 2008, 103737), and ENV-RCRA-QP-010.2, Land Application of Groundwater. ENV-RCRA-QP-010.2 implements the NMED-approved Notice of Intent Decision Tree for land application of drilling, development, rehabilitation, and sampling of purge water.

All sampling, data reviews, and data package validations were conducted using standard operating procedures (SOPs) that are part of a comprehensive quality assurance program. The procedures are available at http://www.lanl.gov/community-environment/environmental-stewardship/plans-procedures.php. Completed chain-of-custody forms serve as analytical request forms and include the requester or owner, sample number, program code, date and time of sample collection, total number of bottles, list of analytes to be measured, bottle sizes, and preservatives for each required analysis.

The required analytical laboratory batch quality control (QC) is defined by the analytical method, the analytical statement of work, and generally accepted laboratory practices. The analytical laboratory assigns qualifiers to the data to indicate the quality of the analytical results. The laboratory batch QC is used in the secondary data validation process to evaluate the quality of individual analytical results, evaluate the appropriateness of the analytical methodologies, and measure the routine performance of the analytical laboratory.

In addition to batch QC performed by laboratories, the Laboratory submitted field QC samples to test the overall sampling and analytical laboratory process and to spot-check for analytical problems. These results are used in secondary validation along with information provided by the analytical laboratory.

After the Laboratory receives the analytical laboratory data packages, the packages receive secondary validation. For data collected before March 2012, validation was done by an independent contractor, Analytical Quality Associates, Inc. (AQA). After that date, validation is done by an automated process after data are loaded.

Data validation determines the quality of an analytical data set. Data validation focuses on specific quality assurance samples, such as matrix spikes, duplicates, surrogates, method banks, and laboratory control samples, and holding times, which indicate the accuracy and precision of the analyses. Based on the results, data qualifiers are applied to indicate data quality issues as well as the usability of results. This process also includes a description of the reasons for any failure to meet method, procedural, or contractual requirements and an evaluation of the impact of such failure on the overall data set.

AQA's reviews follow the guidelines set in the DOE model SOP for data validation, which includes reviewing the data quality and the documentation's correctness and completeness, verifying that holding times were met, and ensuring that analytical laboratory QC measures were applied, documented, and kept within contract requirements. As a result of secondary validation, a second set of qualifiers was assigned to the analytical results.

Auto validation (1) ensures that the electronic data deliverable contains all the required fields, (2) verifies that results of all QC checks and procedures are within valid criteria limits, and (3) applies specific qualifiers and reason codes per the EPA's National Functional Guidelines for data review as well as the Laboratory's SOPs. Once auto validation is complete, the data are uploaded into the Laboratory's database system and the public database (http://intellusnmdata.com/).

The Laboratory assigns detection status to the analytical result based on the analytical laboratory and secondary validation qualifiers. A detect flag of "N" indicates that, based on the qualifiers, the result was not detected.

4.2 Analytical Data

Appendix C presents the analytical data from this PME and from the four sampling events at these locations immediately before the PME. The analytical laboratory reports (including chain-of-custody forms and data validation forms) are provided in Appendix F (on CD included with this document).

Appendix C contains all data collected during the PME (i.e., all data that have been independently reviewed for conformance with Laboratory requirements) with the following constraints.

- All data
  - Data that are R-qualified (rejected because of noncompliance regarding QC acceptance criteria) during independent validation are considered unusable but are still reported.
  - Analytical laboratory QC results, including matrix spike and matrix spike duplicates, and field blanks, trip blanks, and equipment blanks are not included in the data set.
  - Field duplicates, reanalyses, and results from different analytical methods are reported.
- Radionuclides
  - Only cesium-137, cobalt-60, neptunium-237, potassium-40, and sodium-22 are reported (or analyzed) for the gamma spectroscopy suite.
  - Americium-241 and uranium-235 are reported only by chemical separation alpha spectroscopy. No gamma spectroscopy results are presented for these analytes.
  - Otherwise, all results are reported at all locations.
- Nonradionuclides
  - All detected results are reported.

Multiple analyses of a sample, including dilutions and reanalyses, create redundant results. These multiple results have the same sample ID, analytical laboratory code, and analytical method. The analytical and validation information is used to designate the preferred result, which is marked with a best value flag of "Y" (yes). The redundant values of lower quality are assigned a best value flag of "N" (no). In cases where a reanalysis gives a significantly different result than an earlier value, the original result may be rejected and assigned a best value flag of N, and the reanalysis result may be marked with a best value flag of Y. The best value flag is included in Appendix C.

Data for PMRs are evaluated using the following screening process. The sources of screening levels with which the results are compared are listed in Table 4.2-1.

- The base-flow monitoring locations are assigned to one of two screening categories—perennial or ephemeral. Along with a hardness value, this category determines the screening levels used for data at each monitoring location. Hardness-dependent screening levels used to screen data at each base-flow monitoring location are determined using the geometric mean of hardness data (mg/L as calcium carbonate) collected from 2006 to 2010 at each location. Hardness-dependent acute and chronic criteria were used for total aluminum and dissolved cadmium, chromium, copper, lead, manganese, nickel, silver, and zinc in accordance with the requirements of 20 New Mexico Administrative Code (NMAC) 6.4.
- Surface-water and groundwater perchlorate data were compared with the screening level of 4 µg/L established in Section VIII.A.1.a of the Consent Order.
- Other groundwater data are screened to Groundwater Cleanup Levels described in Section VIII.A.1 of the Consent Order; for an individual substance, the lesser of the EPA MCL or the NMWQCC groundwater standard is used.
- If an NMWQCC standard or an MCL has not been established for a specific substance for which toxicological information is published, the EPA Regional Screening Levels for Tap Water (formerly Region 6 Screening Levels for Tap Water) are used as the Groundwater Cleanup Level. These screening levels are for either a cancer or noncancer risk type. The Consent Order specifies screening at a 10^{-5} excess cancer risk. The EPA screening levels are for 10^{-6} excess cancer risk, so 10 times the EPA 10^{-6} screening levels are used for screening.
- The NMWQCC groundwater standards apply to the dissolved (filtered) portion of specified contaminants; however, the standards for mercury, organic compounds, and nonaqueous-phase liquids apply to the total unfiltered concentrations of the contaminants. EPA MCLs are applied to both filtered and unfiltered sample results.
- The analytical results for radioactivity are compared with the DOE Biota Concentration Guides (BCGs) for surface water and Derived Concentration Guides (DCGs) for groundwater.

The results of data screening for this PMR are presented in Appendix D. This appendix shows all analytical results greater than half the lowest applicable screening levels. Results with a best value flag of N are included in Appendix D but not discussed in the text.

Table 4.2-2 provides groundwater analytical results (by hydrogeologic zone for a specific analytical suite) that are above screening levels. Multiple detections of a particular constituent at a location are counted as one result. For example, if aluminum is detected above a screening level in both a primary sample and a field duplicate, only the highest result is shown.

Graphs in Appendix E display concentration histories of analytes for locations where the analyte was above its screening level at least once during the three most recent PMEs. Concentrations of the analyte are plotted for a 3-yr period. If 3 yr of data are not available, then all available results for the analyte are plotted. When shown, the solid red lines depict applicable screening levels. Results with a best value flag of N are not included in Appendix E.

Figures 4.2-1 and 4.2-2 show concentrations at all locations from the current PME for analytes that exceed their screening level at more than one sampling location. For example, filtered chromium was above the NMWQCC groundwater standard screening level at more than one well, so all available chromium values from the current PME are shown in addition to the screening-level exceedances, which are displayed in yellow boxes.

4.2.1 Surface Water (Base Flow)

No surface-water locations are included in this monitoring group.

4.2.2 Groundwater

No results reported in this PMR from previous sampling of PME monitoring locations were above screening levels.

For the current PME, the filtered perchlorate concentrations for intermediate groundwater wells MCOI-5 and MCOI-6 were 75 µg/L and 63.5 µg/L, respectively, above the Consent Order screening level of 4 µg/L. The results in MCOI-5 since 2007 range between 68.7 µg/L and 105 µg/L. At MCOI-6, concentrations have decreased from 190 µg/L in 2007.

In MCOI-6, the filtered chromium concentration of 61.6 µg/L was above the NMWQCC groundwater standard screening level of 50 µg/L. Concentrations since 2007 have increased from 29.4 µg/L to 65.5 µg/L.

The filtered chromium result of 436 µg/L at intermediate well SCI-2 was above the NMWQCC groundwater standard screening level of 50 µg/L. Results since October of 2008 have generally decreased from 658 µg/L to about 436 µg/L.

The unfiltered 1,4-dioxane concentration of 9.69 µg/L in a sample from MCOI-6 was above the EPA tap water screening level of 6.7 µg/L. The current result is estimated because it is near the 3.06 µg/L method detection limit (MDL) and is the lowest measured at the well. Measurements since 2006 range from 9.69 µg/L to 29.6 µg/L. Concentrations have decreased from 29.6 µg/L since August 2007.

The perchlorate concentration in regional well R-15 was 7.86 µg/L, above the Consent Order screening level of 4 µg/L. The value was qualified as estimated because of low matrix spike recovery. Other values from R-15 measured by the liquid chromatography/mass spectrometry method since 2003 range from 4.6 µg/L to 8.06 µg/L, though many are estimated.

The perchlorate concentration in R-61 S1 (screen 1) of 6.13 µg/L was also above the Consent Order screening level of 4 µg/L. The sample was collected after recent well redevelopment. Four earlier measurements range from 2.96 µg/L to 7.37 µg/L.

In regional well R-28, the filtered chromium concentration was 415 µg/L, above the NMWQCC groundwater standard screening level of 50 µg/L. Other measurements since 2005 range from 310 µg/L to 472 µg/L and show no particular trend with time.

In regional well R-42, the filtered chromium concentration was 1010 µg/L. Concentrations since 2008 range from 744 µg/L to 1240 µg/L.

At regional aquifer well R-43 S1, the filtered chromium concentration was 49.6 µg/L, just below the NMWQCC groundwater standard screening level of 50 µg/L. Chromium concentrations have risen steadily from the first nondetect results in late 2008.

The filtered chromium concentration from the regional aquifer well R-50 S1 was 96.3 µg/L, above the NMWQCC groundwater standard screening level of 50 µg/L. Values from earlier sampling events range from 49.8 µg/L to 99.8 µg/L.

The filtered chromium concentration from regional aquifer well R-62 was 133 µg/L in a field duplicate, above the NMWQCC groundwater standard screening level of 50 µg/L. The result in the primary sample was 128 µg/L. This is the fourth sampling event at this well; previous results are between 129 µg/L and 198 µg/L.

4.3 Sampling Program Modifications

In its December 15, 2011, Approval, Extension Request to Submit the Phase II Investigation Report for Sandia Canyon (NMED 2011, 208852), NMED states that both wells R-61 and R-62 are affected by impacts from drilling and well construction; therefore, data acquired from the wells may not be representative of aquifer conditions. With the exception of the first sampling round from R-61, data show elevated concentrations of dissolved iron and manganese and low concentrations of chromium, indicating reducing conditions in the vicinity of both well screens. The results from all but the first sampling round are therefore not representative of ambient groundwater conditions in the vicinity of the well. The Laboratory submitted the Work Plan for Redevelopment of Monitoring Well R-61 to NMED on June 26, 2012 (LANL 2012, 221454), which NMED approved on July 10, 2012 (NMED 2012, 520923). The work plan proposes to redevelop both screens at R-61 using chemical augmentation. Sampling at R-61 was deferred until the redevelopment was complete. Rehabilitation was completed on October 29, 2012, and the well was placed back into the routine sampling schedule. R-61 S1 was sampled on November 15, 2012, and R-61 S2 was sampled on November 16, 2012; the analytical results are presented in this PMR.

5.0 SUMMARY AND INTERPRETATIONS

5.1 Monitoring Results

The field parameter monitoring results are presented in Appendix A.

5.2 Analytical Results

5.2.1 Surface Water (Base Flow)

No surface-water locations are included in this monitoring group.

5.2.2 Groundwater

No results reported in this PMR from previous sampling of PME monitoring locations were above screening levels. Twelve results from groundwater samples collected during this PME were above screening levels (Table 4.2-2).

For results above screening levels, the types of contaminants detected and their concentrations are consistent with data reported from previous PMEs in this monitoring group.

5.3 Data Gaps

Table 3.4-1 summarizes the field deviations encountered during the PME. The table also provides a detailed account of sampling event deviations.

5.4 Remediation System Monitoring

Remediation system monitoring is not applicable to the Chromium Investigation monitoring group because no systems are installed in the monitoring group area.

6.0 REFERENCES

The following list includes all documents cited in this report. Parenthetical information following each reference provides the author(s), publication date, and ER ID. This information is also included in text citations. ER IDs are assigned by the Environmental Programs Directorate's Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

Copies of the master reference set are maintained at the NMED Hazardous Waste Bureau and the Directorate. The set was developed to ensure that the administrative authority has all material needed to review this document, and it is updated with every document submitted to the administrative authority. Documents previously submitted to the administrative authority are not included.

LANL (Los Alamos National Laboratory), September 1997. "Work Plan for Mortandad Canyon," Los Alamos National Laboratory document LA-UR-97-3291, Los Alamos, New Mexico. (LANL 1997, 056835)

LANL (Los Alamos National Laboratory), September 2008. "Periodic Monitoring Report for White Rock Watershed, April 23–April 30, 2008," Los Alamos National Laboratory document LA-UR-08-5847, Los Alamos, New Mexico. (LANL 2008, 103737)

LANL (Los Alamos National Laboratory), October 2009. "Investigation Report for Sandia Canyon," Los Alamos National Laboratory document LA-UR-09-6450, Los Alamos, New Mexico. (LANL 2009, 107453)

LANL (Los Alamos National Laboratory), June 2012. "Work Plan for Redevelopment of Monitoring Well R-61," Los Alamos National Laboratory document LA-UR-12-20284, Los Alamos, New Mexico. (LANL 2012, 221454)

LANL (Los Alamos National Laboratory), August 2012. "Interim Facility-Wide Groundwater Monitoring Plan for the 2013 Monitoring Year, October 2012–September 2013," Los Alamos National Laboratory document LA-UR-12-21331, Los Alamos, New Mexico. (LANL 2012, 225493)

LANL (Los Alamos National Laboratory), September 2012. "Phase II Investigation Report for Sandia Canyon," Los Alamos National Laboratory document LA-UR-12-24593, Los Alamos, New Mexico. (LANL 2012, 228624)

NMED (New Mexico Environment Department), December 15, 2011. "Approval, Extension Request to Submit the Phase II Investigation Report for Sandia Canyon," New Mexico Environment Department letter to G.J. Rael (DOE-LASO) and M.J. Graham (LANL) from J.E. Kieling (NMED-HWB), Santa Fe, New Mexico. (NMED 2011, 208852)

NMED (New Mexico Environment Department), July 10, 2012. "Approval, Work Plan for Redevelopment of Monitoring Well R-61," New Mexico Environment Department letter to P. Maggiore (DOE-LASO) and M.J. Graham (LANL) from J.E. Kieling (NMED-HWB), Santa Fe, New Mexico. (NMED 2012, 520923)

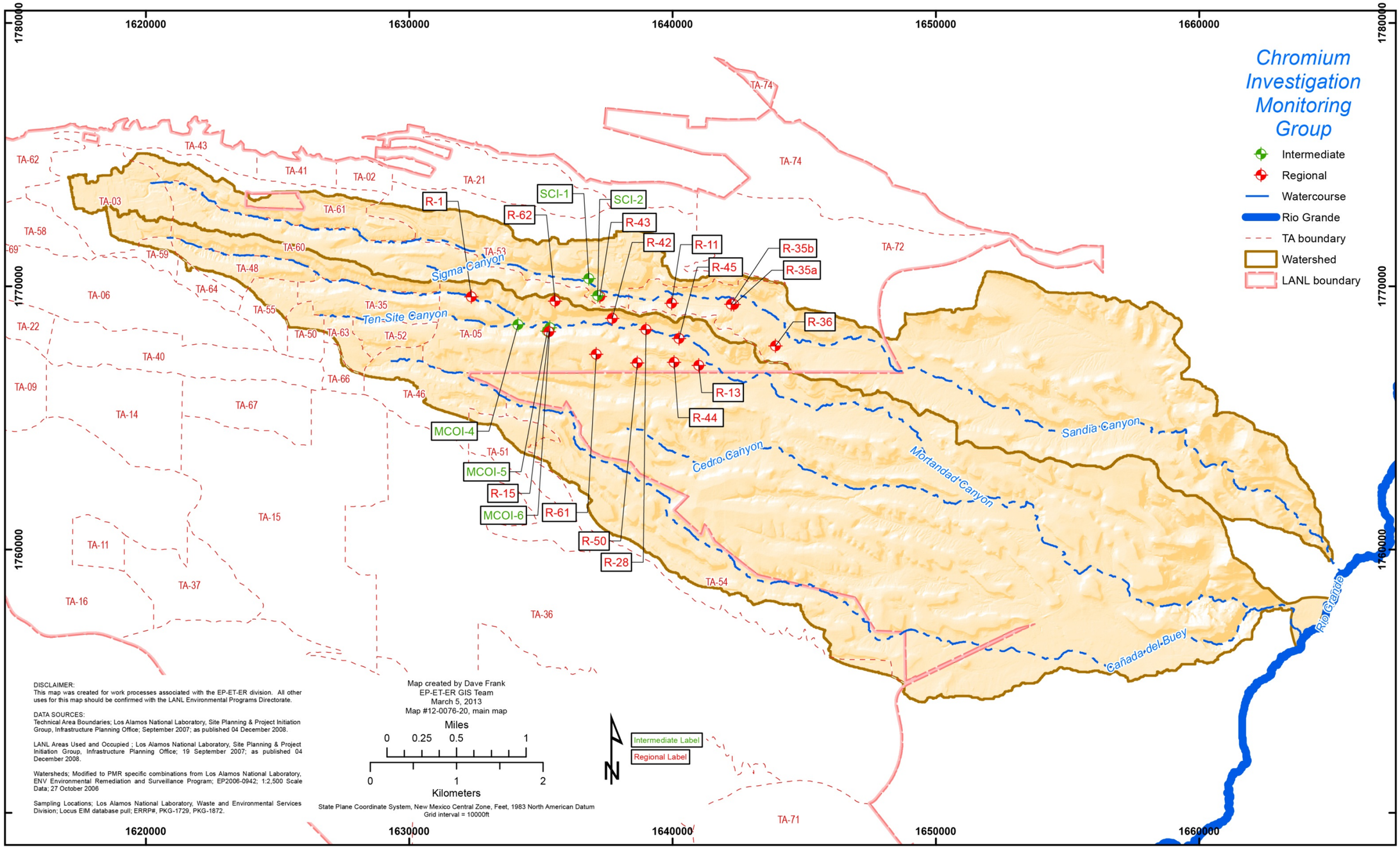


Figure 2.0-1 Locations scheduled to be monitored for this PME (see Table 3.4-1)

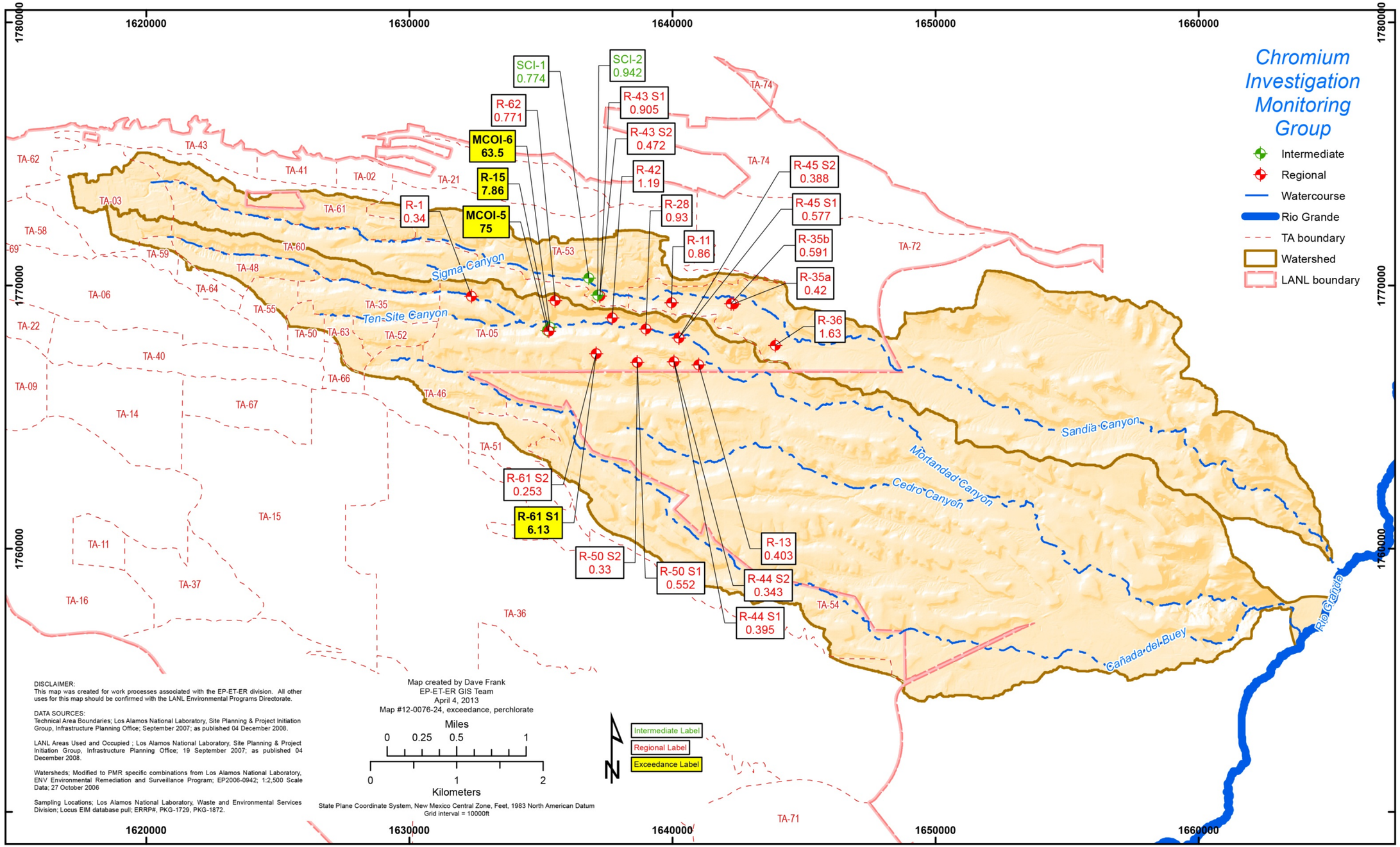


Figure 4.2-1 Monitoring group filtered perchlorate concentrations in µg/L. The Consent Order screening level is 4 µg/L.

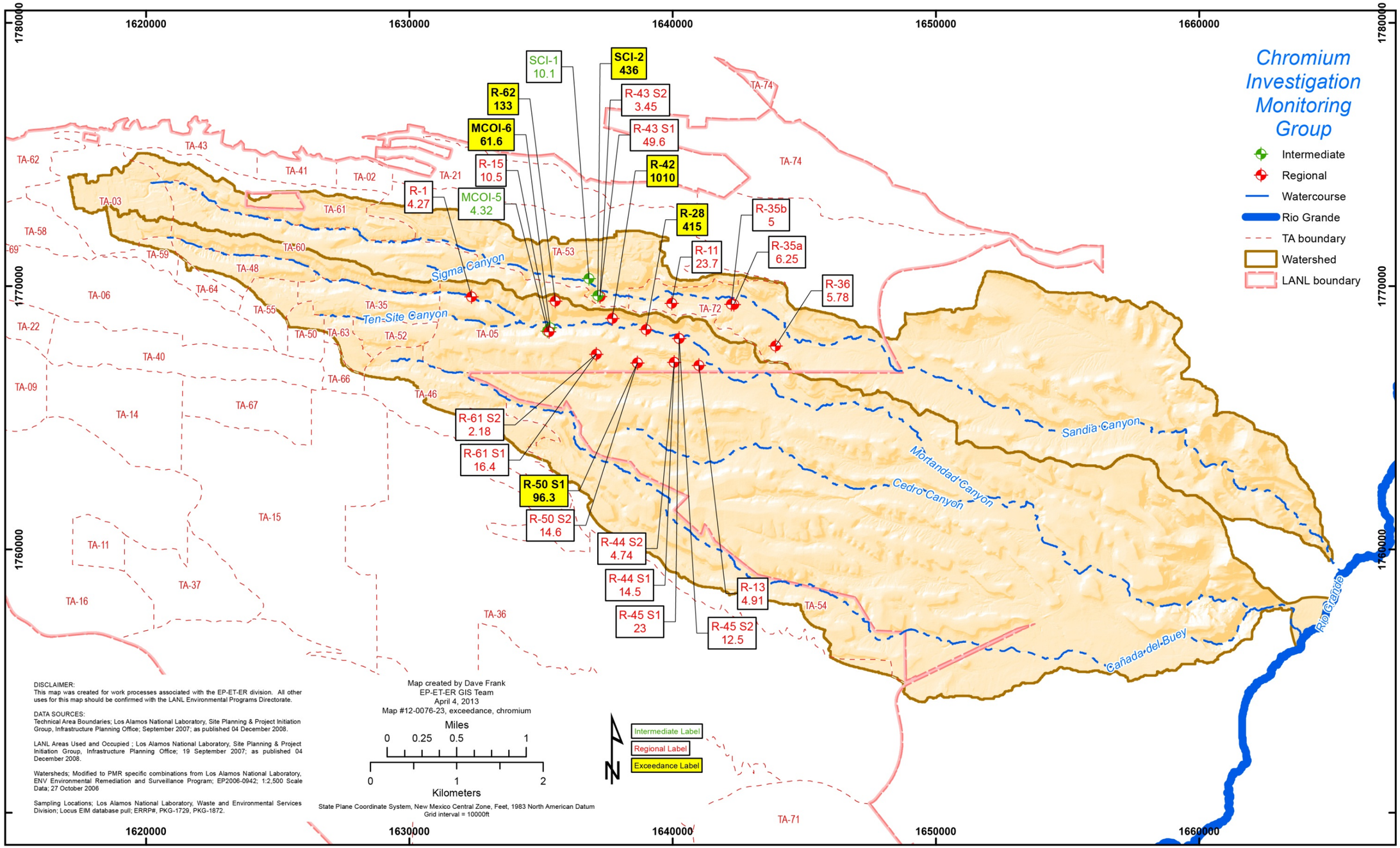


Figure 4.2-2 Monitoring group filtered chromium concentrations in µg/L. The NMWQCC groundwater standard screening level is 50 µg/L.

Table 2.0-1
Chromium Investigation Monitoring Group Locations and General Information

Location Name	Sample Collection Date	Screened Interval (ft)	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Calculated Single Casing Volume (gal.)	Purge Volume (gal.)	Purge Rate gpm[a]
Intermediate							
MCOI-4	n/a[b]	23.1	498.9	522	n/a	n/a	Dry[c]
MCOI-5	10/30/12	9.96	689.04	699	14.7	15.2	0.4
MCOI-6	11/02/12	22.3	686	708.3	45.3	175	1.5
SCI-1	11/02/12	19.5	358.4	377.9	7.2	11.8	0.65
SCI-2	11/05/12	20	548	568	6.89	25	0.46
Regional							
R-1	10/30/12	26.3	1031.1	1057.4	62.95	191.4	3.3
R-11	11/05/12	22.9	855	877.9	51.95	156	3
R-13	10/31/12	60.39	958.3	1018.7	156.6	470	6.9
R-15	10/31/12	61.7	958.6	1020.3	60.2	187	8.5
R-28	10/31/12	23.8	934.3	958.1	89.1	267	3.8
R-35a	11/13/12	49.1	1013.1	1062.2	239.6	720	3.6
R-35b	11/14/12	23.1	825.4	848.5	67.1	201	3.66
R-36	11/14/12	23	766.9	789.9	41.98	128.7	3.3
R-42	10/31/12	21.1	931.8	952.9	52.8	158.4	2.2
R-43 S1	11/07/12	20.7	903.9	924.6	65.9	199	1.3
R-43 S2	11/07/12	10	969.1	979.1	25.5	77	1.35
R-44 S1	11/12/12	10	895	905	56.47	170	3.4
R-44 S2	11/12/12	9.9	985.3	995.2	76.4	231.2	3.4
R-45 S1	11/06/12	10	880	890	52	157.5	3.5
R-45 S2	11/06/12	20	974.9	994.9	91.8	278.8	3.4
R-50 S1	11/09/12	10	1077	1087	50.96	155	2.5
R-50 S2	11/09/12	20.59	1185	1205.6	96.49	306	1.7
R-61 S1	11/15/12	10	1125	1135	60.7	182	2
R-61 S2	11/15/12	20.59	1220.4	1241	86.3	259	2.1
R-62	11/08/12	20.7	1158.4	1179.1	46.7	560	1.2

[a] gpm = Gallons per minute.

[b] n/a = Not applicable.

[c] See Table 3.4-1 for explanation.

Table 3.4-1
Chromium Investigation Monitoring Group PME Observations and Deviations

Location	Deviation	Cause	Comment
MCOI-4	No data are included in this report for this location.	The location was not sampled because it was dry.	This location will be sampled during the next scheduled PME.
MCOI-6, R-28, R-45 S1, R-45 S2, R-50 S1, R-50 S2, R-62, R-43 S1, and R-43 S2	The sampling requirements were modified.	NMED draft comments on 2011 IFGMP, Revision 1	n/a*

*n/a = Not applicable.

Table 3.4-2
Analytes with PQLs above Screening Levels

Analyte or CAS[a] No.	Analyte Name	MDL	PQL	Screening Level	Unit	Screening-Level Type
Herbicides						
94-74-6	MCPA[b]	12	53	18	µg/L	EPA Regional Tap
93-65-2	MCPP[c]	11	53	37	µg/L	EPA Regional Tap
Metals						
Be	Beryllium	1	5	4	µg/L	EPA MCL
Semivolatile Organic Compounds						
1912-24-9	Atrazine	3	10	3	µg/L	EPA MCL
103-33-3	Azobenzene	2	10	1.3	µg/L	EPA Regional Tap
92-87-5	Benzidine	3	10	0.00094	µg/L	EPA Regional Tap
56-55-3	Benzo(a)anthracene	0.2	1	0.29	µg/L	EPA Regional Tap
50-32-8	Benzo(a)pyrene	0.2	1	0.2	µg/L	EPA MCL
205-99-2	Benzo(b)fluoranthene	0.2	1	0.29	µg/L	EPA Regional Tap
111-44-4	Bis(2-chloroethyl)ether	2	10	0.12	µg/L	EPA Regional Tap
117-81-7	Bis(2-ethylhexyl)phthalate	2	10	6	µg/L	EPA MCL
106-47-8	Chloroaniline[4-]	2	10	3.4	µg/L	EPA Regional Tap
53-70-3	Dibenz(a,h)anthracene	0.2	1	0.029	µg/L	EPA Regional Tap
91-94-1	Dichlorobenzidine[3,3'-]	2	10	1.5	µg/L	EPA Regional Tap
534-52-1	Dinitro-2-methylphenol[4,6-]	3	10	2.9	µg/L	EPA Regional Tap
123-91-1	Dioxane[1,4-]	2	10	6.7	µg/L	EPA Regional Tap
118-74-1	Hexachlorobenzene	2	10	1	µg/L	EPA MCL
193-39-5	Indeno(1,2,3-cd)pyrene	0.2	1	0.29	µg/L	EPA Regional Tap
55-18-5	Nitrosodiethylamine[N-]	2	10	0.0014	µg/L	EPA Regional Tap
62-75-9	Nitrosodimethylamine[N-]	2	10	0.0042	µg/L	EPA Regional Tap
924-16-3	Nitroso-di-n-butylamine[N-]	3	10	0.024	µg/L	EPA Regional Tap
621-64-7	Nitroso-di-n-propylamine[N-]	2	10	0.096	µg/L	EPA Regional Tap
930-55-2	Nitrosopyrrolidine[N-]	2	10	0.32	µg/L	EPA Regional Tap
108-60-1	Oxybis(1-chloropropane) [2,2'-]	2	10	3.2	µg/L	EPA Regional Tap
87-86-5	Pentachlorophenol	2	10	1	µg/L	EPA MCL
108-95-2	Phenol	1	10	5	µg/L	NMWQCC Groundwater Standard

Table 3.4-2 (continued)

Analyte or CAS[a] No.	Analyte Name	MDL	PQL	Screening Level	Unit	Screening-Level Type
Volatile Organic Compounds						
107-02-8	Acrolein	1.3	5	0.042	µg/L	EPA Regional Tap
107-13-1	Acrylonitrile	1	5	0.45	µg/L	EPA Regional Tap
126-99-8	Chloro-1,3-butadiene[2-]	0.3	1	0.16	µg/L	EPA Regional Tap
96-12-8	Dibromo-3-chloropropane[1,2-]	0.3	1	0.2	µg/L	EPA MCL
106-93-4	Dibromoethane[1,2-]	0.25	1	0.05	µg/L	EPA MCL
126-98-7	Methacrylonitrile	1	5	1	µg/L	EPA Regional Tap
75-09-2	Methylene chloride	3	10	5	µg/L	EPA MCL
96-18-4	Trichloropropane[1,2,3-]	0.3	1	0.0072	µg/L	EPA Regional Tap

Note: This table is applicable to all samples reported in all PMRs.

[a] CAS = Chemical Abstracts Service.

[b] MCPA = 2-Methyl-4-chlorophenoxyacetic acid.

[c] MCPP = 2-(4-Chloro-2-methylphenoxy)propanoic acid.

Table 4.2-1
Sources of Screening Levels for Groundwater and Surface Water at Los Alamos National Laboratory

Standard Source	Standard Type	Groundwater	Surface Water
DOE Order 5400.5	DOE BCGs	n/a[a]	X[b]
DOE Order 5400.5	DOE 100-mrem Public Dose DCG	X	n/a
DOE Order 5400.5	DOE 4-mrem Drinking Water DCG	X	n/a
40 CFR[c] 141	EPA Primary Drinking Water Standard	X	n/a
EPA Regional Screening Levels for Chemical Contaminants at Superfund Sites	EPA Regional Screening Levels for Tap Water	X	n/a
20 NMAC.3.4	New Mexico Environmental Improvement Board Radiation Protection Standards	X	X
20 NMAC 6.2	NMWQCC Groundwater Standard	X	n/a
20 NMAC 6.4	NMWQCC Irrigation Standard	n/a	X
20 NMAC 6.4	NMWQCC Livestock Watering Standard	n/a	X
20 NMAC 6.4	NMWQCC Wildlife Habitat Standard	n/a	X
20 NMAC 6.4	NMWQCC Aquatic Life Standards Acute	n/a	X
20 NMAC 6.4	NMWQCC Aquatic Life Standards Chronic	n/a	X
20 NMAC 6.4	NMWQCC Human Health Standard	n/a	X

[a] n/a = Not applicable.

[b] X = Applied to data screen for this report.

[c] CFR = Code of Federal Regulations.

Table 4.2-2
Chromium Investigation Monitoring Group Groundwater Results above Screening Levels

Location	Date	Analyte	Field Prep Code	Result	Unit	Screening Level	Screening-Level Type
Intermediate Groundwater							
MCOI-5	10/30/12	Perchlorate	F[a]	75	µg/L	4	Consent Order
MCOI-6	11/02/12	Perchlorate	F	63.5	µg/L	4	Consent Order
MCOI-6	11/02/12	Chromium	F	61.6	µg/L	50	NMWQCC Groundwater Standard
SCI-2	11/05/12	Chromium	F	436	µg/L	50	NMWQCC Groundwater Standard
MCOI-6	11/02/12	Dioxane[1,4-]	UF[b]	9.69	µg/L	6.7	EPA Tap Water Screening Level
Regional Groundwater							
R-15	10/31/12	Perchlorate	F	7.86	µg/L	4	Consent Order
R-61 S1	11/15/12	Perchlorate	F	6.13	µg/L	4	Consent Order
R-28	10/31/12	Chromium	F	415	µg/L	50	NMWQCC Groundwater Standard
R-42	10/31/12	Chromium	F	1010	µg/L	50	NMWQCC Groundwater Standard
R-43 S1	11/07/12	Chromium	F	49.6	µg/L	50	NMWQCC Groundwater Standard
R-50 S1	11/09/12	Chromium	F	96.3	µg/L	50	NMWQCC Groundwater Standard
R-62	11/08/12	Chromium	F	133	µg/L	50	NMWQCC Groundwater Standard

[a] F = Filtered.

[b] UF = Unfiltered.

Appendix A

Field Parameter Results, Including Results from Previous Four Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
MCOI-5	689.04	10/30/12	WG[a]	Dissolved Oxygen	6.84	mg/L	CAMO-13-24238
MCOI-5	689.04	06/04/12	WG	Dissolved Oxygen	7.49	mg/L	CAMO-12-14070
MCOI-5	689.04	11/08/11	WG	Dissolved Oxygen	7.14	mg/L	CAMO-12-1465
MCOI-5	689.04	08/10/11	WG	Dissolved Oxygen	7.01	mg/L	CAMO-11-24627
MCOI-5	689.04	05/26/11	WG	Dissolved Oxygen	6.81	mg/L	CAMO-11-10699
MCOI-5	689.04	10/30/12	WG	Oxidation-Reduction Potential	198.8	mV	CAMO-13-24238
MCOI-5	689.04	06/04/12	WG	Oxidation-Reduction Potential	234.1	mV	CAMO-12-14070
MCOI-5	689.04	11/08/11	WG	Oxidation-Reduction Potential	213.3	mV	CAMO-12-1465
MCOI-5	689.04	08/10/11	WG	Oxidation-Reduction Potential	236	mV	CAMO-11-24627
MCOI-5	689.04	05/26/11	WG	Oxidation-Reduction Potential	138.8	mV	CAMO-11-10699
MCOI-5	689.04	10/30/12	WG	pH	8.63	SU[b]	CAMO-13-24238
MCOI-5	689.04	06/04/12	WG	pH	8.49	SU	CAMO-12-14070
MCOI-5	689.04	11/08/11	WG	pH	8.44	SU	CAMO-12-1465
MCOI-5	689.04	08/10/11	WG	pH	8.42	SU	CAMO-11-24627
MCOI-5	689.04	05/26/11	WG	pH	8.04	SU	CAMO-11-10699
MCOI-5	689.04	10/30/12	WG	Specific Conductance	196	µS/cm	CAMO-13-24238
MCOI-5	689.04	06/04/12	WG	Specific Conductance	182	µS/cm	CAMO-12-14070
MCOI-5	689.04	11/08/11	WG	Specific Conductance	191	µS/cm	CAMO-12-1465
MCOI-5	689.04	08/10/11	WG	Specific Conductance	199	µS/cm	CAMO-11-24627
MCOI-5	689.04	05/26/11	WG	Specific Conductance	184	µS/cm	CAMO-11-10699
MCOI-5	689.04	10/30/12	WG	Temperature	13.14	deg C	CAMO-13-24238
MCOI-5	689.04	06/04/12	WG	Temperature	14.41	deg C	CAMO-12-14070
MCOI-5	689.04	11/08/11	WG	Temperature	11.72	deg C	CAMO-12-1465
MCOI-5	689.04	08/10/11	WG	Temperature	13.8	deg C	CAMO-11-24627
MCOI-5	689.04	05/26/11	WG	Temperature	13.66	deg C	CAMO-11-10699
MCOI-5	689.04	10/30/12	WG	Turbidity	0.33	NTU[c]	CAMO-13-24238
MCOI-5	689.04	06/04/12	WG	Turbidity	0.66	NTU	CAMO-12-14070
MCOI-5	689.04	11/08/11	WG	Turbidity	0.58	NTU	CAMO-12-1465

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
MCOI-5	689.04	08/10/11	WG	Turbidity	0.34	NTU	CAMO-11-24627
MCOI-5	689.04	05/26/11	WG	Turbidity	0.55	NTU	CAMO-11-10699
MCOI-6	686	11/02/12	WG	Dissolved Oxygen	7.18	mg/L	CAMO-13-24239
MCOI-6	686	08/17/12	WG	Dissolved Oxygen	7.1	mg/L	CAMO-12-21734
MCOI-6	686	06/04/12	WG	Dissolved Oxygen	6.97	mg/L	CAMO-12-14006
MCOI-6	686	03/05/12	WG	Dissolved Oxygen	7.1	mg/L	CAMO-12-12017
MCOI-6	686	03/05/12	WG	Dissolved Oxygen	7.1	mg/L	CAMO-12-12026
MCOI-6	686	11/09/11	WG	Dissolved Oxygen	6.65	mg/L	CAMO-12-1468
MCOI-6	686	11/02/12	WG	Oxidation-Reduction Potential	110.6	mV	CAMO-13-24239
MCOI-6	686	08/17/12	WG	Oxidation-Reduction Potential	104.5	mV	CAMO-12-21734
MCOI-6	686	06/04/12	WG	Oxidation-Reduction Potential	197.9	mV	CAMO-12-14006
MCOI-6	686	03/05/12	WG	Oxidation-Reduction Potential	211.6	mV	CAMO-12-12017
MCOI-6	686	03/05/12	WG	Oxidation-Reduction Potential	211.6	mV	CAMO-12-12026
MCOI-6	686	11/09/11	WG	Oxidation-Reduction Potential	180.8	mV	CAMO-12-1468
MCOI-6	686	11/02/12	WG	pH	7.18	SU	CAMO-13-24239
MCOI-6	686	08/17/12	WG	pH	8.32	SU	CAMO-12-21734
MCOI-6	686	06/04/12	WG	pH	7.2	SU	CAMO-12-14006
MCOI-6	686	03/05/12	WG	pH	7.25	SU	CAMO-12-12026
MCOI-6	686	03/05/12	WG	pH	7.25	SU	CAMO-12-12017
MCOI-6	686	11/09/11	WG	pH	7.11	SU	CAMO-12-1468
MCOI-6	686	11/02/12	WG	Specific Conductance	623	µS/cm	CAMO-13-24239
MCOI-6	686	08/17/12	WG	Specific Conductance	594	µS/cm	CAMO-12-21734
MCOI-6	686	06/04/12	WG	Specific Conductance	599	µS/cm	CAMO-12-14006
MCOI-6	686	03/05/12	WG	Specific Conductance	602	µS/cm	CAMO-12-12026
MCOI-6	686	03/05/12	WG	Specific Conductance	602	µS/cm	CAMO-12-12017
MCOI-6	686	11/09/11	WG	Specific Conductance	618	µS/cm	CAMO-12-1468
MCOI-6	686	11/02/12	WG	Temperature	15.49	deg C	CAMO-13-24239
MCOI-6	686	08/17/12	WG	Temperature	15.97	deg C	CAMO-12-21734

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
MCOI-6	686	06/04/12	WG	Temperature	16.4	deg C	CAMO-12-14006
MCOI-6	686	03/05/12	WG	Temperature	15.62	deg C	CAMO-12-12017
MCOI-6	686	03/05/12	WG	Temperature	15.62	deg C	CAMO-12-12026
MCOI-6	686	11/09/11	WG	Temperature	14.42	deg C	CAMO-12-1468
MCOI-6	686	11/02/12	WG	Turbidity	0.43	NTU	CAMO-13-24239
MCOI-6	686	08/17/12	WG	Turbidity	0.53	NTU	CAMO-12-21734
MCOI-6	686	06/04/12	WG	Turbidity	0.42	NTU	CAMO-12-14006
MCOI-6	686	03/05/12	WG	Turbidity	0.54	NTU	CAMO-12-12017
MCOI-6	686	03/05/12	WG	Turbidity	0.54	NTU	CAMO-12-12026
MCOI-6	686	11/09/11	WG	Turbidity	0.79	NTU	CAMO-12-1468
R-1	1031.12	10/30/12	WG	Dissolved Oxygen	5.53	mg/L	CAMO-13-24240
R-1	1031.12	11/18/11	WG	Dissolved Oxygen	5.35	mg/L	CAMO-12-1474
R-1	1031.12	08/02/11	WG	Dissolved Oxygen	5.42	mg/L	CAMO-11-24660
R-1	1031.12	06/03/11	WG	Dissolved Oxygen	5.35	mg/L	CAMO-11-10747
R-1	1031.12	11/12/10	WG	Dissolved Oxygen	4.84	mg/L	CAMO-11-1262
R-1	1031.12	10/30/12	WG	Oxidation-Reduction Potential	-13.3	mV	CAMO-13-24240
R-1	1031.12	11/18/11	WG	Oxidation-Reduction Potential	136.8	mV	CAMO-12-1474
R-1	1031.12	08/02/11	WG	Oxidation-Reduction Potential	184.2	mV	CAMO-11-24660
R-1	1031.12	06/03/11	WG	Oxidation-Reduction Potential	166	mV	CAMO-11-10747
R-1	1031.12	11/12/10	WG	Oxidation-Reduction Potential	192.6	mV	CAMO-11-1262
R-1	1031.12	10/30/12	WG	pH	7.76	SU	CAMO-13-24240
R-1	1031.12	11/18/11	WG	pH	7.39	SU	CAMO-12-1474
R-1	1031.12	08/02/11	WG	pH	7.2	SU	CAMO-11-24660
R-1	1031.12	06/03/11	WG	pH	7.5	SU	CAMO-11-10747
R-1	1031.12	11/12/10	WG	pH	7	SU	CAMO-11-1262
R-1	1031.12	10/30/12	WG	Specific Conductance	146	µS/cm	CAMO-13-24240
R-1	1031.12	11/18/11	WG	Specific Conductance	143	µS/cm	CAMO-12-1474
R-1	1031.12	08/02/11	WG	Specific Conductance	143	µS/cm	CAMO-11-24660

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-1	1031.12	06/03/11	WG	Specific Conductance	143	µS/cm	CAMO-11-10747
R-1	1031.12	11/12/10	WG	Specific Conductance	140	µS/cm	CAMO-11-1262
R-1	1031.12	10/30/12	WG	Temperature	21.26	deg C	CAMO-13-24240
R-1	1031.12	11/18/11	WG	Temperature	20.4	deg C	CAMO-12-1474
R-1	1031.12	08/02/11	WG	Temperature	20.71	deg C	CAMO-11-24660
R-1	1031.12	06/03/11	WG	Temperature	2.47	deg C	CAMO-11-10747
R-1	1031.12	11/12/10	WG	Temperature	20.26	deg C	CAMO-11-1262
R-1	1031.12	10/30/12	WG	Turbidity	0.54	NTU	CAMO-13-24240
R-1	1031.12	11/18/11	WG	Turbidity	1.48	NTU	CAMO-12-1474
R-1	1031.12	08/02/11	WG	Turbidity	1.61	NTU	CAMO-11-24660
R-1	1031.12	06/03/11	WG	Turbidity	1.03	NTU	CAMO-11-10747
R-1	1031.12	11/12/10	WG	Turbidity	0.48	NTU	CAMO-11-1262
R-11	855	11/05/12	WG	Dissolved Oxygen	7.17	mg/L	CASA-13-24209
R-11	855	08/17/12	WG	Dissolved Oxygen	7.54	mg/L	CASA-12-21643
R-11	855	05/21/12	WG	Dissolved Oxygen	7.11	mg/L	CASA-12-14057
R-11	855	05/21/12	WG	Dissolved Oxygen	7.11	mg/L	CASA-12-14062
R-11	855	03/07/12	WG	Dissolved Oxygen	7.36	mg/L	CASA-12-11709
R-11	855	11/16/11	WG	Dissolved Oxygen	7.58	mg/L	CASA-12-1379
R-11	855	11/05/12	WG	Oxidation-Reduction Potential	100.3	mV	CASA-13-24209
R-11	855	08/17/12	WG	Oxidation-Reduction Potential	227.5	mV	CASA-12-21643
R-11	855	05/21/12	WG	Oxidation-Reduction Potential	224.8	mV	CASA-12-14062
R-11	855	05/21/12	WG	Oxidation-Reduction Potential	224.8	mV	CASA-12-14057
R-11	855	03/07/12	WG	Oxidation-Reduction Potential	131.7	mV	CASA-12-11709
R-11	855	11/16/11	WG	Oxidation-Reduction Potential	168.7	mV	CASA-12-1379
R-11	855	11/05/12	WG	pH	8.04	SU	CASA-13-24209
R-11	855	08/17/12	WG	pH	7.98	SU	CASA-12-21643
R-11	855	05/21/12	WG	pH	8.03	SU	CASA-12-14057
R-11	855	05/21/12	WG	pH	8.03	SU	CASA-12-14062

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-11	855	03/07/12	WG	pH	7.97	SU	CASA-12-11709
R-11	855	11/16/11	WG	pH	7.99	SU	CASA-12-1379
R-11	855	11/05/12	WG	Specific Conductance	226	µS/cm	CASA-13-24209
R-11	855	08/17/12	WG	Specific Conductance	234	µS/cm	CASA-12-21643
R-11	855	05/21/12	WG	Specific Conductance	230	µS/cm	CASA-12-14057
R-11	855	05/21/12	WG	Specific Conductance	230	µS/cm	CASA-12-14062
R-11	855	03/07/12	WG	Specific Conductance	223	µS/cm	CASA-12-11709
R-11	855	11/16/11	WG	Specific Conductance	224	µS/cm	CASA-12-1379
R-11	855	11/05/12	WG	Temperature	21.38	deg C	CASA-13-24209
R-11	855	08/17/12	WG	Temperature	21.38	deg C	CASA-12-21643
R-11	855	05/21/12	WG	Temperature	21.87	deg C	CASA-12-14062
R-11	855	05/21/12	WG	Temperature	21.87	deg C	CASA-12-14057
R-11	855	03/07/12	WG	Temperature	20.59	deg C	CASA-12-11709
R-11	855	11/16/11	WG	Temperature	21.21	deg C	CASA-12-1379
R-11	855	11/05/12	WG	Turbidity	0.34	NTU	CASA-13-24209
R-11	855	08/17/12	WG	Turbidity	0.17	NTU	CASA-12-21643
R-11	855	05/21/12	WG	Turbidity	0.2	NTU	CASA-12-14057
R-11	855	05/21/12	WG	Turbidity	0.2	NTU	CASA-12-14062
R-11	855	03/07/12	WG	Turbidity	0.46	NTU	CASA-12-11709
R-11	855	11/16/11	WG	Turbidity	0.24	NTU	CASA-12-1379
R-13	958.33	10/31/12	WG	Dissolved Oxygen	6.36	mg/L	CAMO-13-24258
R-13	958.33	06/05/12	WG	Dissolved Oxygen	6.34	mg/L	CAMO-12-17126
R-13	958.33	11/22/11	WG	Dissolved Oxygen	6.29	mg/L	CAMO-12-1480
R-13	958.33	08/01/11	WG	Dissolved Oxygen	6.59	mg/L	CAMO-11-24633
R-13	958.33	05/25/11	WG	Dissolved Oxygen	6.55	mg/L	CAMO-11-10703
R-13	958.33	10/31/12	WG	Oxidation-Reduction Potential	217.2	mV	CAMO-13-24258
R-13	958.33	06/05/12	WG	Oxidation-Reduction Potential	250.7	mV	CAMO-12-17126
R-13	958.33	11/22/11	WG	Oxidation-Reduction Potential	194.9	mV	CAMO-12-1480

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-13	958.33	08/01/11	WG	Oxidation-Reduction Potential	82.5	mV	CAMO-11-24633
R-13	958.33	05/25/11	WG	Oxidation-Reduction Potential	203.6	mV	CAMO-11-10703
R-13	958.33	10/31/12	WG	pH	8.21	SU	CAMO-13-24258
R-13	958.33	06/05/12	WG	pH	8.23	SU	CAMO-12-17126
R-13	958.33	11/22/11	WG	pH	8.29	SU	CAMO-12-1480
R-13	958.33	08/01/11	WG	pH	8.21	SU	CAMO-11-24633
R-13	958.33	05/25/11	WG	pH	8.24	SU	CAMO-11-10703
R-13	958.33	10/31/12	WG	Specific Conductance	146	µS/cm	CAMO-13-24258
R-13	958.33	06/05/12	WG	Specific Conductance	143	µS/cm	CAMO-12-17126
R-13	958.33	11/22/11	WG	Specific Conductance	141	µS/cm	CAMO-12-1480
R-13	958.33	08/01/11	WG	Specific Conductance	143	µS/cm	CAMO-11-24633
R-13	958.33	05/25/11	WG	Specific Conductance	140	µS/cm	CAMO-11-10703
R-13	958.33	10/31/12	WG	Temperature	21.4	deg C	CAMO-13-24258
R-13	958.33	06/05/12	WG	Temperature	21.85	deg C	CAMO-12-17126
R-13	958.33	11/22/11	WG	Temperature	20.78	deg C	CAMO-12-1480
R-13	958.33	08/01/11	WG	Temperature	22.01	deg C	CAMO-11-24633
R-13	958.33	05/25/11	WG	Temperature	22.08	deg C	CAMO-11-10703
R-13	958.33	10/31/12	WG	Turbidity	0.29	NTU	CAMO-13-24258
R-13	958.33	06/05/12	WG	Turbidity	0.24	NTU	CAMO-12-17126
R-13	958.33	11/22/11	WG	Turbidity	0.42	NTU	CAMO-12-1480
R-13	958.33	08/01/11	WG	Turbidity	0.28	NTU	CAMO-11-24633
R-13	958.33	05/25/11	WG	Turbidity	0.31	NTU	CAMO-11-10703
R-15	958.6	10/31/12	WG	Dissolved Oxygen	7.05	mg/L	CAMO-13-24242
R-15	958.6	05/29/12	WG	Dissolved Oxygen	7.18	mg/L	CAMO-12-14007
R-15	958.6	11/10/11	WG	Dissolved Oxygen	7.16	mg/L	CAMO-12-1485
R-15	958.6	08/15/11	WG	Dissolved Oxygen	6.6	mg/L	CAMO-11-24636
R-15	958.6	05/31/11	WG	Dissolved Oxygen	6.9	mg/L	CAMO-11-10715
R-15	958.6	10/31/12	WG	Oxidation-Reduction Potential	119.1	mV	CAMO-13-24242

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-15	958.6	05/29/12	WG	Oxidation-Reduction Potential	189.7	mV	CAMO-12-14007
R-15	958.6	11/10/11	WG	Oxidation-Reduction Potential	225.4	mV	CAMO-12-1485
R-15	958.6	08/15/11	WG	Oxidation-Reduction Potential	37.9	mV	CAMO-11-24636
R-15	958.6	05/31/11	WG	Oxidation-Reduction Potential	175.9	mV	CAMO-11-10715
R-15	958.6	10/31/12	WG	pH	8.23	SU	CAMO-13-24242
R-15	958.6	05/29/12	WG	pH	8.02	SU	CAMO-12-14007
R-15	958.6	11/10/11	WG	pH	8.24	SU	CAMO-12-1485
R-15	958.6	08/15/11	WG	pH	8.6	SU	CAMO-11-24636
R-15	958.6	05/31/11	WG	pH	8.3	SU	CAMO-11-10715
R-15	958.6	10/31/12	WG	Specific Conductance	150	µS/cm	CAMO-13-24242
R-15	958.6	05/29/12	WG	Specific Conductance	152	µS/cm	CAMO-12-14007
R-15	958.6	11/10/11	WG	Specific Conductance	157	µS/cm	CAMO-12-1485
R-15	958.6	08/15/11	WG	Specific Conductance	185	µS/cm	CAMO-11-24636
R-15	958.6	05/31/11	WG	Specific Conductance	158	µS/cm	CAMO-11-10715
R-15	958.6	10/31/12	WG	Temperature	16.45	deg C	CAMO-13-24242
R-15	958.6	05/29/12	WG	Temperature	20.25	deg C	CAMO-12-14007
R-15	958.6	11/10/11	WG	Temperature	18.75	deg C	CAMO-12-1485
R-15	958.6	08/15/11	WG	Temperature	20.24	deg C	CAMO-11-24636
R-15	958.6	05/31/11	WG	Temperature	20.35	deg C	CAMO-11-10715
R-15	958.6	10/31/12	WG	Turbidity	2.31	NTU	CAMO-13-24242
R-15	958.6	05/29/12	WG	Turbidity	2.78	NTU	CAMO-12-14007
R-15	958.6	11/10/11	WG	Turbidity	2.33	NTU	CAMO-12-1485
R-15	958.6	08/15/11	WG	Turbidity	2.93	NTU	CAMO-11-24636
R-15	958.6	05/31/11	WG	Turbidity	1.71	NTU	CAMO-11-10715
R-28	934.3	10/31/12	WG	Dissolved Oxygen	6.55	mg/L	CAMO-13-24260
R-28	934.3	08/08/12	WG	Dissolved Oxygen	6.72	mg/L	CAMO-12-21735
R-28	934.3	05/24/12	WG	Dissolved Oxygen	6.49	mg/L	CAMO-12-14023
R-28	934.3	03/13/12	WG	Dissolved Oxygen	6.58	mg/L	CAMO-12-12018

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-28	934.3	11/15/11	WG	Dissolved Oxygen	6.73	mg/L	CAMO-12-1486
R-28	934.3	10/31/12	WG	Oxidation-Reduction Potential	183.7	mV	CAMO-13-24260
R-28	934.3	08/08/12	WG	Oxidation-Reduction Potential	220.8	mV	CAMO-12-21735
R-28	934.3	05/24/12	WG	Oxidation-Reduction Potential	207.4	mV	CAMO-12-14023
R-28	934.3	03/13/12	WG	Oxidation-Reduction Potential	98.7	mV	CAMO-12-12018
R-28	934.3	11/15/11	WG	Oxidation-Reduction Potential	95.4	mV	CAMO-12-1486
R-28	934.3	10/31/12	WG	pH	7.63	SU	CAMO-13-24260
R-28	934.3	08/08/12	WG	pH	7.56	SU	CAMO-12-21735
R-28	934.3	05/24/12	WG	pH	7.54	SU	CAMO-12-14023
R-28	934.3	03/13/12	WG	pH	7.49	SU	CAMO-12-12018
R-28	934.3	11/15/11	WG	pH	7.8	SU	CAMO-12-1486
R-28	934.3	10/31/12	WG	Specific Conductance	435	µS/cm	CAMO-13-24260
R-28	934.3	08/08/12	WG	Specific Conductance	421	µS/cm	CAMO-12-21735
R-28	934.3	05/24/12	WG	Specific Conductance	417	µS/cm	CAMO-12-14023
R-28	934.3	03/13/12	WG	Specific Conductance	436	µS/cm	CAMO-12-12018
R-28	934.3	11/15/11	WG	Specific Conductance	417	µS/cm	CAMO-12-1486
R-28	934.3	10/31/12	WG	Temperature	20.48	deg C	CAMO-13-24260
R-28	934.3	08/08/12	WG	Temperature	21.17	deg C	CAMO-12-21735
R-28	934.3	05/24/12	WG	Temperature	21.21	deg C	CAMO-12-14023
R-28	934.3	03/13/12	WG	Temperature	20.66	deg C	CAMO-12-12018
R-28	934.3	11/15/11	WG	Temperature	20.22	deg C	CAMO-12-1486
R-28	934.3	10/31/12	WG	Turbidity	0.45	NTU	CAMO-13-24260
R-28	934.3	08/08/12	WG	Turbidity	0.65	NTU	CAMO-12-21735
R-28	934.3	05/24/12	WG	Turbidity	0.69	NTU	CAMO-12-14023
R-28	934.3	03/13/12	WG	Turbidity	5.2	NTU	CAMO-12-12018
R-28	934.3	11/15/11	WG	Turbidity	0.53	NTU	CAMO-12-1486
R-35a	1013.1	11/13/12	WG	Dissolved Oxygen	4.9	mg/L	CASA-13-24210
R-35a	1013.1	06/05/12	WG	Dissolved Oxygen	4.93	mg/L	CASA-12-17133

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-35a	1013.1	11/17/11	WG	Dissolved Oxygen	4.71	mg/L	CASA-12-1383
R-35a	1013.1	08/17/11	WG	Dissolved Oxygen	5.12	mg/L	CASA-11-24781
R-35a	1013.1	05/23/11	WG	Dissolved Oxygen	5.04	mg/L	CASA-11-10812
R-35a	1013.1	11/13/12	WG	Oxidation-Reduction Potential	169.8	mV	CASA-13-24210
R-35a	1013.1	06/05/12	WG	Oxidation-Reduction Potential	312.5	mV	CASA-12-17133
R-35a	1013.1	11/17/11	WG	Oxidation-Reduction Potential	169.2	mV	CASA-12-1383
R-35a	1013.1	08/17/11	WG	Oxidation-Reduction Potential	225.8	mV	CASA-11-24781
R-35a	1013.1	05/23/11	WG	Oxidation-Reduction Potential	217.9	mV	CASA-11-10812
R-35a	1013.1	11/13/12	WG	pH	8.08	SU	CASA-13-24210
R-35a	1013.1	06/05/12	WG	pH	7.47	SU	CASA-12-17133
R-35a	1013.1	11/17/11	WG	pH	8.02	SU	CASA-12-1383
R-35a	1013.1	08/17/11	WG	pH	8	SU	CASA-11-24781
R-35a	1013.1	05/23/11	WG	pH	7.98	SU	CASA-11-10812
R-35a	1013.1	11/13/12	WG	Specific Conductance	241	µS/cm	CASA-13-24210
R-35a	1013.1	06/05/12	WG	Specific Conductance	242	µS/cm	CASA-12-17133
R-35a	1013.1	11/17/11	WG	Specific Conductance	243	µS/cm	CASA-12-1383
R-35a	1013.1	08/17/11	WG	Specific Conductance	247	µS/cm	CASA-11-24781
R-35a	1013.1	05/23/11	WG	Specific Conductance	248	µS/cm	CASA-11-10812
R-35a	1013.1	11/13/12	WG	Temperature	22.66	deg C	CASA-13-24210
R-35a	1013.1	06/05/12	WG	Temperature	24.36	deg C	CASA-12-17133
R-35a	1013.1	11/17/11	WG	Temperature	23.44	deg C	CASA-12-1383
R-35a	1013.1	08/17/11	WG	Temperature	24.23	deg C	CASA-11-24781
R-35a	1013.1	05/23/11	WG	Temperature	24.3	deg C	CASA-11-10812
R-35a	1013.1	11/13/12	WG	Turbidity	1.08	NTU	CASA-13-24210
R-35a	1013.1	06/05/12	WG	Turbidity	1.9	NTU	CASA-12-17133
R-35a	1013.1	11/17/11	WG	Turbidity	0.95	NTU	CASA-12-1383
R-35a	1013.1	08/17/11	WG	Turbidity	0.66	NTU	CASA-11-24781
R-35a	1013.1	05/23/11	WG	Turbidity	2.75	NTU	CASA-11-10812

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-35b	825.4	11/14/12	WG	Dissolved Oxygen	6.14	mg/L	CASA-13-24211
R-35b	825.4	06/06/12	WG	Dissolved Oxygen	6.06	mg/L	CASA-12-17134
R-35b	825.4	11/09/11	WG	Dissolved Oxygen	6.27	mg/L	CASA-12-1387
R-35b	825.4	08/12/11	WG	Dissolved Oxygen	5.92	mg/L	CASA-11-24783
R-35b	825.4	06/01/11	WG	Dissolved Oxygen	6.03	mg/L	CASA-11-10815
R-35b	825.4	11/14/12	WG	Oxidation-Reduction Potential	188.4	mV	CASA-13-24211
R-35b	825.4	06/06/12	WG	Oxidation-Reduction Potential	232.7	mV	CASA-12-17134
R-35b	825.4	11/09/11	WG	Oxidation-Reduction Potential	191.7	mV	CASA-12-1387
R-35b	825.4	08/12/11	WG	Oxidation-Reduction Potential	67.4	mV	CASA-11-24783
R-35b	825.4	06/01/11	WG	Oxidation-Reduction Potential	286.6	mV	CASA-11-10815
R-35b	825.4	11/14/12	WG	pH	7.66	SU	CASA-13-24211
R-35b	825.4	06/06/12	WG	pH	7.5	SU	CASA-12-17134
R-35b	825.4	11/09/11	WG	pH	7.62	SU	CASA-12-1387
R-35b	825.4	08/12/11	WG	pH	7.68	SU	CASA-11-24783
R-35b	825.4	06/01/11	WG	pH	7.67	SU	CASA-11-10815
R-35b	825.4	11/14/12	WG	Specific Conductance	170	µS/cm	CASA-13-24211
R-35b	825.4	06/06/12	WG	Specific Conductance	174	µS/cm	CASA-12-17134
R-35b	825.4	11/09/11	WG	Specific Conductance	176	µS/cm	CASA-12-1387
R-35b	825.4	08/12/11	WG	Specific Conductance	177	µS/cm	CASA-11-24783
R-35b	825.4	06/01/11	WG	Specific Conductance	179	µS/cm	CASA-11-10815
R-35b	825.4	11/14/12	WG	Temperature	21.07	deg C	CASA-13-24211
R-35b	825.4	06/06/12	WG	Temperature	22.09	deg C	CASA-12-17134
R-35b	825.4	11/09/11	WG	Temperature	20.54	deg C	CASA-12-1387
R-35b	825.4	08/12/11	WG	Temperature	21.8	deg C	CASA-11-24783
R-35b	825.4	06/01/11	WG	Temperature	22.09	deg C	CASA-11-10815
R-35b	825.4	11/14/12	WG	Turbidity	0.51	NTU	CASA-13-24211
R-35b	825.4	06/06/12	WG	Turbidity	0.41	NTU	CASA-12-17134
R-35b	825.4	11/09/11	WG	Turbidity	0.56	NTU	CASA-12-1387

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-35b	825.4	08/12/11	WG	Turbidity	0.42	NTU	CASA-11-24783
R-35b	825.4	06/01/11	WG	Turbidity	0.46	NTU	CASA-11-10815
R-36	766.9	11/14/12	WG	Dissolved Oxygen	5.97	mg/L	CASA-13-24212
R-36	766.9	05/30/12	WG	Dissolved Oxygen	6.08	mg/L	CASA-12-17135
R-36	766.9	03/08/12	WG	Dissolved Oxygen	6.14	mg/L	CASA-12-12037
R-36	766.9	11/16/11	WG	Dissolved Oxygen	6.22	mg/L	CASA-12-1388
R-36	766.9	08/15/11	WG	Dissolved Oxygen	6.16	mg/L	CASA-11-24789
R-36	766.9	11/14/12	WG	Oxidation-Reduction Potential	208.7	mV	CASA-13-24212
R-36	766.9	05/30/12	WG	Oxidation-Reduction Potential	245.9	mV	CASA-12-17135
R-36	766.9	03/08/12	WG	Oxidation-Reduction Potential	167.6	mV	CASA-12-12037
R-36	766.9	11/16/11	WG	Oxidation-Reduction Potential	165	mV	CASA-12-1388
R-36	766.9	08/15/11	WG	Oxidation-Reduction Potential	175.7	mV	CASA-11-24789
R-36	766.9	11/14/12	WG	pH	7.33	SU	CASA-13-24212
R-36	766.9	05/30/12	WG	pH	7.4	SU	CASA-12-17135
R-36	766.9	03/08/12	WG	pH	7.32	SU	CASA-12-12037
R-36	766.9	11/16/11	WG	pH	7.37	SU	CASA-12-1388
R-36	766.9	08/15/11	WG	pH	7.37	SU	CASA-11-24789
R-36	766.9	11/14/12	WG	Specific Conductance	195	µS/cm	CASA-13-24212
R-36	766.9	05/30/12	WG	Specific Conductance	195	µS/cm	CASA-12-17135
R-36	766.9	11/16/11	WG	Specific Conductance	194	µS/cm	CASA-12-1388
R-36	766.9	08/15/11	WG	Specific Conductance	195	µS/cm	CASA-11-24789
R-36	766.9	06/02/11	WG	Specific Conductance	192	µS/cm	CASA-11-10816
R-36	766.9	11/14/12	WG	Temperature	19.84	deg C	CASA-13-24212
R-36	766.9	05/30/12	WG	Temperature	20.87	deg C	CASA-12-17135
R-36	766.9	03/08/12	WG	Temperature	19.28	deg C	CASA-12-12037
R-36	766.9	11/16/11	WG	Temperature	20.45	deg C	CASA-12-1388
R-36	766.9	08/15/11	WG	Temperature	21.02	deg C	CASA-11-24789
R-36	766.9	11/14/12	WG	Turbidity	0.89	NTU	CASA-13-24212

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-36	766.9	05/30/12	WG	Turbidity	0.89	NTU	CASA-12-17135
R-36	766.9	03/08/12	WG	Turbidity	0.8	NTU	CASA-12-12037
R-36	766.9	11/16/11	WG	Turbidity	1	NTU	CASA-12-1388
R-36	766.9	08/15/11	WG	Turbidity	0.67	NTU	CASA-11-24789
R-42	931.8	10/31/12	WG	Dissolved Oxygen	6.99	mg/L	CAMO-13-24244
R-42	931.8	08/08/12	WG	Dissolved Oxygen	6.82	mg/L	CAMO-12-21736
R-42	931.8	05/23/12	WG	Dissolved Oxygen	6.84	mg/L	CAMO-12-14009
R-42	931.8	03/09/12	WG	Dissolved Oxygen	6.96	mg/L	CAMO-12-12020
R-42	931.8	03/09/12	WG	Dissolved Oxygen	6.96	mg/L	CAMO-12-12029
R-42	931.8	11/10/11	WG	Dissolved Oxygen	6.96	mg/L	CAMO-12-1491
R-42	931.8	10/31/12	WG	Oxidation-Reduction Potential	114.4	mV	CAMO-13-24244
R-42	931.8	08/08/12	WG	Oxidation-Reduction Potential	227	mV	CAMO-12-21736
R-42	931.8	05/23/12	WG	Oxidation-Reduction Potential	243.2	mV	CAMO-12-14009
R-42	931.8	03/09/12	WG	Oxidation-Reduction Potential	6.4	mV	CAMO-12-12020
R-42	931.8	03/09/12	WG	Oxidation-Reduction Potential	6.4	mV	CAMO-12-12029
R-42	931.8	11/10/11	WG	Oxidation-Reduction Potential	193	mV	CAMO-12-1491
R-42	931.8	10/31/12	WG	pH	7.48	SU	CAMO-13-24244
R-42	931.8	08/08/12	WG	pH	7.36	SU	CAMO-12-21736
R-42	931.8	05/23/12	WG	pH	7.5	SU	CAMO-12-14009
R-42	931.8	03/09/12	WG	pH	7.49	SU	CAMO-12-12029
R-42	931.8	03/09/12	WG	pH	7.49	SU	CAMO-12-12020
R-42	931.8	11/10/11	WG	pH	7.38	SU	CAMO-12-1491
R-42	931.8	10/31/12	WG	Specific Conductance	480	µS/cm	CAMO-13-24244
R-42	931.8	08/08/12	WG	Specific Conductance	488	µS/cm	CAMO-12-21736
R-42	931.8	05/23/12	WG	Specific Conductance	486	µS/cm	CAMO-12-14009
R-42	931.8	03/09/12	WG	Specific Conductance	483	µS/cm	CAMO-12-12029
R-42	931.8	03/09/12	WG	Specific Conductance	483	µS/cm	CAMO-12-12020
R-42	931.8	11/10/11	WG	Specific Conductance	486	µS/cm	CAMO-12-1491

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-42	931.8	10/31/12	WG	Temperature	19.49	deg C	CAMO-13-24244
R-42	931.8	08/08/12	WG	Temperature	21.18	deg C	CAMO-12-21736
R-42	931.8	05/23/12	WG	Temperature	20.69	deg C	CAMO-12-14009
R-42	931.8	03/09/12	WG	Temperature	18.42	deg C	CAMO-12-12020
R-42	931.8	03/09/12	WG	Temperature	18.42	deg C	CAMO-12-12029
R-42	931.8	11/10/11	WG	Temperature	18.76	deg C	CAMO-12-1491
R-42	931.8	10/31/12	WG	Turbidity	1.79	NTU	CAMO-13-24244
R-42	931.8	08/08/12	WG	Turbidity	0.66	NTU	CAMO-12-21736
R-42	931.8	05/23/12	WG	Turbidity	1.42	NTU	CAMO-12-14009
R-42	931.8	03/09/12	WG	Turbidity	0.84	NTU	CAMO-12-12020
R-42	931.8	03/09/12	WG	Turbidity	0.84	NTU	CAMO-12-12029
R-42	931.8	11/10/11	WG	Turbidity	0.81	NTU	CAMO-12-1491
R-43 S1	903.9	11/07/12	WG	Dissolved Oxygen	6.88	mg/L	CASA-13-24213
R-43 S1	903.9	08/14/12	WG	Dissolved Oxygen	6.86	mg/L	CASA-12-21644
R-43 S1	903.9	05/22/12	WG	Dissolved Oxygen	7.05	mg/L	CASA-12-14058
R-43 S1	903.9	03/09/12	WG	Dissolved Oxygen	7.04	mg/L	CASA-12-11710
R-43 S1	903.9	11/15/11	WG	Dissolved Oxygen	7.06	mg/L	CASA-12-1391
R-43 S1	903.9	11/07/12	WG	Oxidation-Reduction Potential	83.3	mV	CASA-13-24213
R-43 S1	903.9	08/14/12	WG	Oxidation-Reduction Potential	244.2	mV	CASA-12-21644
R-43 S1	903.9	05/22/12	WG	Oxidation-Reduction Potential	229.9	mV	CASA-12-14058
R-43 S1	903.9	03/09/12	WG	Oxidation-Reduction Potential	151	mV	CASA-12-11710
R-43 S1	903.9	11/15/11	WG	Oxidation-Reduction Potential	158.5	mV	CASA-12-1391
R-43 S1	903.9	11/07/12	WG	pH	8.23	SU	CASA-13-24213
R-43 S1	903.9	08/14/12	WG	pH	8.12	SU	CASA-12-21644
R-43 S1	903.9	05/22/12	WG	pH	8.2	SU	CASA-12-14058
R-43 S1	903.9	03/09/12	WG	pH	8.33	SU	CASA-12-11710
R-43 S1	903.9	11/15/11	WG	pH	8.3	SU	CASA-12-1391
R-43 S1	903.9	11/07/12	WG	Specific Conductance	176	µS/cm	CASA-13-24213

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-43 S1	903.9	08/14/12	WG	Specific Conductance	181	µS/cm	CASA-12-21644
R-43 S1	903.9	05/22/12	WG	Specific Conductance	173	µS/cm	CASA-12-14058
R-43 S1	903.9	03/09/12	WG	Specific Conductance	177	µS/cm	CASA-12-11710
R-43 S1	903.9	11/15/11	WG	Specific Conductance	177	µS/cm	CASA-12-1391
R-43 S1	903.9	11/07/12	WG	Temperature	20.18	deg C	CASA-13-24213
R-43 S1	903.9	08/14/12	WG	Temperature	20.4	deg C	CASA-12-21644
R-43 S1	903.9	05/22/12	WG	Temperature	20.85	deg C	CASA-12-14058
R-43 S1	903.9	03/09/12	WG	Temperature	19.71	deg C	CASA-12-11710
R-43 S1	903.9	11/15/11	WG	Temperature	20.13	deg C	CASA-12-1391
R-43 S1	903.9	11/07/12	WG	Turbidity	0.51	NTU	CASA-13-24213
R-43 S1	903.9	08/14/12	WG	Turbidity	0.35	NTU	CASA-12-21644
R-43 S1	903.9	05/22/12	WG	Turbidity	0.53	NTU	CASA-12-14058
R-43 S1	903.9	03/09/12	WG	Turbidity	0.33	NTU	CASA-12-11710
R-43 S1	903.9	11/15/11	WG	Turbidity	0.34	NTU	CASA-12-1391
R-43 S2	969.1	11/07/12	WG	Dissolved Oxygen	3.07	mg/L	CASA-13-24214
R-43 S2	969.1	08/13/12	WG	Dissolved Oxygen	2.95	mg/L	CASA-12-21649
R-43 S2	969.1	05/22/12	WG	Dissolved Oxygen	3.09	mg/L	CASA-12-14059
R-43 S2	969.1	03/12/12	WG	Dissolved Oxygen	3.42	mg/L	CASA-12-11715
R-43 S2	969.1	11/15/11	WG	Dissolved Oxygen	2.93	mg/L	CASA-12-1396
R-43 S2	969.1	11/07/12	WG	Oxidation-Reduction Potential	60.9	mV	CASA-13-24214
R-43 S2	969.1	08/13/12	WG	Oxidation-Reduction Potential	161.5	mV	CASA-12-21649
R-43 S2	969.1	05/22/12	WG	Oxidation-Reduction Potential	202.6	mV	CASA-12-14059
R-43 S2	969.1	03/12/12	WG	Oxidation-Reduction Potential	-147.3	mV	CASA-12-11715
R-43 S2	969.1	11/15/11	WG	Oxidation-Reduction Potential	110.7	mV	CASA-12-1396
R-43 S2	969.1	11/07/12	WG	pH	8.78	SU	CASA-13-24214
R-43 S2	969.1	08/13/12	WG	pH	8.71	SU	CASA-12-21649
R-43 S2	969.1	05/22/12	WG	pH	8.72	SU	CASA-12-14059
R-43 S2	969.1	03/12/12	WG	pH	8.88	SU	CASA-12-11715

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-43 S2	969.1	11/15/11	WG	pH	8.86	SU	CASA-12-1396
R-43 S2	969.1	11/07/12	WG	Specific Conductance	183	µS/cm	CASA-13-24214
R-43 S2	969.1	08/13/12	WG	Specific Conductance	191	µS/cm	CASA-12-21649
R-43 S2	969.1	05/22/12	WG	Specific Conductance	181	µS/cm	CASA-12-14059
R-43 S2	969.1	03/12/12	WG	Specific Conductance	189	µS/cm	CASA-12-11715
R-43 S2	969.1	11/15/11	WG	Specific Conductance	188	µS/cm	CASA-12-1396
R-43 S2	969.1	11/07/12	WG	Temperature	20.16	deg C	CASA-13-24214
R-43 S2	969.1	08/13/12	WG	Temperature	19.96	deg C	CASA-12-21649
R-43 S2	969.1	05/22/12	WG	Temperature	20.78	deg C	CASA-12-14059
R-43 S2	969.1	03/12/12	WG	Temperature	19.12	deg C	CASA-12-11715
R-43 S2	969.1	11/15/11	WG	Temperature	19.56	deg C	CASA-12-1396
R-43 S2	969.1	11/07/12	WG	Turbidity	0.38	NTU	CASA-13-24214
R-43 S2	969.1	08/13/12	WG	Turbidity	0.19	NTU	CASA-12-21649
R-43 S2	969.1	05/22/12	WG	Turbidity	0.29	NTU	CASA-12-14059
R-43 S2	969.1	03/12/12	WG	Turbidity	0.61	NTU	CASA-12-11715
R-43 S2	969.1	11/15/11	WG	Turbidity	0.44	NTU	CASA-12-1396
R-44 S1	895	11/12/12	WG	Dissolved Oxygen	6.7	mg/L	CAMO-13-24245
R-44 S1	895	05/24/12	WG	Dissolved Oxygen	5.64	mg/L	CAMO-12-14010
R-44 S1	895	11/17/11	WG	Dissolved Oxygen	5.23	mg/L	CAMO-12-1500
R-44 S1	895	08/05/11	WG	Dissolved Oxygen	5.56	mg/L	CAMO-11-24645
R-44 S1	895	05/19/11	WG	Dissolved Oxygen	5.33	mg/L	CAMO-11-10706
R-44 S1	895	11/12/12	WG	Oxidation-Reduction Potential	101.2	mV	CAMO-13-24245
R-44 S1	895	05/24/12	WG	Oxidation-Reduction Potential	271.1	mV	CAMO-12-14010
R-44 S1	895	11/17/11	WG	Oxidation-Reduction Potential	226.6	mV	CAMO-12-1500
R-44 S1	895	08/05/11	WG	Oxidation-Reduction Potential	103.8	mV	CAMO-11-24645
R-44 S1	895	05/19/11	WG	Oxidation-Reduction Potential	151	mV	CAMO-11-10706
R-44 S1	895	11/12/12	WG	pH	7.78	SU	CAMO-13-24245
R-44 S1	895	05/24/12	WG	pH	7.75	SU	CAMO-12-14010

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-44 S1	895	11/17/11	WG	pH	7.95	SU	CAMO-12-1500
R-44 S1	895	08/05/11	WG	pH	7.84	SU	CAMO-11-24645
R-44 S1	895	05/19/11	WG	pH	7.8	SU	CAMO-11-10706
R-44 S1	895	11/12/12	WG	Specific Conductance	134	µS/cm	CAMO-13-24245
R-44 S1	895	05/24/12	WG	Specific Conductance	132	µS/cm	CAMO-12-14010
R-44 S1	895	11/17/11	WG	Specific Conductance	137	µS/cm	CAMO-12-1500
R-44 S1	895	08/05/11	WG	Specific Conductance	133	µS/cm	CAMO-11-24645
R-44 S1	895	05/19/11	WG	Specific Conductance	133	µS/cm	CAMO-11-10706
R-44 S1	895	11/12/12	WG	Temperature	18.67	deg C	CAMO-13-24245
R-44 S1	895	05/24/12	WG	Temperature	21.67	deg C	CAMO-12-14010
R-44 S1	895	11/17/11	WG	Temperature	18.57	deg C	CAMO-12-1500
R-44 S1	895	08/05/11	WG	Temperature	21.3	deg C	CAMO-11-24645
R-44 S1	895	05/19/11	WG	Temperature	20.16	deg C	CAMO-11-10706
R-44 S1	895	11/12/12	WG	Turbidity	0.43	NTU	CAMO-13-24245
R-44 S1	895	05/24/12	WG	Turbidity	0.57	NTU	CAMO-12-14010
R-44 S1	895	11/17/11	WG	Turbidity	0.42	NTU	CAMO-12-1500
R-44 S1	895	08/05/11	WG	Turbidity	0.58	NTU	CAMO-11-24645
R-44 S1	895	05/19/11	WG	Turbidity	0.45	NTU	CAMO-11-10706
R-44 S2	985.3	11/12/12	WG	Dissolved Oxygen	7.14	mg/L	CAMO-13-24246
R-44 S2	985.3	05/24/12	WG	Dissolved Oxygen	6.95	mg/L	CAMO-12-14011
R-44 S2	985.3	11/17/11	WG	Dissolved Oxygen	7.2	mg/L	CAMO-12-1502
R-44 S2	985.3	08/05/11	WG	Dissolved Oxygen	6.87	mg/L	CAMO-11-24526
R-44 S2	985.3	08/05/11	WG	Dissolved Oxygen	6.99	mg/L	CAMO-11-24528
R-44 S2	985.3	08/05/11	WG	Dissolved Oxygen	7.16	mg/L	CAMO-11-24530
R-44 S2	985.3	08/05/11	WG	Dissolved Oxygen	7.16	mg/L	CAMO-11-24648
R-44 S2	985.3	05/19/11	WG	Dissolved Oxygen	6.82	mg/L	CAMO-11-11471
R-44 S2	985.3	05/19/11	WG	Dissolved Oxygen	6.82	mg/L	CAMO-11-10708
R-44 S2	985.3	05/19/11	WG	Dissolved Oxygen	6.94	mg/L	CAMO-11-11467

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-44 S2	985.3	05/19/11	WG	Dissolved Oxygen	6.94	mg/L	CAMO-11-11469
R-44 S2	985.3	11/12/12	WG	Oxidation-Reduction Potential	119.1	mV	CAMO-13-24246
R-44 S2	985.3	05/24/12	WG	Oxidation-Reduction Potential	275.9	mV	CAMO-12-14011
R-44 S2	985.3	11/17/11	WG	Oxidation-Reduction Potential	240.2	mV	CAMO-12-1502
R-44 S2	985.3	08/05/11	WG	Oxidation-Reduction Potential	95.1	mV	CAMO-11-24648
R-44 S2	985.3	08/05/11	WG	Oxidation-Reduction Potential	49.3	mV	CAMO-11-24526
R-44 S2	985.3	08/05/11	WG	Oxidation-Reduction Potential	86.6	mV	CAMO-11-24528
R-44 S2	985.3	08/05/11	WG	Oxidation-Reduction Potential	95.1	mV	CAMO-11-24530
R-44 S2	985.3	05/19/11	WG	Oxidation-Reduction Potential	71.9	mV	CAMO-11-11467
R-44 S2	985.3	05/19/11	WG	Oxidation-Reduction Potential	123	mV	CAMO-11-11471
R-44 S2	985.3	05/19/11	WG	Oxidation-Reduction Potential	108.8	mV	CAMO-11-11469
R-44 S2	985.3	05/19/11	WG	Oxidation-Reduction Potential	123	mV	CAMO-11-10708
R-44 S2	985.3	11/12/12	WG	pH	7.87	SU	CAMO-13-24246
R-44 S2	985.3	05/24/12	WG	pH	7.86	SU	CAMO-12-14011
R-44 S2	985.3	11/17/11	WG	pH	7.86	SU	CAMO-12-1502
R-44 S2	985.3	08/05/11	WG	pH	7.92	SU	CAMO-11-24526
R-44 S2	985.3	08/05/11	WG	pH	7.93	SU	CAMO-11-24648
R-44 S2	985.3	08/05/11	WG	pH	7.93	SU	CAMO-11-24530
R-44 S2	985.3	08/05/11	WG	pH	7.93	SU	CAMO-11-24528
R-44 S2	985.3	05/19/11	WG	pH	7.9	SU	CAMO-11-11471
R-44 S2	985.3	05/19/11	WG	pH	7.9	SU	CAMO-11-11467
R-44 S2	985.3	05/19/11	WG	pH	7.9	SU	CAMO-11-10708
R-44 S2	985.3	05/19/11	WG	pH	7.89	SU	CAMO-11-11469
R-44 S2	985.3	11/12/12	WG	Specific Conductance	144	µS/cm	CAMO-13-24246
R-44 S2	985.3	05/24/12	WG	Specific Conductance	148	µS/cm	CAMO-12-14011
R-44 S2	985.3	11/17/11	WG	Specific Conductance	151	µS/cm	CAMO-12-1502
R-44 S2	985.3	08/05/11	WG	Specific Conductance	146	µS/cm	CAMO-11-24530
R-44 S2	985.3	08/05/11	WG	Specific Conductance	146	µS/cm	CAMO-11-24648

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-44 S2	985.3	08/05/11	WG	Specific Conductance	148	µS/cm	CAMO-11-24528
R-44 S2	985.3	08/05/11	WG	Specific Conductance	150	µS/cm	CAMO-11-24526
R-44 S2	985.3	05/19/11	WG	Specific Conductance	147	µS/cm	CAMO-11-10708
R-44 S2	985.3	05/19/11	WG	Specific Conductance	150	µS/cm	CAMO-11-11467
R-44 S2	985.3	05/19/11	WG	Specific Conductance	147	µS/cm	CAMO-11-11471
R-44 S2	985.3	05/19/11	WG	Specific Conductance	148	µS/cm	CAMO-11-11469
R-44 S2	985.3	11/12/12	WG	Temperature	19.03	deg C	CAMO-13-24246
R-44 S2	985.3	05/24/12	WG	Temperature	21.23	deg C	CAMO-12-14011
R-44 S2	985.3	11/17/11	WG	Temperature	20.72	deg C	CAMO-12-1502
R-44 S2	985.3	08/05/11	WG	Temperature	21.48	deg C	CAMO-11-24528
R-44 S2	985.3	08/05/11	WG	Temperature	20.53	deg C	CAMO-11-24526
R-44 S2	985.3	08/05/11	WG	Temperature	21.38	deg C	CAMO-11-24530
R-44 S2	985.3	08/05/11	WG	Temperature	21.38	deg C	CAMO-11-24648
R-44 S2	985.3	05/19/11	WG	Temperature	20.43	deg C	CAMO-11-10708
R-44 S2	985.3	05/19/11	WG	Temperature	20.43	deg C	CAMO-11-11471
R-44 S2	985.3	05/19/11	WG	Temperature	19.67	deg C	CAMO-11-11467
R-44 S2	985.3	05/19/11	WG	Temperature	20.44	deg C	CAMO-11-11469
R-44 S2	985.3	11/12/12	WG	Turbidity	0.17	NTU	CAMO-13-24246
R-44 S2	985.3	05/24/12	WG	Turbidity	1.1	NTU	CAMO-12-14011
R-44 S2	985.3	11/17/11	WG	Turbidity	0.29	NTU	CAMO-12-1502
R-44 S2	985.3	08/05/11	WG	Turbidity	0.39	NTU	CAMO-11-24528
R-44 S2	985.3	08/05/11	WG	Turbidity	0.33	NTU	CAMO-11-24526
R-44 S2	985.3	08/05/11	WG	Turbidity	0.26	NTU	CAMO-11-24648
R-44 S2	985.3	08/05/11	WG	Turbidity	0.26	NTU	CAMO-11-24530
R-44 S2	985.3	05/19/11	WG	Turbidity	0.4	NTU	CAMO-11-11469
R-44 S2	985.3	05/19/11	WG	Turbidity	0.33	NTU	CAMO-11-11471
R-44 S2	985.3	05/19/11	WG	Turbidity	0.33	NTU	CAMO-11-10708
R-44 S2	985.3	05/19/11	WG	Turbidity	0.3	NTU	CAMO-11-11467

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-45 S1	880	11/06/12	WG	Dissolved Oxygen	7.22	mg/L	CAMO-13-24247
R-45 S1	880	05/22/12	WG	Dissolved Oxygen	7.18	mg/L	CAMO-12-14012
R-45 S1	880	11/16/11	WG	Dissolved Oxygen	7.25	mg/L	CAMO-12-1494
R-45 S1	880	08/01/11	WG	Dissolved Oxygen	7.08	mg/L	CAMO-11-24642
R-45 S1	880	05/20/11	WG	Dissolved Oxygen	7.2	mg/L	CAMO-11-10711
R-45 S1	880	11/06/12	WG	Oxidation-Reduction Potential	97.1	mV	CAMO-13-24247
R-45 S1	880	05/22/12	WG	Oxidation-Reduction Potential	186.5	mV	CAMO-12-14012
R-45 S1	880	11/16/11	WG	Oxidation-Reduction Potential	129.2	mV	CAMO-12-1494
R-45 S1	880	08/01/11	WG	Oxidation-Reduction Potential	119.5	mV	CAMO-11-24642
R-45 S1	880	05/20/11	WG	Oxidation-Reduction Potential	89.7	mV	CAMO-11-10711
R-45 S1	880	11/06/12	WG	pH	7.84	SU	CAMO-13-24247
R-45 S1	880	05/22/12	WG	pH	7.73	SU	CAMO-12-14012
R-45 S1	880	11/16/11	WG	pH	7.88	SU	CAMO-12-1494
R-45 S1	880	08/01/11	WG	pH	7.81	SU	CAMO-11-24642
R-45 S1	880	05/20/11	WG	pH	7.89	SU	CAMO-11-10711
R-45 S1	880	11/06/12	WG	Specific Conductance	173	µS/cm	CAMO-13-24247
R-45 S1	880	05/22/12	WG	Specific Conductance	176	µS/cm	CAMO-12-14012
R-45 S1	880	11/16/11	WG	Specific Conductance	177	µS/cm	CAMO-12-1494
R-45 S1	880	08/01/11	WG	Specific Conductance	178	µS/cm	CAMO-11-24642
R-45 S1	880	05/20/11	WG	Specific Conductance	175	µS/cm	CAMO-11-10711
R-45 S1	880	11/06/12	WG	Temperature	20.71	deg C	CAMO-13-24247
R-45 S1	880	05/22/12	WG	Temperature	21.38	deg C	CAMO-12-14012
R-45 S1	880	11/16/11	WG	Temperature	20.39	deg C	CAMO-12-1494
R-45 S1	880	08/01/11	WG	Temperature	21.48	deg C	CAMO-11-24642
R-45 S1	880	05/20/11	WG	Temperature	20.2	deg C	CAMO-11-10711
R-45 S1	880	11/06/12	WG	Turbidity	0.37	NTU	CAMO-13-24247
R-45 S1	880	05/22/12	WG	Turbidity	0.38	NTU	CAMO-12-14012
R-45 S1	880	11/16/11	WG	Turbidity	0.39	NTU	CAMO-12-1494

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-45 S1	880	08/01/11	WG	Turbidity	0.25	NTU	CAMO-11-24642
R-45 S1	880	05/20/11	WG	Turbidity	0.14	NTU	CAMO-11-10711
R-45 S2	974.9	11/06/12	WG	Dissolved Oxygen	6.69	mg/L	CAMO-13-24248
R-45 S2	974.9	05/22/12	WG	Dissolved Oxygen	6.24	mg/L	CAMO-12-14013
R-45 S2	974.9	11/16/11	WG	Dissolved Oxygen	6.52	mg/L	CAMO-12-1497
R-45 S2	974.9	08/01/11	WG	Dissolved Oxygen	6.55	mg/L	CAMO-11-24644
R-45 S2	974.9	05/20/11	WG	Dissolved Oxygen	6.61	mg/L	CAMO-11-10713
R-45 S2	974.9	11/06/12	WG	Oxidation-Reduction Potential	86.8	mV	CAMO-13-24248
R-45 S2	974.9	05/22/12	WG	Oxidation-Reduction Potential	220.6	mV	CAMO-12-14013
R-45 S2	974.9	11/16/11	WG	Oxidation-Reduction Potential	123.4	mV	CAMO-12-1497
R-45 S2	974.9	08/01/11	WG	Oxidation-Reduction Potential	131.5	mV	CAMO-11-24644
R-45 S2	974.9	05/20/11	WG	Oxidation-Reduction Potential	100.9	mV	CAMO-11-10713
R-45 S2	974.9	11/06/12	WG	pH	8.1	SU	CAMO-13-24248
R-45 S2	974.9	05/22/12	WG	pH	8.01	SU	CAMO-12-14013
R-45 S2	974.9	11/16/11	WG	pH	8.19	SU	CAMO-12-1497
R-45 S2	974.9	08/01/11	WG	pH	8.08	SU	CAMO-11-24644
R-45 S2	974.9	05/20/11	WG	pH	8.15	SU	CAMO-11-10713
R-45 S2	974.9	11/06/12	WG	Specific Conductance	104	µS/cm	CAMO-13-24248
R-45 S2	974.9	05/22/12	WG	Specific Conductance	170	µS/cm	CAMO-12-14013
R-45 S2	974.9	11/16/11	WG	Specific Conductance	170	µS/cm	CAMO-12-1497
R-45 S2	974.9	08/01/11	WG	Specific Conductance	173	µS/cm	CAMO-11-24644
R-45 S2	974.9	05/20/11	WG	Specific Conductance	168	µS/cm	CAMO-11-10713
R-45 S2	974.9	11/06/12	WG	Temperature	20.82	µS/cm	CAMO-13-24248
R-45 S2	974.9	05/22/12	WG	Temperature	22.51	deg C	CAMO-12-14013
R-45 S2	974.9	11/16/11	WG	Temperature	20.67	deg C	CAMO-12-1497
R-45 S2	974.9	08/01/11	WG	Temperature	21.56	deg C	CAMO-11-24644
R-45 S2	974.9	05/20/11	WG	Temperature	21.06	deg C	CAMO-11-10713
R-45 S2	974.9	11/06/12	WG	Turbidity	0.4	NTU	CAMO-13-24248

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-45 S2	974.9	05/22/12	WG	Turbidity	0.33	NTU	CAMO-12-14013
R-45 S2	974.9	11/16/11	WG	Turbidity	0.29	NTU	CAMO-12-1497
R-45 S2	974.9	08/01/11	WG	Turbidity	0.16	NTU	CAMO-11-24644
R-45 S2	974.9	05/20/11	WG	Turbidity	0.34	NTU	CAMO-11-10713
R-50 S1	1077	11/09/12	WG	Dissolved Oxygen	5.55	mg/L	CAMO-13-24249
R-50 S1	1077	08/15/12	WG	Dissolved Oxygen	5.27	mg/L	CAMO-12-21737
R-50 S1	1077	05/31/12	WG	Dissolved Oxygen	5.33	mg/L	CAMO-12-14014
R-50 S1	1077	03/08/12	WG	Dissolved Oxygen	5.47	mg/L	CAMO-12-12021
R-50 S1	1077	11/18/11	WG	Dissolved Oxygen	5.23	mg/L	CAMO-12-1505
R-50 S1	1077	11/09/12	WG	Oxidation-Reduction Potential	81.5	mV	CAMO-13-24249
R-50 S1	1077	08/15/12	WG	Oxidation-Reduction Potential	156.6	mV	CAMO-12-21737
R-50 S1	1077	05/31/12	WG	Oxidation-Reduction Potential	87.4	mV	CAMO-12-14014
R-50 S1	1077	03/08/12	WG	Oxidation-Reduction Potential	-6.9	mV	CAMO-12-12021
R-50 S1	1077	11/18/11	WG	Oxidation-Reduction Potential	107.9	mV	CAMO-12-1505
R-50 S1	1077	11/09/12	WG	pH	8.04	SU	CAMO-13-24249
R-50 S1	1077	08/15/12	WG	pH	8.02	SU	CAMO-12-21737
R-50 S1	1077	05/31/12	WG	pH	7.94	SU	CAMO-12-14014
R-50 S1	1077	03/08/12	WG	pH	7.93	SU	CAMO-12-12021
R-50 S1	1077	11/18/11	WG	pH	7.93	SU	CAMO-12-1505
R-50 S1	1077	11/09/12	WG	Specific Conductance	185	µS/cm	CAMO-13-24249
R-50 S1	1077	08/15/12	WG	Specific Conductance	175	µS/cm	CAMO-12-21737
R-50 S1	1077	05/31/12	WG	Specific Conductance	186	µS/cm	CAMO-12-14014
R-50 S1	1077	03/08/12	WG	Specific Conductance	182	µS/cm	CAMO-12-12021
R-50 S1	1077	11/18/11	WG	Specific Conductance	176	µS/cm	CAMO-12-1505
R-50 S1	1077	11/09/12	WG	Temperature	18.06	deg C	CAMO-13-24249
R-50 S1	1077	08/15/12	WG	Temperature	20.7	deg C	CAMO-12-21737
R-50 S1	1077	05/31/12	WG	Temperature	21.25	deg C	CAMO-12-14014
R-50 S1	1077	03/08/12	WG	Temperature	19.42	deg C	CAMO-12-12021

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-50 S1	1077	11/18/11	WG	Temperature	20.61	deg C	CAMO-12-1505
R-50 S1	1077	11/09/12	WG	Turbidity	0.63	NTU	CAMO-13-24249
R-50 S1	1077	08/15/12	WG	Turbidity	0.82	NTU	CAMO-12-21737
R-50 S1	1077	05/31/12	WG	Turbidity	0.58	NTU	CAMO-12-14014
R-50 S1	1077	03/08/12	WG	Turbidity	0.76	NTU	CAMO-12-12021
R-50 S1	1077	11/18/11	WG	Turbidity	2.57	NTU	CAMO-12-1505
R-50 S2	1185	11/09/12	WG	Dissolved Oxygen	7.04	mg/L	CAMO-13-24250
R-50 S2	1185	08/16/12	WG	Dissolved Oxygen	6.93	mg/L	CAMO-12-21746
R-50 S2	1185	05/31/12	WG	Dissolved Oxygen	6.93	mg/L	CAMO-12-14015
R-50 S2	1185	03/07/12	WG	Dissolved Oxygen	6.89	mg/L	CAMO-12-12022
R-50 S2	1185	11/28/11	WG	Dissolved Oxygen	6.57	mg/L	CAMO-12-1809
R-50 S2	1185	11/09/12	WG	Oxidation-Reduction Potential	74	mV	CAMO-13-24250
R-50 S2	1185	08/16/12	WG	Oxidation-Reduction Potential	201.7	mV	CAMO-12-21746
R-50 S2	1185	05/31/12	WG	Oxidation-Reduction Potential	128.8	mV	CAMO-12-14015
R-50 S2	1185	03/07/12	WG	Oxidation-Reduction Potential	82.7	mV	CAMO-12-12022
R-50 S2	1185	11/28/11	WG	Oxidation-Reduction Potential	133.9	mV	CAMO-12-1809
R-50 S2	1185	11/09/12	WG	pH	8.13	SU	CAMO-13-24250
R-50 S2	1185	08/16/12	WG	pH	8.06	SU	CAMO-12-21746
R-50 S2	1185	05/31/12	WG	pH	8.06	SU	CAMO-12-14015
R-50 S2	1185	03/07/12	WG	pH	8.24	SU	CAMO-12-12022
R-50 S2	1185	11/28/11	WG	pH	8.19	SU	CAMO-12-1809
R-50 S2	1185	11/09/12	WG	Specific Conductance	139	µS/cm	CAMO-13-24250
R-50 S2	1185	08/16/12	WG	Specific Conductance	127	µS/cm	CAMO-12-21746
R-50 S2	1185	05/31/12	WG	Specific Conductance	133	µS/cm	CAMO-12-14015
R-50 S2	1185	03/07/12	WG	Specific Conductance	127	µS/cm	CAMO-12-12022
R-50 S2	1185	11/28/11	WG	Specific Conductance	115	µS/cm	CAMO-12-1809
R-50 S2	1185	11/09/12	WG	Temperature	18.57	deg C	CAMO-13-24250
R-50 S2	1185	08/16/12	WG	Temperature	21.64	deg C	CAMO-12-21746

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-50 S2	1185	05/31/12	WG	Temperature	21.56	deg C	CAMO-12-14015
R-50 S2	1185	03/07/12	WG	Temperature	20.79	deg C	CAMO-12-12022
R-50 S2	1185	11/28/11	WG	Temperature	20.86	deg C	CAMO-12-1809
R-50 S2	1185	11/09/12	WG	Turbidity	1.24	NTU	CAMO-13-24250
R-50 S2	1185	08/16/12	WG	Turbidity	0.43	NTU	CAMO-12-21746
R-50 S2	1185	05/31/12	WG	Turbidity	1.93	NTU	CAMO-12-14015
R-50 S2	1185	03/07/12	WG	Turbidity	0.64	NTU	CAMO-12-12022
R-50 S2	1185	11/28/11	WG	Turbidity	0.81	NTU	CAMO-12-1809
R-61 S1	1125	11/15/12	WG	Dissolved Oxygen	4.77	mg/L	CAMO-13-24251
R-61 S1	1125	05/09/12	WG	Dissolved Oxygen	0.42	mg/L	CAMO-12-13963
R-61 S1	1125	05/09/12	WG	Dissolved Oxygen	1.51	mg/L	CAMO-12-13965
R-61 S1	1125	05/09/12	WG	Dissolved Oxygen	0.76	mg/L	CAMO-12-13964
R-61 S1	1125	05/09/12	WG	Dissolved Oxygen	0.48	mg/L	CAMO-12-13962
R-61 S1	1125	02/07/12	WG	Dissolved Oxygen	3.11	mg/L	CAMO-12-2236
R-61 S1	1125	02/07/12	WG	Dissolved Oxygen	3.8	mg/L	CAMO-12-2248
R-61 S1	1125	02/07/12	WG	Dissolved Oxygen	3.8	mg/L	CAMO-12-2229
R-61 S1	1125	02/07/12	WG	Dissolved Oxygen	2.57	mg/L	CAMO-12-2238
R-61 S1	1125	02/07/12	WG	Dissolved Oxygen	2.08	mg/L	CAMO-12-2245
R-61 S1	1125	02/07/12	WG	Dissolved Oxygen	1.68	mg/L	CAMO-12-2239
R-61 S1	1125	02/07/12	WG	Dissolved Oxygen	1.18	mg/L	CAMO-12-2241
R-61 S1	1125	02/07/12	WG	Dissolved Oxygen	0.74	mg/L	CAMO-12-2243
R-61 S1	1125	11/21/11	WG	Dissolved Oxygen	2.11	mg/L	CAMO-12-1511
R-61 S1	1125	11/21/11	WG	Dissolved Oxygen	2.11	mg/L	CAMO-12-1433
R-61 S1	1125	11/21/11	WG	Dissolved Oxygen	0.49	mg/L	CAMO-12-1429
R-61 S1	1125	11/21/11	WG	Dissolved Oxygen	1.06	mg/L	CAMO-12-1431
R-61 S1	1125	11/15/11	WG	Dissolved Oxygen	0.79	mg/L	CAMO-12-1419
R-61 S1	1125	11/15/11	WG	Dissolved Oxygen	3.03	mg/L	CAMO-12-1425
R-61 S1	1125	11/15/11	WG	Dissolved Oxygen	2.4	mg/L	CAMO-12-1423

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-61 S1	1125	11/15/11	WG	Dissolved Oxygen	1.42	mg/L	CAMO-12-1421
R-61 S1	1125	11/15/12	WG	Oxidation-Reduction Potential	202.1	mV	CAMO-13-24251
R-61 S1	1125	05/09/12	WG	Oxidation-Reduction Potential	-74.3	mV	CAMO-12-13963
R-61 S1	1125	05/09/12	WG	Oxidation-Reduction Potential	-52.2	mV	CAMO-12-13962
R-61 S1	1125	05/09/12	WG	Oxidation-Reduction Potential	-42.1	mV	CAMO-12-13964
R-61 S1	1125	05/09/12	WG	Oxidation-Reduction Potential	-23.5	mV	CAMO-12-13965
R-61 S1	1125	02/07/12	WG	Oxidation-Reduction Potential	-98.6	mV	CAMO-12-2243
R-61 S1	1125	02/07/12	WG	Oxidation-Reduction Potential	-13.6	mV	CAMO-12-2248
R-61 S1	1125	02/07/12	WG	Oxidation-Reduction Potential	-13.6	mV	CAMO-12-2229
R-61 S1	1125	02/07/12	WG	Oxidation-Reduction Potential	-39.9	mV	CAMO-12-2236
R-61 S1	1125	02/07/12	WG	Oxidation-Reduction Potential	-62.2	mV	CAMO-12-2238
R-61 S1	1125	02/07/12	WG	Oxidation-Reduction Potential	-74.2	mV	CAMO-12-2241
R-61 S1	1125	02/07/12	WG	Oxidation-Reduction Potential	-142.6	mV	CAMO-12-2245
R-61 S1	1125	02/07/12	WG	Oxidation-Reduction Potential	-67.1	mV	CAMO-12-2239
R-61 S1	1125	11/21/11	WG	Oxidation-Reduction Potential	-72.3	mV	CAMO-12-1511
R-61 S1	1125	11/21/11	WG	Oxidation-Reduction Potential	-72.3	mV	CAMO-12-1433
R-61 S1	1125	11/21/11	WG	Oxidation-Reduction Potential	-83.9	mV	CAMO-12-1431
R-61 S1	1125	11/21/11	WG	Oxidation-Reduction Potential	-89.5	mV	CAMO-12-1429
R-61 S1	1125	11/15/11	WG	Oxidation-Reduction Potential	-85.5	mV	CAMO-12-1423
R-61 S1	1125	11/15/11	WG	Oxidation-Reduction Potential	-85.4	mV	CAMO-12-1421
R-61 S1	1125	11/15/11	WG	Oxidation-Reduction Potential	-96.5	mV	CAMO-12-1419
R-61 S1	1125	11/15/11	WG	Oxidation-Reduction Potential	-76.1	mV	CAMO-12-1425
R-61 S1	1125	11/15/12	WG	pH	6.53	SU	CAMO-13-24251
R-61 S1	1125	05/09/12	WG	pH	7.07	SU	CAMO-12-13963
R-61 S1	1125	05/09/12	WG	pH	7.04	SU	CAMO-12-13964
R-61 S1	1125	05/09/12	WG	pH	7	SU	CAMO-12-13965
R-61 S1	1125	05/09/12	WG	pH	6.65	SU	CAMO-12-13962
R-61 S1	1125	02/07/12	WG	pH	6.93	SU	CAMO-12-2241

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-61 S1	1125	02/07/12	WG	pH	7.08	SU	CAMO-12-2248
R-61 S1	1125	02/07/12	WG	pH	7.08	SU	CAMO-12-2229
R-61 S1	1125	02/07/12	WG	pH	7.03	SU	CAMO-12-2245
R-61 S1	1125	02/07/12	WG	pH	7.03	SU	CAMO-12-2236
R-61 S1	1125	02/07/12	WG	pH	7.02	SU	CAMO-12-2243
R-61 S1	1125	02/07/12	WG	pH	6.99	SU	CAMO-12-2238
R-61 S1	1125	02/07/12	WG	pH	6.94	SU	CAMO-12-2239
R-61 S1	1125	11/21/11	WG	pH	7.23	SU	CAMO-12-1511
R-61 S1	1125	11/21/11	WG	pH	7.23	SU	CAMO-12-1433
R-61 S1	1125	11/21/11	WG	pH	7.23	SU	CAMO-12-1429
R-61 S1	1125	11/21/11	WG	pH	7.2	SU	CAMO-12-1431
R-61 S1	1125	11/15/11	WG	pH	7.11	SU	CAMO-12-1425
R-61 S1	1125	11/15/11	WG	pH	7.01	SU	CAMO-12-1423
R-61 S1	1125	11/15/11	WG	pH	6.91	SU	CAMO-12-1421
R-61 S1	1125	11/15/11	WG	pH	6.89	SU	CAMO-12-1419
R-61 S1	1125	11/15/12	WG	Specific Conductance	180	µS/cm	CAMO-13-24251
R-61 S1	1125	05/09/12	WG	Specific Conductance	157	µS/cm	CAMO-12-13965
R-61 S1	1125	05/09/12	WG	Specific Conductance	172	µS/cm	CAMO-12-13963
R-61 S1	1125	05/09/12	WG	Specific Conductance	157	µS/cm	CAMO-12-13964
R-61 S1	1125	05/09/12	WG	Specific Conductance	200	µS/cm	CAMO-12-13962
R-61 S1	1125	02/07/12	WG	Specific Conductance	139	µS/cm	CAMO-12-2229
R-61 S1	1125	02/07/12	WG	Specific Conductance	139	µS/cm	CAMO-12-2248
R-61 S1	1125	02/07/12	WG	Specific Conductance	148	µS/cm	CAMO-12-2236
R-61 S1	1125	02/07/12	WG	Specific Conductance	163	µS/cm	CAMO-12-2238
R-61 S1	1125	02/07/12	WG	Specific Conductance	171	µS/cm	CAMO-12-2243
R-61 S1	1125	02/07/12	WG	Specific Conductance	173	µS/cm	CAMO-12-2239
R-61 S1	1125	02/07/12	WG	Specific Conductance	175	µS/cm	CAMO-12-2241
R-61 S1	1125	02/07/12	WG	Specific Conductance	189	µS/cm	CAMO-12-2245

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-61 S1	1125	11/21/11	WG	Specific Conductance	143	µS/cm	CAMO-12-1511
R-61 S1	1125	11/21/11	WG	Specific Conductance	172	µS/cm	CAMO-12-1431
R-61 S1	1125	11/21/11	WG	Specific Conductance	177	µS/cm	CAMO-12-1429
R-61 S1	1125	11/21/11	WG	Specific Conductance	143	µS/cm	CAMO-12-1433
R-61 S1	1125	11/15/11	WG	Specific Conductance	194	µS/cm	CAMO-12-1423
R-61 S1	1125	11/15/11	WG	Specific Conductance	186	µS/cm	CAMO-12-1425
R-61 S1	1125	11/15/11	WG	Specific Conductance	203	µS/cm	CAMO-12-1419
R-61 S1	1125	11/15/11	WG	Specific Conductance	199	µS/cm	CAMO-12-1421
R-61 S1	1125	11/15/12	WG	Temperature	19.4	deg C	CAMO-13-24251
R-61 S1	1125	05/09/12	WG	Temperature	21.28	deg C	CAMO-12-13965
R-61 S1	1125	05/09/12	WG	Temperature	20.86	deg C	CAMO-12-13964
R-61 S1	1125	05/09/12	WG	Temperature	20.38	deg C	CAMO-12-13963
R-61 S1	1125	05/09/12	WG	Temperature	20.09	deg C	CAMO-12-13962
R-61 S1	1125	02/07/12	WG	Temperature	18.59	deg C	CAMO-12-2229
R-61 S1	1125	02/07/12	WG	Temperature	18.17	deg C	CAMO-12-2241
R-61 S1	1125	02/07/12	WG	Temperature	16.93	deg C	CAMO-12-2239
R-61 S1	1125	02/07/12	WG	Temperature	16.66	deg C	CAMO-12-2243
R-61 S1	1125	02/07/12	WG	Temperature	13.46	deg C	CAMO-12-2245
R-61 S1	1125	02/07/12	WG	Temperature	19.99	deg C	CAMO-12-2238
R-61 S1	1125	02/07/12	WG	Temperature	18.59	deg C	CAMO-12-2248
R-61 S1	1125	02/07/12	WG	Temperature	19	deg C	CAMO-12-2236
R-61 S1	1125	11/21/11	WG	Temperature	17.83	deg C	CAMO-12-1429
R-61 S1	1125	11/21/11	WG	Temperature	20.08	deg C	CAMO-12-1431
R-61 S1	1125	11/21/11	WG	Temperature	19.9	deg C	CAMO-12-1511
R-61 S1	1125	11/21/11	WG	Temperature	19.9	deg C	CAMO-12-1433
R-61 S1	1125	11/15/11	WG	Temperature	16.94	deg C	CAMO-12-1425
R-61 S1	1125	11/15/11	WG	Temperature	14.98	deg C	CAMO-12-1421
R-61 S1	1125	11/15/11	WG	Temperature	14.4	deg C	CAMO-12-1419

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-61 S1	1125	11/15/11	WG	Temperature	16.96	deg C	CAMO-12-1423
R-61 S1	1125	11/15/12	WG	Turbidity	4.55	NTU	CAMO-13-24251
R-61 S1	1125	05/09/12	WG	Turbidity	1.29	NTU	CAMO-12-13965
R-61 S1	1125	05/09/12	WG	Turbidity	5.86	NTU	CAMO-12-13963
R-61 S1	1125	05/09/12	WG	Turbidity	4.49	NTU	CAMO-12-13964
R-61 S1	1125	05/09/12	WG	Turbidity	2.86	NTU	CAMO-12-13962
R-61 S1	1125	02/07/12	WG	Turbidity	4.35	NTU	CAMO-12-2229
R-61 S1	1125	02/07/12	WG	Turbidity	4.35	NTU	CAMO-12-2248
R-61 S1	1125	02/07/12	WG	Turbidity	2.71	NTU	CAMO-12-2243
R-61 S1	1125	02/07/12	WG	Turbidity	1.8	NTU	CAMO-12-2241
R-61 S1	1125	02/07/12	WG	Turbidity	1.61	NTU	CAMO-12-2236
R-61 S1	1125	02/07/12	WG	Turbidity	1.43	NTU	CAMO-12-2239
R-61 S1	1125	02/07/12	WG	Turbidity	1.32	NTU	CAMO-12-2245
R-61 S1	1125	02/07/12	WG	Turbidity	1.24	NTU	CAMO-12-2238
R-61 S1	1125	11/21/11	WG	Turbidity	2.75	NTU	CAMO-12-1429
R-61 S1	1125	11/21/11	WG	Turbidity	1.74	NTU	CAMO-12-1511
R-61 S1	1125	11/21/11	WG	Turbidity	1.74	NTU	CAMO-12-1433
R-61 S1	1125	11/21/11	WG	Turbidity	1.67	NTU	CAMO-12-1431
R-61 S1	1125	11/15/11	WG	Turbidity	3.78	NTU	CAMO-12-1421
R-61 S1	1125	11/15/11	WG	Turbidity	3.41	NTU	CAMO-12-1423
R-61 S1	1125	11/15/11	WG	Turbidity	2.3	NTU	CAMO-12-1419
R-61 S1	1125	11/15/11	WG	Turbidity	2.26	NTU	CAMO-12-1425
R-61 S2	1220.4	11/15/12	WG	Dissolved Oxygen	3.34	mg/L	CAMO-13-24252
R-61 S2	1220.4	05/09/12	WG	Dissolved Oxygen	0.3	mg/L	CAMO-12-13967
R-61 S2	1220.4	05/09/12	WG	Dissolved Oxygen	0.42	mg/L	CAMO-12-13969
R-61 S2	1220.4	05/09/12	WG	Dissolved Oxygen	0.39	mg/L	CAMO-12-13968
R-61 S2	1220.4	05/09/12	WG	Dissolved Oxygen	1.18	mg/L	CAMO-12-13966
R-61 S2	1220.4	02/08/12	WG	Dissolved Oxygen	0.23	mg/L	CAMO-12-2258

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-61 S2	1220.4	02/08/12	WG	Dissolved Oxygen	0.27	mg/L	CAMO-12-2256
R-61 S2	1220.4	02/08/12	WG	Dissolved Oxygen	0.39	mg/L	CAMO-12-2253
R-61 S2	1220.4	02/08/12	WG	Dissolved Oxygen	1.11	mg/L	CAMO-12-2251
R-61 S2	1220.4	02/08/12	WG	Dissolved Oxygen	2.11	mg/L	CAMO-12-2232
R-61 S2	1220.4	02/08/12	WG	Dissolved Oxygen	7.07	mg/L	CAMO-12-2259
R-61 S2	1220.4	11/18/11	WG	Dissolved Oxygen	1.17	mg/L	CAMO-12-1445
R-61 S2	1220.4	11/18/11	WG	Dissolved Oxygen	1.48	mg/L	CAMO-12-1447
R-61 S2	1220.4	11/18/11	WG	Dissolved Oxygen	1.76	mg/L	CAMO-12-1449
R-61 S2	1220.4	11/18/11	WG	Dissolved Oxygen	1.76	mg/L	CAMO-12-1516
R-61 S2	1220.4	11/18/11	WG	Dissolved Oxygen	0.3	mg/L	CAMO-12-1443
R-61 S2	1220.4	11/14/11	WG	Dissolved Oxygen	0.71	mg/L	CAMO-12-1439
R-61 S2	1220.4	11/14/11	WG	Dissolved Oxygen	0.26	mg/L	CAMO-12-1435
R-61 S2	1220.4	11/14/11	WG	Dissolved Oxygen	1.43	mg/L	CAMO-12-1441
R-61 S2	1220.4	11/14/11	WG	Dissolved Oxygen	0.47	mg/L	CAMO-12-1437
R-61 S2	1220.4	11/15/12	WG	Oxidation-Reduction Potential	48.7	mV	CAMO-13-24252
R-61 S2	1220.4	05/09/12	WG	Oxidation-Reduction Potential	-59.4	mV	CAMO-12-13969
R-61 S2	1220.4	05/09/12	WG	Oxidation-Reduction Potential	-77.3	mV	CAMO-12-13967
R-61 S2	1220.4	05/09/12	WG	Oxidation-Reduction Potential	-78.1	mV	CAMO-12-13968
R-61 S2	1220.4	05/09/12	WG	Oxidation-Reduction Potential	-148.9	mV	CAMO-12-13966
R-61 S2	1220.4	02/08/12	WG	Oxidation-Reduction Potential	-100.3	mV	CAMO-12-2253
R-61 S2	1220.4	02/08/12	WG	Oxidation-Reduction Potential	160.8	mV	CAMO-12-2259
R-61 S2	1220.4	02/08/12	WG	Oxidation-Reduction Potential	-61.6	mV	CAMO-12-2232
R-61 S2	1220.4	02/08/12	WG	Oxidation-Reduction Potential	-77.9	mV	CAMO-12-2251
R-61 S2	1220.4	02/08/12	WG	Oxidation-Reduction Potential	-102.1	mV	CAMO-12-2256
R-61 S2	1220.4	02/08/12	WG	Oxidation-Reduction Potential	-100.1	mV	CAMO-12-2258
R-61 S2	1220.4	11/18/11	WG	Oxidation-Reduction Potential	-82.3	mV	CAMO-12-1447
R-61 S2	1220.4	11/18/11	WG	Oxidation-Reduction Potential	-83.3	mV	CAMO-12-1445
R-61 S2	1220.4	11/18/11	WG	Oxidation-Reduction Potential	-104.8	mV	CAMO-12-1443

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-61 S2	1220.4	11/18/11	WG	Oxidation-Reduction Potential	-80.3	mV	CAMO-12-1449
R-61 S2	1220.4	11/18/11	WG	Oxidation-Reduction Potential	-80.3	mV	CAMO-12-1516
R-61 S2	1220.4	11/14/11	WG	Oxidation-Reduction Potential	-86.7	mV	CAMO-12-1441
R-61 S2	1220.4	11/14/11	WG	Oxidation-Reduction Potential	-97.2	mV	CAMO-12-1439
R-61 S2	1220.4	11/14/11	WG	Oxidation-Reduction Potential	-100.6	mV	CAMO-12-1437
R-61 S2	1220.4	11/14/11	WG	Oxidation-Reduction Potential	-115.6	mV	CAMO-12-1435
R-61 S2	1220.4	11/15/12	WG	pH	6.46	SU	CAMO-13-24252
R-61 S2	1220.4	05/09/12	WG	pH	6.81	SU	CAMO-12-13969
R-61 S2	1220.4	05/09/12	WG	pH	6.82	SU	CAMO-12-13967
R-61 S2	1220.4	05/09/12	WG	pH	6.82	SU	CAMO-12-13968
R-61 S2	1220.4	05/09/12	WG	pH	7.13	SU	CAMO-12-13966
R-61 S2	1220.4	02/08/12	WG	pH	7.14	SU	CAMO-12-2256
R-61 S2	1220.4	02/08/12	WG	pH	7.21	SU	CAMO-12-2232
R-61 S2	1220.4	02/08/12	WG	pH	7.17	SU	CAMO-12-2253
R-61 S2	1220.4	02/08/12	WG	pH	6.99	SU	CAMO-12-2259
R-61 S2	1220.4	02/08/12	WG	pH	7	SU	CAMO-12-2258
R-61 S2	1220.4	02/08/12	WG	pH	7.12	SU	CAMO-12-2251
R-61 S2	1220.4	11/18/11	WG	pH	6.95	SU	CAMO-12-1443
R-61 S2	1220.4	11/18/11	WG	pH	7.02	SU	CAMO-12-1449
R-61 S2	1220.4	11/18/11	WG	pH	6.96	SU	CAMO-12-1447
R-61 S2	1220.4	11/18/11	WG	pH	6.95	SU	CAMO-12-1445
R-61 S2	1220.4	11/18/11	WG	pH	7.02	SU	CAMO-12-1516
R-61 S2	1220.4	11/14/11	WG	pH	6.84	SU	CAMO-12-1435
R-61 S2	1220.4	11/14/11	WG	pH	6.88	SU	CAMO-12-1441
R-61 S2	1220.4	11/14/11	WG	pH	6.85	SU	CAMO-12-1439
R-61 S2	1220.4	11/14/11	WG	pH	6.84	SU	CAMO-12-1437
R-61 S2	1220.4	11/15/12	WG	Specific Conductance	199	µS/cm	CAMO-13-24252
R-61 S2	1220.4	05/09/12	WG	Specific Conductance	220	µS/cm	CAMO-12-13968

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-61 S2	1220.4	05/09/12	WG	Specific Conductance	193	µS/cm	CAMO-12-13966
R-61 S2	1220.4	05/09/12	WG	Specific Conductance	175	µS/cm	CAMO-12-13969
R-61 S2	1220.4	05/09/12	WG	Specific Conductance	243	µS/cm	CAMO-12-13967
R-61 S2	1220.4	02/08/12	WG	Specific Conductance	154	µS/cm	CAMO-12-2232
R-61 S2	1220.4	02/08/12	WG	Specific Conductance	167	µS/cm	CAMO-12-2259
R-61 S2	1220.4	02/08/12	WG	Specific Conductance	178	µS/cm	CAMO-12-2256
R-61 S2	1220.4	02/08/12	WG	Specific Conductance	180	µS/cm	CAMO-12-2251
R-61 S2	1220.4	02/08/12	WG	Specific Conductance	215	µS/cm	CAMO-12-2253
R-61 S2	1220.4	02/08/12	WG	Specific Conductance	241	µS/cm	CAMO-12-2258
R-61 S2	1220.4	11/18/11	WG	Specific Conductance	141	µS/cm	CAMO-12-1449
R-61 S2	1220.4	11/18/11	WG	Specific Conductance	141	µS/cm	CAMO-12-1516
R-61 S2	1220.4	11/18/11	WG	Specific Conductance	149	µS/cm	CAMO-12-1445
R-61 S2	1220.4	11/18/11	WG	Specific Conductance	170	µS/cm	CAMO-12-1443
R-61 S2	1220.4	11/18/11	WG	Specific Conductance	136	µS/cm	CAMO-12-1447
R-61 S2	1220.4	11/14/11	WG	Specific Conductance	197	µS/cm	CAMO-12-1439
R-61 S2	1220.4	11/14/11	WG	Specific Conductance	156	µS/cm	CAMO-12-1441
R-61 S2	1220.4	11/14/11	WG	Specific Conductance	213	µS/cm	CAMO-12-1437
R-61 S2	1220.4	11/14/11	WG	Specific Conductance	257	µS/cm	CAMO-12-1435
R-61 S2	1220.4	11/15/12	WG	Temperature	19.28	deg C	CAMO-13-24252
R-61 S2	1220.4	05/09/12	WG	Temperature	20.96	deg C	CAMO-12-13969
R-61 S2	1220.4	05/09/12	WG	Temperature	19.64	deg C	CAMO-12-13968
R-61 S2	1220.4	05/09/12	WG	Temperature	19.07	deg C	CAMO-12-13967
R-61 S2	1220.4	05/09/12	WG	Temperature	16.14	deg C	CAMO-12-13966
R-61 S2	1220.4	02/08/12	WG	Temperature	19.74	deg C	CAMO-12-2251
R-61 S2	1220.4	02/08/12	WG	Temperature	20.8	deg C	CAMO-12-2232
R-61 S2	1220.4	02/08/12	WG	Temperature	20.06	deg C	CAMO-12-2258
R-61 S2	1220.4	02/08/12	WG	Temperature	19.89	deg C	CAMO-12-2256
R-61 S2	1220.4	02/08/12	WG	Temperature	15.85	deg C	CAMO-12-2259

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-61 S2	1220.4	02/08/12	WG	Temperature	17.91	deg C	CAMO-12-2253
R-61 S2	1220.4	11/18/11	WG	Temperature	19.5	deg C	CAMO-12-1445
R-61 S2	1220.4	11/18/11	WG	Temperature	20.33	deg C	CAMO-12-1447
R-61 S2	1220.4	11/18/11	WG	Temperature	20.26	deg C	CAMO-12-1516
R-61 S2	1220.4	11/18/11	WG	Temperature	20.26	deg C	CAMO-12-1449
R-61 S2	1220.4	11/18/11	WG	Temperature	19.53	deg C	CAMO-12-1443
R-61 S2	1220.4	11/14/11	WG	Temperature	18.67	deg C	CAMO-12-1441
R-61 S2	1220.4	11/14/11	WG	Temperature	18.59	deg C	CAMO-12-1439
R-61 S2	1220.4	11/14/11	WG	Temperature	18.57	deg C	CAMO-12-1435
R-61 S2	1220.4	11/14/11	WG	Temperature	18.68	deg C	CAMO-12-1437
R-61 S2	1220.4	11/15/12	WG	Turbidity	6.19	NTU	CAMO-13-24252
R-61 S2	1220.4	05/09/12	WG	Turbidity	0.91	NTU	CAMO-12-13967
R-61 S2	1220.4	05/09/12	WG	Turbidity	0.84	NTU	CAMO-12-13969
R-61 S2	1220.4	05/09/12	WG	Turbidity	0.96	NTU	CAMO-12-13968
R-61 S2	1220.4	05/09/12	WG	Turbidity	3.03	NTU	CAMO-12-13966
R-61 S2	1220.4	02/08/12	WG	Turbidity	1.12	NTU	CAMO-12-2258
R-61 S2	1220.4	02/08/12	WG	Turbidity	9.86	NTU	CAMO-12-2259
R-61 S2	1220.4	02/08/12	WG	Turbidity	0.94	NTU	CAMO-12-2256
R-61 S2	1220.4	02/08/12	WG	Turbidity	0.85	NTU	CAMO-12-2253
R-61 S2	1220.4	02/08/12	WG	Turbidity	0.79	NTU	CAMO-12-2232
R-61 S2	1220.4	02/08/12	WG	Turbidity	0.77	NTU	CAMO-12-2251
R-61 S2	1220.4	11/18/11	WG	Turbidity	2.43	NTU	CAMO-12-1443
R-61 S2	1220.4	11/18/11	WG	Turbidity	1.45	NTU	CAMO-12-1445
R-61 S2	1220.4	11/18/11	WG	Turbidity	1.27	NTU	CAMO-12-1447
R-61 S2	1220.4	11/18/11	WG	Turbidity	0.89	NTU	CAMO-12-1516
R-61 S2	1220.4	11/18/11	WG	Turbidity	0.89	NTU	CAMO-12-1449
R-61 S2	1220.4	11/14/11	WG	Turbidity	2	NTU	CAMO-12-1437
R-61 S2	1220.4	11/14/11	WG	Turbidity	1.43	NTU	CAMO-12-1439

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-61 S2	1220.4	11/14/11	WG	Turbidity	1.11	NTU	CAMO-12-1441
R-61 S2	1220.4	11/14/11	WG	Turbidity	2.51	NTU	CAMO-12-1435
R-62	1158.4	11/08/12	WG	Dissolved Oxygen	6.34	mg/L	CAMO-13-24533
R-62	1158.4	11/08/12	WG	Dissolved Oxygen	6.78	mg/L	CAMO-13-24537
R-62	1158.4	11/08/12	WG	Dissolved Oxygen	6.56	mg/L	CAMO-13-24534
R-62	1158.4	11/08/12	WG	Dissolved Oxygen	5.41	mg/L	CAMO-13-24253
R-62	1158.4	08/08/12	WG	Dissolved Oxygen	6.01	mg/L	CAMO-12-21741
R-62	1158.4	06/06/12	WG	Dissolved Oxygen	5.34	mg/L	CAMO-12-14018
R-62	1158.4	03/26/12	WG	Dissolved Oxygen	6.22	mg/L	CAMO-12-12025
R-62	1158.4	11/08/12	WG	Oxidation-Reduction Potential	57.9	mV	CAMO-13-24253
R-62	1158.4	11/08/12	WG	Oxidation-Reduction Potential	60.9	mV	CAMO-13-24533
R-62	1158.4	11/08/12	WG	Oxidation-Reduction Potential	67.1	mV	CAMO-13-24534
R-62	1158.4	11/08/12	WG	Oxidation-Reduction Potential	68.1	mV	CAMO-13-24537
R-62	1158.4	08/08/12	WG	Oxidation-Reduction Potential	72.7	mV	CAMO-12-21741
R-62	1158.4	06/06/12	WG	Oxidation-Reduction Potential	208	mV	CAMO-12-14018
R-62	1158.4	03/26/12	WG	Oxidation-Reduction Potential	120.2	mV	CAMO-12-12025
R-62	1158.4	11/08/12	WG	pH	8.44	SU	CAMO-13-24534
R-62	1158.4	11/08/12	WG	pH	8.54	SU	CAMO-13-24533
R-62	1158.4	11/08/12	WG	pH	8.77	SU	CAMO-13-24253
R-62	1158.4	11/08/12	WG	pH	8.37	SU	CAMO-13-24537
R-62	1158.4	08/08/12	WG	pH	8.31	SU	CAMO-12-21741
R-62	1158.4	06/06/12	WG	pH	8.72	SU	CAMO-12-14018
R-62	1158.4	03/26/12	WG	pH	8.62	SU	CAMO-12-12025
R-62	1158.4	11/08/12	WG	Specific Conductance	188	µS/cm	CAMO-13-24253
R-62	1158.4	11/08/12	WG	Specific Conductance	188	µS/cm	CAMO-13-24533
R-62	1158.4	11/08/12	WG	Specific Conductance	190	µS/cm	CAMO-13-24537
R-62	1158.4	11/08/12	WG	Specific Conductance	190	µS/cm	CAMO-13-24534
R-62	1158.4	08/08/12	WG	Specific Conductance	165	µS/cm	CAMO-12-21741

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-62	1158.4	06/06/12	WG	Specific Conductance	172	µS/cm	CAMO-12-14018
R-62	1158.4	03/26/12	WG	Specific Conductance	188	µS/cm	CAMO-12-12025
R-62	1158.4	11/08/12	WG	Temperature	19.84	deg C	CAMO-13-24533
R-62	1158.4	11/08/12	WG	Temperature	20	deg C	CAMO-13-24534
R-62	1158.4	11/08/12	WG	Temperature	19.92	deg C	CAMO-13-24537
R-62	1158.4	11/08/12	WG	Temperature	19.22	deg C	CAMO-13-24253
R-62	1158.4	08/08/12	WG	Temperature	21.83	deg C	CAMO-12-21741
R-62	1158.4	06/06/12	WG	Temperature	22.32	deg C	CAMO-12-14018
R-62	1158.4	03/26/12	WG	Temperature	19.6	deg C	CAMO-12-12025
R-62	1158.4	11/08/12	WG	Turbidity	1.02	NTU	CAMO-13-24534
R-62	1158.4	11/08/12	WG	Turbidity	1.64	NTU	CAMO-13-24533
R-62	1158.4	11/08/12	WG	Turbidity	2.95	NTU	CAMO-13-24537
R-62	1158.4	11/08/12	WG	Turbidity	0.55	NTU	CAMO-13-24253
R-62	1158.4	08/08/12	WG	Turbidity	0.65	NTU	CAMO-12-21741
R-62	1158.4	06/06/12	WG	Turbidity	2.51	NTU	CAMO-12-14018
R-62	1158.4	03/26/12	WG	Turbidity	6.15	NTU	CAMO-12-12025
SCI-1	358.4	11/02/12	WG	Dissolved Oxygen	8.96	mg/L	CASA-13-24215
SCI-1	358.4	05/21/12	WG	Dissolved Oxygen	8.84	mg/L	CASA-12-14060
SCI-1	358.4	05/21/12	WG	Dissolved Oxygen	8.84	mg/L	CASA-12-14065
SCI-1	358.4	11/16/11	WG	Dissolved Oxygen	8.96	mg/L	CASA-12-1373
SCI-1	358.4	08/16/11	WG	Dissolved Oxygen	8.89	mg/L	CASA-11-24841
SCI-1	358.4	08/16/11	WG	Dissolved Oxygen	8.78	mg/L	CASA-11-24834
SCI-1	358.4	08/16/11	WG	Dissolved Oxygen	8.78	mg/L	CASA-11-24764
SCI-1	358.4	08/16/11	WG	Dissolved Oxygen	8.94	mg/L	CASA-11-24843
SCI-1	358.4	05/24/11	WG	Dissolved Oxygen	8.93	mg/L	CASA-11-11651
SCI-1	358.4	05/24/11	WG	Dissolved Oxygen	8.78	mg/L	CASA-11-10805
SCI-1	358.4	11/02/12	WG	Oxidation-Reduction Potential	165.3	mV	CASA-13-24215
SCI-1	358.4	05/21/12	WG	Oxidation-Reduction Potential	216.4	mV	CASA-12-14060

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
SCI-1	358.4	05/21/12	WG	Oxidation-Reduction Potential	216.4	mV	CASA-12-14065
SCI-1	358.4	11/16/11	WG	Oxidation-Reduction Potential	229.8	mV	CASA-12-1373
SCI-1	358.4	08/16/11	WG	Oxidation-Reduction Potential	113.1	mV	CASA-11-24841
SCI-1	358.4	08/16/11	WG	Oxidation-Reduction Potential	102.6	mV	CASA-11-24843
SCI-1	358.4	08/16/11	WG	Oxidation-Reduction Potential	149.3	mV	CASA-11-24834
SCI-1	358.4	08/16/11	WG	Oxidation-Reduction Potential	149.3	mV	CASA-11-24764
SCI-1	358.4	05/24/11	WG	Oxidation-Reduction Potential	227.5	mV	CASA-11-11651
SCI-1	358.4	05/24/11	WG	Oxidation-Reduction Potential	225	mV	CASA-11-10805
SCI-1	358.4	11/02/12	WG	pH	7.09	SU	CASA-13-24215
SCI-1	358.4	05/21/12	WG	pH	6.95	SU	CASA-12-14065
SCI-1	358.4	05/21/12	WG	pH	6.95	SU	CASA-12-14060
SCI-1	358.4	11/16/11	WG	pH	7.13	SU	CASA-12-1373
SCI-1	358.4	08/16/11	WG	pH	7.11	SU	CASA-11-24834
SCI-1	358.4	08/16/11	WG	pH	7.18	SU	CASA-11-24843
SCI-1	358.4	08/16/11	WG	pH	7.11	SU	CASA-11-24764
SCI-1	358.4	08/16/11	WG	pH	7.19	SU	CASA-11-24841
SCI-1	358.4	05/24/11	WG	pH	7.14	SU	CASA-11-11651
SCI-1	358.4	05/24/11	WG	pH	7.1	SU	CASA-11-10805
SCI-1	358.4	11/02/12	WG	Specific Conductance	695	µS/cm	CASA-13-24215
SCI-1	358.4	05/21/12	WG	Specific Conductance	713	µS/cm	CASA-12-14065
SCI-1	358.4	05/21/12	WG	Specific Conductance	713	µS/cm	CASA-12-14060
SCI-1	358.4	11/16/11	WG	Specific Conductance	712	µS/cm	CASA-12-1373
SCI-1	358.4	08/16/11	WG	Specific Conductance	750	µS/cm	CASA-11-24834
SCI-1	358.4	08/16/11	WG	Specific Conductance	752	µS/cm	CASA-11-24843
SCI-1	358.4	08/16/11	WG	Specific Conductance	750	µS/cm	CASA-11-24764
SCI-1	358.4	08/16/11	WG	Specific Conductance	754	µS/cm	CASA-11-24841
SCI-1	358.4	05/24/11	WG	Specific Conductance	705	µS/cm	CASA-11-10805
SCI-1	358.4	05/24/11	WG	Specific Conductance	716	µS/cm	CASA-11-11651

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
SCI-1	358.4	11/02/12	WG	Temperature	10.28	deg C	CASA-13-24215
SCI-1	358.4	05/21/12	WG	Temperature	10.95	deg C	CASA-12-14065
SCI-1	358.4	05/21/12	WG	Temperature	10.95	deg C	CASA-12-14060
SCI-1	358.4	11/16/11	WG	Temperature	9.71	deg C	CASA-12-1373
SCI-1	358.4	08/16/11	WG	Temperature	11.1	deg C	CASA-11-24843
SCI-1	358.4	08/16/11	WG	Temperature	10.95	deg C	CASA-11-24764
SCI-1	358.4	08/16/11	WG	Temperature	10.85	deg C	CASA-11-24834
SCI-1	358.4	08/16/11	WG	Temperature	11.43	deg C	CASA-11-24841
SCI-1	358.4	05/24/11	WG	Temperature	10.23	deg C	CASA-11-10805
SCI-1	358.4	05/24/11	WG	Temperature	10.18	deg C	CASA-11-11651
SCI-1	358.4	11/02/12	WG	Turbidity	3.47	NTU	CASA-13-24215
SCI-1	358.4	05/21/12	WG	Turbidity	4.15	NTU	CASA-12-14065
SCI-1	358.4	05/21/12	WG	Turbidity	4.15	NTU	CASA-12-14060
SCI-1	358.4	11/16/11	WG	Turbidity	9.88	NTU	CASA-12-1373
SCI-1	358.4	08/16/11	WG	Turbidity	5.83	NTU	CASA-11-24764
SCI-1	358.4	08/16/11	WG	Turbidity	7.39	NTU	CASA-11-24841
SCI-1	358.4	08/16/11	WG	Turbidity	5.83	NTU	CASA-11-24834
SCI-1	358.4	08/16/11	WG	Turbidity	10.2	NTU	CASA-11-24843
SCI-1	358.4	05/24/11	WG	Turbidity	18.1	NTU	CASA-11-10805
SCI-1	358.4	05/24/11	WG	Turbidity	18.9	NTU	CASA-11-11651
SCI-2	548	11/05/12	WG	Dissolved Oxygen	9.77	mg/L	CASA-13-24216
SCI-2	548	08/13/12	WG	Dissolved Oxygen	8.23	mg/L	CASA-12-21646
SCI-2	548	05/23/12	WG	Dissolved Oxygen	8.62	mg/L	CASA-12-14061
SCI-2	548	03/05/12	WG	Dissolved Oxygen	9.43	mg/L	CASA-12-11712
SCI-2	548	08/11/11	WG	Dissolved Oxygen	9.79	mg/L	CASA-11-24765
SCI-2	548	11/05/12	WG	Oxidation-Reduction Potential	149.1	mV	CASA-13-24216
SCI-2	548	08/13/12	WG	Oxidation-Reduction Potential	170.4	mV	CASA-12-21646
SCI-2	548	05/23/12	WG	Oxidation-Reduction Potential	229	mV	CASA-12-14061

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
SCI-2	548	03/05/12	WG	Oxidation-Reduction Potential	21.5	mV	CASA-12-11712
SCI-2	548	08/11/11	WG	Oxidation-Reduction Potential	90.4	mV	CASA-11-24765
SCI-2	548	11/05/12	WG	pH	7.46	SU	CASA-13-24216
SCI-2	548	08/13/12	WG	pH	8.15	SU	CASA-12-21646
SCI-2	548	05/23/12	WG	pH	7.45	SU	CASA-12-14061
SCI-2	548	03/05/12	WG	pH	7.5	SU	CASA-12-11712
SCI-2	548	08/11/11	WG	pH	7.49	SU	CASA-11-24765
SCI-2	548	11/05/12	WG	Specific Conductance	590	µS/cm	CASA-13-24216
SCI-2	548	08/13/12	WG	Specific Conductance	592	µS/cm	CASA-12-21646
SCI-2	548	05/23/12	WG	Specific Conductance	564	µS/cm	CASA-12-14061
SCI-2	548	03/05/12	WG	Specific Conductance	609	µS/cm	CASA-12-11712
SCI-2	548	08/11/11	WG	Specific Conductance	590	µS/cm	CASA-11-24765
SCI-2	548	11/05/12	WG	Temperature	14.35	deg C	CASA-13-24216
SCI-2	548	08/13/12	WG	Temperature	16.08	deg C	CASA-12-21646
SCI-2	548	05/23/12	WG	Temperature	17.02	deg C	CASA-12-14061
SCI-2	548	03/05/12	WG	Temperature	14.1	deg C	CASA-12-11712
SCI-2	548	08/11/11	WG	Temperature	14.52	deg C	CASA-11-24765
SCI-2	548	11/05/12	WG	Turbidity	3.15	NTU	CASA-13-24216
SCI-2	548	08/13/12	WG	Turbidity	4.22	NTU	CASA-12-21646
SCI-2	548	05/23/12	WG	Turbidity	3.51	NTU	CASA-12-14061
SCI-2	548	03/05/12	WG	Turbidity	0.73	NTU	CASA-12-11712
SCI-2	548	08/11/11	WG	Turbidity	1.29	NTU	CASA-11-24765

[a] WG = Groundwater.

[b] SU = Standard unit.

[c] NTU = Nephelometric turbidity unit.

Appendix B

Groundwater-Elevation Measurements
(on CD included with this document)

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-4	08/01/12	6315.309	Transducer	498.9	522	Intermediate
MCOI-4	07/31/12	6315.332	Transducer	498.9	522	Intermediate
MCOI-4	07/30/12	6315.221	Transducer	498.9	522	Intermediate
MCOI-4	07/29/12	6315.147	Transducer	498.9	522	Intermediate
MCOI-4	07/28/12	6315.184	Transducer	498.9	522	Intermediate
MCOI-4	07/27/12	6315.376	Transducer	498.9	522	Intermediate
MCOI-4	07/26/12	6315.622	Transducer	498.9	522	Intermediate
MCOI-4	07/25/12	6315.496	Transducer	498.9	522	Intermediate
MCOI-4	07/24/12	6315.269	Transducer	498.9	522	Intermediate
MCOI-4	07/23/12	6315.198	Transducer	498.9	522	Intermediate
MCOI-4	07/22/12	6315.161	Transducer	498.9	522	Intermediate
MCOI-4	07/21/12	6315.106	Transducer	498.9	522	Intermediate
MCOI-4	07/19/12	6315.267	Transducer	498.9	522	Intermediate
MCOI-4	07/18/12	6315.539	Transducer	498.9	522	Intermediate
MCOI-4	07/17/12	6315.526	Transducer	498.9	522	Intermediate
MCOI-4	07/16/12	6315.369	Transducer	498.9	522	Intermediate
MCOI-4	07/15/12	6315.263	Transducer	498.9	522	Intermediate
MCOI-4	07/14/12	6315.243	Transducer	498.9	522	Intermediate
MCOI-4	07/13/12	6315.267	Transducer	498.9	522	Intermediate
MCOI-4	07/12/12	6315.158	Transducer	498.9	522	Intermediate
MCOI-4	07/11/12	6315.115	Transducer	498.9	522	Intermediate
MCOI-4	07/07/12	6315.119	Transducer	498.9	522	Intermediate
MCOI-4	07/06/12	6315.272	Transducer	498.9	522	Intermediate
MCOI-4	07/05/12	6315.456	Transducer	498.9	522	Intermediate
MCOI-4	07/04/12	6315.448	Transducer	498.9	522	Intermediate
MCOI-4	07/03/12	6315.38	Transducer	498.9	522	Intermediate
MCOI-4	07/02/12	6315.437	Transducer	498.9	522	Intermediate
MCOI-4	07/01/12	6315.448	Transducer	498.9	522	Intermediate
MCOI-4	06/30/12	6315.191	Transducer	498.9	522	Intermediate
MCOI-4	06/29/12	6315.117	Transducer	498.9	522	Intermediate
MCOI-4	06/28/12	6315.226	Transducer	498.9	522	Intermediate
MCOI-4	06/27/12	6315.348	Transducer	498.9	522	Intermediate
MCOI-4	06/26/12	6315.141	Transducer	498.9	522	Intermediate
MCOI-4	06/25/12	6315.132	Transducer	498.9	522	Intermediate
MCOI-4	06/24/12	6315.365	Transducer	498.9	522	Intermediate
MCOI-4	06/23/12	6315.276	Transducer	498.9	522	Intermediate
MCOI-4	06/22/12	6315.117	Transducer	498.9	522	Intermediate
MCOI-4	06/21/12	6315.552	Transducer	498.9	522	Intermediate
MCOI-4	06/20/12	6315.888	Transducer	498.9	522	Intermediate
MCOI-4	06/19/12	6315.722	Transducer	498.9	522	Intermediate
MCOI-4	06/18/12	6315.326	Transducer	498.9	522	Intermediate
MCOI-4	06/17/12	6315.126	Transducer	498.9	522	Intermediate
MCOI-4	06/16/12	6315.481	Transducer	498.9	522	Intermediate
MCOI-4	06/15/12	6315.624	Transducer	498.9	522	Intermediate
MCOI-4	06/14/12	6315.533	Transducer	498.9	522	Intermediate
MCOI-4	06/13/12	6315.161	Transducer	498.9	522	Intermediate
MCOI-4	06/12/12	6315.141	Transducer	498.9	522	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-4	06/11/12	6315.594	Transducer	498.9	522	Intermediate
MCOI-4	06/10/12	6315.84	Transducer	498.9	522	Intermediate
MCOI-4	06/09/12	6315.507	Transducer	498.9	522	Intermediate
MCOI-4	06/08/12	6315.446	Transducer	498.9	522	Intermediate
MCOI-4	06/07/12	6315.683	Transducer	498.9	522	Intermediate
MCOI-4	06/06/12	6315.524	Transducer	498.9	522	Intermediate
MCOI-4	06/05/12	6315.193	Transducer	498.9	522	Intermediate
MCOI-4	06/05/12	6315.267	Transducer	498.9	522	Intermediate
MCOI-4	06/04/12	6315.391	Transducer	498.9	522	Intermediate
MCOI-4	06/03/12	6315.576	Transducer	498.9	522	Intermediate
MCOI-4	06/02/12	6315.419	Transducer	498.9	522	Intermediate
MCOI-4	06/01/12	6315.114	Transducer	498.9	522	Intermediate
MCOI-4	05/30/12	6315.343	Transducer	498.9	522	Intermediate
MCOI-4	05/29/12	6315.347	Transducer	498.9	522	Intermediate
MCOI-4	05/28/12	6315.537	Transducer	498.9	522	Intermediate
MCOI-4	05/27/12	6315.852	Transducer	498.9	522	Intermediate
MCOI-4	05/26/12	6315.922	Transducer	498.9	522	Intermediate
MCOI-4	05/25/12	6316.281	Transducer	498.9	522	Intermediate
MCOI-4	05/24/12	6316.603	Transducer	498.9	522	Intermediate
MCOI-4	05/23/12	6315.75	Transducer	498.9	522	Intermediate
MCOI-4	05/22/12	6315.177	Transducer	498.9	522	Intermediate
MCOI-4	05/21/12	6315.18	Transducer	498.9	522	Intermediate
MCOI-4	05/20/12	6315.744	Transducer	498.9	522	Intermediate
MCOI-4	05/19/12	6316.237	Transducer	498.9	522	Intermediate
MCOI-4	05/18/12	6315.928	Transducer	498.9	522	Intermediate
MCOI-4	05/17/12	6315.452	Transducer	498.9	522	Intermediate
MCOI-4	05/16/12	6315.221	Transducer	498.9	522	Intermediate
MCOI-4	05/15/12	6315.182	Transducer	498.9	522	Intermediate
MCOI-4	05/14/12	6315.108	Transducer	498.9	522	Intermediate
MCOI-4	05/12/12	6315.548	Transducer	498.9	522	Intermediate
MCOI-4	05/11/12	6315.946	Transducer	498.9	522	Intermediate
MCOI-4	05/10/12	6315.441	Transducer	498.9	522	Intermediate
MCOI-4	05/09/12	6315.293	Transducer	498.9	522	Intermediate
MCOI-4	05/08/12	6315.495	Transducer	498.9	522	Intermediate
MCOI-4	05/07/12	6315.609	Transducer	498.9	522	Intermediate
MCOI-4	05/06/12	6315.65	Transducer	498.9	522	Intermediate
MCOI-4	05/05/12	6315.511	Transducer	498.9	522	Intermediate
MCOI-4	05/04/12	6315.567	Transducer	498.9	522	Intermediate
MCOI-4	05/03/12	6315.826	Transducer	498.9	522	Intermediate
MCOI-4	05/02/12	6315.948	Transducer	498.9	522	Intermediate
MCOI-4	05/01/12	6315.711	Transducer	498.9	522	Intermediate
MCOI-4	04/30/12	6315.794	Transducer	498.9	522	Intermediate
MCOI-4	04/29/12	6315.935	Transducer	498.9	522	Intermediate
MCOI-4	04/28/12	6316.002	Transducer	498.9	522	Intermediate
MCOI-4	04/27/12	6315.989	Transducer	498.9	522	Intermediate
MCOI-4	04/26/12	6315.598	Transducer	498.9	522	Intermediate
MCOI-4	04/25/12	6315.63	Transducer	498.9	522	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-4	04/24/12	6315.286	Transducer	498.9	522	Intermediate
MCOI-4	04/23/12	6315.19	Transducer	498.9	522	Intermediate
MCOI-4	04/22/12	6315.321	Transducer	498.9	522	Intermediate
MCOI-4	04/21/12	6315.388	Transducer	498.9	522	Intermediate
MCOI-4	04/20/12	6315.796	Transducer	498.9	522	Intermediate
MCOI-4	04/19/12	6315.582	Transducer	498.9	522	Intermediate
MCOI-4	04/18/12	6315.193	Transducer	498.9	522	Intermediate
MCOI-4	04/17/12	6315.214	Transducer	498.9	522	Intermediate
MCOI-4	04/16/12	6315.891	Transducer	498.9	522	Intermediate
MCOI-4	04/15/12	6316.567	Transducer	498.9	522	Intermediate
MCOI-4	04/14/12	6316.229	Transducer	498.9	522	Intermediate
MCOI-4	04/13/12	6316.029	Transducer	498.9	522	Intermediate
MCOI-4	04/12/12	6315.835	Transducer	498.9	522	Intermediate
MCOI-4	04/11/12	6315.465	Transducer	498.9	522	Intermediate
MCOI-4	04/10/12	6315.245	Transducer	498.9	522	Intermediate
MCOI-4	04/09/12	6315.117	Transducer	498.9	522	Intermediate
MCOI-4	04/07/12	6315.55	Transducer	498.9	522	Intermediate
MCOI-4	04/06/12	6315.648	Transducer	498.9	522	Intermediate
MCOI-4	04/05/12	6315.639	Transducer	498.9	522	Intermediate
MCOI-4	04/04/12	6315.663	Transducer	498.9	522	Intermediate
MCOI-4	04/03/12	6316.358	Transducer	498.9	522	Intermediate
MCOI-4	04/02/12	6316.421	Transducer	498.9	522	Intermediate
MCOI-4	04/01/12	6315.752	Transducer	498.9	522	Intermediate
MCOI-4	03/31/12	6315.665	Transducer	498.9	522	Intermediate
MCOI-4	03/30/12	6315.72	Transducer	498.9	522	Intermediate
MCOI-4	03/29/12	6315.589	Transducer	498.9	522	Intermediate
MCOI-4	03/28/12	6315.535	Transducer	498.9	522	Intermediate
MCOI-4	03/27/12	6315.778	Transducer	498.9	522	Intermediate
MCOI-4	03/26/12	6315.532	Transducer	498.9	522	Intermediate
MCOI-4	03/25/12	6315.361	Transducer	498.9	522	Intermediate
MCOI-4	03/24/12	6315.413	Transducer	498.9	522	Intermediate
MCOI-4	03/23/12	6315.707	Transducer	498.9	522	Intermediate
MCOI-4	03/22/12	6315.752	Transducer	498.9	522	Intermediate
MCOI-4	03/21/12	6315.992	Transducer	498.9	522	Intermediate
MCOI-4	03/20/12	6316.606	Transducer	498.9	522	Intermediate
MCOI-4	03/19/12	6316.654	Transducer	498.9	522	Intermediate
MCOI-4	03/18/12	6316.157	Transducer	498.9	522	Intermediate
MCOI-4	03/17/12	6315.739	Transducer	498.9	522	Intermediate
MCOI-4	03/16/12	6315.395	Transducer	498.9	522	Intermediate
MCOI-4	03/15/12	6315.456	Transducer	498.9	522	Intermediate
MCOI-4	03/14/12	6315.528	Transducer	498.9	522	Intermediate
MCOI-4	03/13/12	6315.548	Transducer	498.9	522	Intermediate
MCOI-4	03/12/12	6316.068	Transducer	498.9	522	Intermediate
MCOI-4	03/11/12	6315.789	Transducer	498.9	522	Intermediate
MCOI-4	03/10/12	6315.119	Transducer	498.9	522	Intermediate
MCOI-4	03/09/12	6315.106	Transducer	498.9	522	Intermediate
MCOI-4	03/08/12	6316.292	Transducer	498.9	522	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-4	03/07/12	6316.251	Transducer	498.9	522	Intermediate
MCOI-4	03/06/12	6315.243	Transducer	498.9	522	Intermediate
MCOI-4	03/05/12	6315.128	Transducer	498.9	522	Intermediate
MCOI-4	03/04/12	6315.132	Transducer	498.9	522	Intermediate
MCOI-4	03/03/12	6315.901	Transducer	498.9	522	Intermediate
MCOI-4	03/02/12	6316.19	Transducer	498.9	522	Intermediate
MCOI-4	03/01/12	6315.565	Transducer	498.9	522	Intermediate
MCOI-4	02/29/12	6315.861	Transducer	498.9	522	Intermediate
MCOI-4	02/28/12	6315.593	Transducer	498.9	522	Intermediate
MCOI-4	02/27/12	6315.713	Transducer	498.9	522	Intermediate
MCOI-4	02/26/12	6315.637	Transducer	498.9	522	Intermediate
MCOI-4	02/25/12	6315.339	Transducer	498.9	522	Intermediate
MCOI-4	02/24/12	6316.14	Transducer	498.9	522	Intermediate
MCOI-4	02/23/12	6315.779	Transducer	498.9	522	Intermediate
MCOI-4	02/22/12	6315.467	Transducer	498.9	522	Intermediate
MCOI-4	02/21/12	6315.779	Transducer	498.9	522	Intermediate
MCOI-4	02/20/12	6316.305	Transducer	498.9	522	Intermediate
MCOI-4	02/19/12	6315.75	Transducer	498.9	522	Intermediate
MCOI-4	02/18/12	6315.766	Transducer	498.9	522	Intermediate
MCOI-4	02/17/12	6315.435	Transducer	498.9	522	Intermediate
MCOI-4	02/16/12	6315.855	Transducer	498.9	522	Intermediate
MCOI-4	02/15/12	6316.46	Transducer	498.9	522	Intermediate
MCOI-4	02/14/12	6316.349	Transducer	498.9	522	Intermediate
MCOI-4	02/13/12	6316.327	Transducer	498.9	522	Intermediate
MCOI-4	02/12/12	6315.679	Transducer	498.9	522	Intermediate
MCOI-4	02/11/12	6315.585	Transducer	498.9	522	Intermediate
MCOI-4	02/10/12	6315.759	Transducer	498.9	522	Intermediate
MCOI-4	02/09/12	6315.458	Transducer	498.9	522	Intermediate
MCOI-4	02/08/12	6315.502	Transducer	498.9	522	Intermediate
MCOI-4	02/07/12	6315.916	Transducer	498.9	522	Intermediate
MCOI-4	02/06/12	6315.404	Transducer	498.9	522	Intermediate
MCOI-4	02/05/12	6315.352	Transducer	498.9	522	Intermediate
MCOI-4	02/04/12	6315.885	Transducer	498.9	522	Intermediate
MCOI-4	02/03/12	6316.417	Transducer	498.9	522	Intermediate
MCOI-4	02/02/12	6315.67	Transducer	498.9	522	Intermediate
MCOI-4	02/01/12	6315.929	Transducer	498.9	522	Intermediate
MCOI-4	01/31/12	6315.989	Transducer	498.9	522	Intermediate
MCOI-4	01/30/12	6315.308	Transducer	498.9	522	Intermediate
MCOI-4	01/29/12	6315.206	Transducer	498.9	522	Intermediate
MCOI-4	01/28/12	6315.835	Transducer	498.9	522	Intermediate
MCOI-4	01/27/12	6315.729	Transducer	498.9	522	Intermediate
MCOI-4	01/26/12	6315.555	Transducer	498.9	522	Intermediate
MCOI-4	01/25/12	6316.051	Transducer	498.9	522	Intermediate
MCOI-4	01/24/12	6316.086	Transducer	498.9	522	Intermediate
MCOI-4	01/23/12	6316.319	Transducer	498.9	522	Intermediate
MCOI-4	01/22/12	6316.743	Transducer	498.9	522	Intermediate
MCOI-4	01/21/12	6316.179	Transducer	498.9	522	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-4	01/20/12	6316.138	Transducer	498.9	522	Intermediate
MCOI-4	01/19/12	6315.881	Transducer	498.9	522	Intermediate
MCOI-4	01/18/12	6315.864	Transducer	498.9	522	Intermediate
MCOI-4	01/17/12	6316.634	Transducer	498.9	522	Intermediate
MCOI-4	01/16/12	6316.131	Transducer	498.9	522	Intermediate
MCOI-4	01/15/12	6315.574	Transducer	498.9	522	Intermediate
MCOI-4	01/14/12	6315.713	Transducer	498.9	522	Intermediate
MCOI-4	01/13/12	6316.068	Transducer	498.9	522	Intermediate
MCOI-4	01/12/12	6316.441	Transducer	498.9	522	Intermediate
MCOI-4	01/11/12	6316.554	Transducer	498.9	522	Intermediate
MCOI-4	01/10/12	6315.79	Transducer	498.9	522	Intermediate
MCOI-4	01/09/12	6316.17	Transducer	498.9	522	Intermediate
MCOI-4	01/08/12	6316.647	Transducer	498.9	522	Intermediate
MCOI-4	01/07/12	6316.401	Transducer	498.9	522	Intermediate
MCOI-4	01/06/12	6315.935	Transducer	498.9	522	Intermediate
MCOI-4	01/05/12	6315.328	Transducer	498.9	522	Intermediate
MCOI-4	01/04/12	6315.478	Transducer	498.9	522	Intermediate
MCOI-4	01/03/12	6315.123	Transducer	498.9	522	Intermediate
MCOI-4	01/01/12	6315.544	Transducer	498.9	522	Intermediate
MCOI-4	12/31/11	6315.659	Transducer	498.9	522	Intermediate
MCOI-4	12/30/11	6315.742	Transducer	498.9	522	Intermediate
MCOI-4	12/29/11	6315.446	Transducer	498.9	522	Intermediate
MCOI-4	12/28/11	6315.568	Transducer	498.9	522	Intermediate
MCOI-4	12/27/11	6315.578	Transducer	498.9	522	Intermediate
MCOI-4	12/26/11	6315.182	Transducer	498.9	522	Intermediate
MCOI-4	12/25/11	6315.123	Transducer	498.9	522	Intermediate
MCOI-4	12/24/11	6315.165	Transducer	498.9	522	Intermediate
MCOI-4	12/23/11	6315.679	Transducer	498.9	522	Intermediate
MCOI-4	12/22/11	6316.284	Transducer	498.9	522	Intermediate
MCOI-4	12/21/11	6316.099	Transducer	498.9	522	Intermediate
MCOI-4	12/20/11	6316.484	Transducer	498.9	522	Intermediate
MCOI-4	12/19/11	6315.946	Transducer	498.9	522	Intermediate
MCOI-4	12/18/11	6315.119	Transducer	498.9	522	Intermediate
MCOI-4	12/17/11	6315.115	Transducer	498.9	522	Intermediate
MCOI-4	12/16/11	6315.439	Transducer	498.9	522	Intermediate
MCOI-4	12/15/11	6315.844	Transducer	498.9	522	Intermediate
MCOI-4	12/14/11	6316.175	Transducer	498.9	522	Intermediate
MCOI-4	12/13/11	6315.964	Transducer	498.9	522	Intermediate
MCOI-4	12/12/11	6315.957	Transducer	498.9	522	Intermediate
MCOI-4	12/11/11	6315.404	Transducer	498.9	522	Intermediate
MCOI-4	12/10/11	6315.422	Transducer	498.9	522	Intermediate
MCOI-4	12/09/11	6315.824	Transducer	498.9	522	Intermediate
MCOI-4	12/08/11	6315.544	Transducer	498.9	522	Intermediate
MCOI-4	12/07/11	6315.563	Transducer	498.9	522	Intermediate
MCOI-4	12/06/11	6315.696	Transducer	498.9	522	Intermediate
MCOI-4	12/05/11	6316.094	Transducer	498.9	522	Intermediate
MCOI-4	12/04/11	6316.166	Transducer	498.9	522	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-4	12/03/11	6316.127	Transducer	498.9	522	Intermediate
MCOI-4	12/02/11	6315.99	Transducer	498.9	522	Intermediate
MCOI-4	12/01/11	6316.226	Transducer	498.9	522	Intermediate
MCOI-4	12/01/11	6316.312	Transducer	498.9	522	Intermediate
MCOI-4	11/30/11	6315.434	Transducer	498.9	522	Intermediate
MCOI-4	11/29/11	6315.39	Transducer	498.9	522	Intermediate
MCOI-4	11/28/11	6315.208	Transducer	498.9	522	Intermediate
MCOI-4	11/26/11	6316.202	Transducer	498.9	522	Intermediate
MCOI-4	11/25/11	6315.695	Transducer	498.9	522	Intermediate
MCOI-4	11/24/11	6315.215	Transducer	498.9	522	Intermediate
MCOI-4	11/23/11	6315.202	Transducer	498.9	522	Intermediate
MCOI-4	11/22/11	6315.671	Transducer	498.9	522	Intermediate
MCOI-4	11/21/11	6315.661	Transducer	498.9	522	Intermediate
MCOI-4	11/20/11	6316.1	Transducer	498.9	522	Intermediate
MCOI-4	11/19/11	6316.248	Transducer	498.9	522	Intermediate
MCOI-4	11/18/11	6315.474	Transducer	498.9	522	Intermediate
MCOI-4	11/17/11	6315.293	Transducer	498.9	522	Intermediate
MCOI-4	11/16/11	6315.232	Transducer	498.9	522	Intermediate
MCOI-4	11/15/11	6316.131	Transducer	498.9	522	Intermediate
MCOI-4	11/14/11	6316.346	Transducer	498.9	522	Intermediate
MCOI-4	11/13/11	6316.32	Transducer	498.9	522	Intermediate
MCOI-4	11/12/11	6315.954	Transducer	498.9	522	Intermediate
MCOI-4	11/11/11	6315.221	Transducer	498.9	522	Intermediate
MCOI-4	11/09/11	6315.47	Transducer	498.9	522	Intermediate
MCOI-4	11/08/11	6316.085	Transducer	498.9	522	Intermediate
MCOI-4	11/07/11	6315.92	Transducer	498.9	522	Intermediate
MCOI-4	11/06/11	6316.539	Transducer	498.9	522	Intermediate
MCOI-4	11/05/11	6316.187	Transducer	498.9	522	Intermediate
MCOI-4	11/04/11	6315.349	Transducer	498.9	522	Intermediate
MCOI-4	11/03/11	6315.336	Transducer	498.9	522	Intermediate
MCOI-4	11/02/11	6316.109	Transducer	498.9	522	Intermediate
MCOI-4	11/01/11	6315.571	Transducer	498.9	522	Intermediate
MCOI-4	10/31/11	6315.339	Transducer	498.9	522	Intermediate
MCOI-4	10/30/11	6315.565	Transducer	498.9	522	Intermediate
MCOI-4	10/29/11	6315.273	Transducer	498.9	522	Intermediate
MCOI-4	10/28/11	6315.717	Transducer	498.9	522	Intermediate
MCOI-4	10/27/11	6316.115	Transducer	498.9	522	Intermediate
MCOI-4	10/26/11	6315.754	Transducer	498.9	522	Intermediate
MCOI-4	10/25/11	6315.545	Transducer	498.9	522	Intermediate
MCOI-4	10/24/11	6315.369	Transducer	498.9	522	Intermediate
MCOI-4	10/23/11	6315.428	Transducer	498.9	522	Intermediate
MCOI-4	10/22/11	6315.404	Transducer	498.9	522	Intermediate
MCOI-4	10/21/11	6315.624	Transducer	498.9	522	Intermediate
MCOI-4	10/20/11	6315.63	Transducer	498.9	522	Intermediate
MCOI-4	10/19/11	6315.313	Transducer	498.9	522	Intermediate
MCOI-4	10/18/11	6315.67	Transducer	498.9	522	Intermediate
MCOI-4	10/17/11	6315.537	Transducer	498.9	522	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-4	10/16/11	6315.408	Transducer	498.9	522	Intermediate
MCOI-4	10/15/11	6315.548	Transducer	498.9	522	Intermediate
MCOI-4	10/14/11	6315.602	Transducer	498.9	522	Intermediate
MCOI-4	10/13/11	6315.53	Transducer	498.9	522	Intermediate
MCOI-4	10/12/11	6315.918	Transducer	498.9	522	Intermediate
MCOI-4	10/11/11	6315.757	Transducer	498.9	522	Intermediate
MCOI-4	10/10/11	6315.62	Transducer	498.9	522	Intermediate
MCOI-4	10/09/11	6315.815	Transducer	498.9	522	Intermediate
MCOI-4	10/08/11	6316.1	Transducer	498.9	522	Intermediate
MCOI-4	10/07/11	6316.501	Transducer	498.9	522	Intermediate
MCOI-4	10/06/11	6316.233	Transducer	498.9	522	Intermediate
MCOI-4	10/05/11	6315.815	Transducer	498.9	522	Intermediate
MCOI-4	10/04/11	6315.557	Transducer	498.9	522	Intermediate
MCOI-4	10/03/11	6315.53	Transducer	498.9	522	Intermediate
MCOI-4	10/02/11	6315.493	Transducer	498.9	522	Intermediate
MCOI-4	10/01/11	6315.286	Transducer	498.9	522	Intermediate
MCOI-4	09/30/11	6315.33	Transducer	498.9	522	Intermediate
MCOI-4	09/29/11	6315.58	Transducer	498.9	522	Intermediate
MCOI-4	09/28/11	6315.456	Transducer	498.9	522	Intermediate
MCOI-4	09/27/11	6315.841	Transducer	498.9	522	Intermediate
MCOI-4	09/26/11	6316.018	Transducer	498.9	522	Intermediate
MCOI-4	09/25/11	6315.765	Transducer	498.9	522	Intermediate
MCOI-4	09/24/11	6315.406	Transducer	498.9	522	Intermediate
MCOI-4	09/23/11	6315.437	Transducer	498.9	522	Intermediate
MCOI-4	09/22/11	6315.717	Transducer	498.9	522	Intermediate
MCOI-4	09/21/11	6315.733	Transducer	498.9	522	Intermediate
MCOI-4	09/20/11	6315.528	Transducer	498.9	522	Intermediate
MCOI-4	09/19/11	6315.415	Transducer	498.9	522	Intermediate
MCOI-4	09/18/11	6315.704	Transducer	498.9	522	Intermediate
MCOI-4	09/17/11	6315.824	Transducer	498.9	522	Intermediate
MCOI-4	09/16/11	6315.859	Transducer	498.9	522	Intermediate
MCOI-4	09/15/11	6315.857	Transducer	498.9	522	Intermediate
MCOI-4	09/14/11	6315.652	Transducer	498.9	522	Intermediate
MCOI-4	09/13/11	6315.397	Transducer	498.9	522	Intermediate
MCOI-4	09/12/11	6315.445	Transducer	498.9	522	Intermediate
MCOI-4	09/11/11	6315.467	Transducer	498.9	522	Intermediate
MCOI-4	09/10/11	6315.53	Transducer	498.9	522	Intermediate
MCOI-4	09/09/11	6315.356	Transducer	498.9	522	Intermediate
MCOI-4	09/08/11	6315.345	Transducer	498.9	522	Intermediate
MCOI-4	09/07/11	6315.576	Transducer	498.9	522	Intermediate
MCOI-4	09/06/11	6315.48	Transducer	498.9	522	Intermediate
MCOI-4	09/05/11	6315.336	Transducer	498.9	522	Intermediate
MCOI-4	09/04/11	6315.691	Transducer	498.9	522	Intermediate
MCOI-4	09/03/11	6315.772	Transducer	498.9	522	Intermediate
MCOI-4	09/02/11	6315.615	Transducer	498.9	522	Intermediate
MCOI-4	09/01/11	6315.739	Transducer	498.9	522	Intermediate
MCOI-4	08/31/11	6315.898	Transducer	498.9	522	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-4	08/30/11	6315.872	Transducer	498.9	522	Intermediate
MCOI-4	08/29/11	6315.691	Transducer	498.9	522	Intermediate
MCOI-4	08/29/11	6315.74	Transducer	498.9	522	Intermediate
MCOI-4	08/28/11	6315.48	Transducer	498.9	522	Intermediate
MCOI-4	08/27/11	6315.38	Transducer	498.9	522	Intermediate
MCOI-4	08/26/11	6315.4	Transducer	498.9	522	Intermediate
MCOI-4	08/25/11	6315.49	Transducer	498.9	522	Intermediate
MCOI-4	08/24/11	6315.64	Transducer	498.9	522	Intermediate
MCOI-4	08/23/11	6315.48	Transducer	498.9	522	Intermediate
MCOI-4	08/22/11	6315.39	Transducer	498.9	522	Intermediate
MCOI-4	08/21/11	6315.61	Transducer	498.9	522	Intermediate
MCOI-4	08/20/11	6315.7	Transducer	498.9	522	Intermediate
MCOI-4	08/19/11	6315.21	Transducer	498.9	522	Intermediate
MCOI-4	08/17/11	6315.61	Transducer	498.9	522	Intermediate
MCOI-4	08/16/11	6315.81	Transducer	498.9	522	Intermediate
MCOI-4	08/15/11	6315.51	Transducer	498.9	522	Intermediate
MCOI-4	08/14/11	6315.34	Transducer	498.9	522	Intermediate
MCOI-4	08/13/11	6315.68	Transducer	498.9	522	Intermediate
MCOI-4	08/12/11	6315.76	Transducer	498.9	522	Intermediate
MCOI-4	08/11/11	6315.84	Transducer	498.9	522	Intermediate
MCOI-4	08/10/11	6315.88	Transducer	498.9	522	Intermediate
MCOI-4	08/09/11	6315.81	Transducer	498.9	522	Intermediate
MCOI-4	08/08/11	6315.79	Transducer	498.9	522	Intermediate
MCOI-4	08/07/11	6315.66	Transducer	498.9	522	Intermediate
MCOI-4	08/06/11	6315.61	Transducer	498.9	522	Intermediate
MCOI-4	08/05/11	6315.67	Transducer	498.9	522	Intermediate
MCOI-4	08/04/11	6315.7	Transducer	498.9	522	Intermediate
MCOI-4	08/03/11	6315.69	Transducer	498.9	522	Intermediate
MCOI-4	08/02/11	6315.49	Transducer	498.9	522	Intermediate
MCOI-4	08/01/11	6315.3	Transducer	498.9	522	Intermediate
MCOI-4	07/31/11	6315.27	Transducer	498.9	522	Intermediate
MCOI-4	07/30/11	6315.3	Transducer	498.9	522	Intermediate
MCOI-4	07/29/11	6315.57	Transducer	498.9	522	Intermediate
MCOI-4	07/28/11	6315.85	Transducer	498.9	522	Intermediate
MCOI-4	07/27/11	6315.86	Transducer	498.9	522	Intermediate
MCOI-4	07/26/11	6315.45	Transducer	498.9	522	Intermediate
MCOI-4	07/25/11	6315.28	Transducer	498.9	522	Intermediate
MCOI-4	07/24/11	6315.56	Transducer	498.9	522	Intermediate
MCOI-4	07/23/11	6315.78	Transducer	498.9	522	Intermediate
MCOI-4	07/22/11	6315.8	Transducer	498.9	522	Intermediate
MCOI-4	07/21/11	6315.76	Transducer	498.9	522	Intermediate
MCOI-4	07/20/11	6315.6	Transducer	498.9	522	Intermediate
MCOI-4	07/19/11	6315.35	Transducer	498.9	522	Intermediate
MCOI-4	07/18/11	6315.3	Transducer	498.9	522	Intermediate
MCOI-4	07/17/11	6315.55	Transducer	498.9	522	Intermediate
MCOI-4	07/16/11	6315.8	Transducer	498.9	522	Intermediate
MCOI-4	07/15/11	6315.86	Transducer	498.9	522	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-4	07/14/11	6315.78	Transducer	498.9	522	Intermediate
MCOI-4	07/13/11	6315.65	Transducer	498.9	522	Intermediate
MCOI-4	07/12/11	6315.55	Transducer	498.9	522	Intermediate
MCOI-4	07/11/11	6315.71	Transducer	498.9	522	Intermediate
MCOI-4	07/10/11	6315.73	Transducer	498.9	522	Intermediate
MCOI-4	07/09/11	6315.83	Transducer	498.9	522	Intermediate
MCOI-4	07/08/11	6315.67	Transducer	498.9	522	Intermediate
MCOI-4	07/07/11	6315.55	Transducer	498.9	522	Intermediate
MCOI-4	07/06/11	6315.56	Transducer	498.9	522	Intermediate
MCOI-4	07/05/11	6315.6	Transducer	498.9	522	Intermediate
MCOI-4	07/04/11	6315.44	Transducer	498.9	522	Intermediate
MCOI-4	07/03/11	6315.31	Transducer	498.9	522	Intermediate
MCOI-4	07/02/11	6315.62	Transducer	498.9	522	Intermediate
MCOI-4	07/01/11	6315.72	Transducer	498.9	522	Intermediate
MCOI-4	06/30/11	6315.57	Transducer	498.9	522	Intermediate
MCOI-4	06/29/11	6315.34	Transducer	498.9	522	Intermediate
MCOI-4	06/28/11	6315.44	Transducer	498.9	522	Intermediate
MCOI-4	06/27/11	6315.72	Transducer	498.9	522	Intermediate
MCOI-4	06/26/11	6315.75	Transducer	498.9	522	Intermediate
MCOI-4	06/25/11	6315.81	Transducer	498.9	522	Intermediate
MCOI-4	06/24/11	6315.7	Transducer	498.9	522	Intermediate
MCOI-4	06/23/11	6315.49	Transducer	498.9	522	Intermediate
MCOI-4	06/22/11	6315.61	Transducer	498.9	522	Intermediate
MCOI-4	06/21/11	6316.06	Transducer	498.9	522	Intermediate
MCOI-4	06/20/11	6316.44	Transducer	498.9	522	Intermediate
MCOI-4	06/19/11	6315.83	Transducer	498.9	522	Intermediate
MCOI-4	06/18/11	6315.95	Transducer	498.9	522	Intermediate
MCOI-4	06/17/11	6316.24	Transducer	498.9	522	Intermediate
MCOI-4	06/16/11	6315.86	Transducer	498.9	522	Intermediate
MCOI-4	06/15/11	6315.64	Transducer	498.9	522	Intermediate
MCOI-4	06/14/11	6315.74	Transducer	498.9	522	Intermediate
MCOI-4	06/13/11	6315.83	Transducer	498.9	522	Intermediate
MCOI-4	06/12/11	6315.89	Transducer	498.9	522	Intermediate
MCOI-4	06/11/11	6315.8	Transducer	498.9	522	Intermediate
MCOI-4	06/10/11	6315.84	Transducer	498.9	522	Intermediate
MCOI-4	06/09/11	6315.98	Transducer	498.9	522	Intermediate
MCOI-4	06/08/11	6315.97	Transducer	498.9	522	Intermediate
MCOI-4	06/07/11	6315.83	Transducer	498.9	522	Intermediate
MCOI-4	06/06/11	6315.26	Transducer	498.9	522	Intermediate
MCOI-4	06/05/11	6315.25	Transducer	498.9	522	Intermediate
MCOI-4	06/04/11	6315.69	Transducer	498.9	522	Intermediate
MCOI-4	06/03/11	6315.84	Transducer	498.9	522	Intermediate
MCOI-4	06/02/11	6315.36	Transducer	498.9	522	Intermediate
MCOI-4	05/31/11	6315.65	Transducer	498.9	522	Intermediate
MCOI-4	05/30/11	6316.44	Transducer	498.9	522	Intermediate
MCOI-4	05/29/11	6316.3	Transducer	498.9	522	Intermediate
MCOI-4	05/28/11	6316	Transducer	498.9	522	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-4	05/27/11	6315.81	Transducer	498.9	522	Intermediate
MCOI-4	05/26/11	6315.49	Transducer	498.9	522	Intermediate
MCOI-4	05/25/11	6316.01	Transducer	498.9	522	Intermediate
MCOI-4	05/24/11	6316.01	Transducer	498.9	522	Intermediate
MCOI-4	05/23/11	6315.8	Transducer	498.9	522	Intermediate
MCOI-4	05/22/11	6315.71	Transducer	498.9	522	Intermediate
MCOI-4	05/21/11	6315.83	Transducer	498.9	522	Intermediate
MCOI-4	05/20/11	6316.17	Transducer	498.9	522	Intermediate
MCOI-4	05/19/11	6316.65	Transducer	498.9	522	Intermediate
MCOI-4	05/18/11	6316.38	Transducer	498.9	522	Intermediate
MCOI-4	05/17/11	6316.1	Transducer	498.9	522	Intermediate
MCOI-4	05/16/11	6315.83	Transducer	498.9	522	Intermediate
MCOI-4	05/15/11	6315.84	Transducer	498.9	522	Intermediate
MCOI-4	05/14/11	6315.4	Transducer	498.9	522	Intermediate
MCOI-4	05/13/11	6315.53	Transducer	498.9	522	Intermediate
MCOI-4	05/12/11	6316.03	Transducer	498.9	522	Intermediate
MCOI-4	05/11/11	6316.57	Transducer	498.9	522	Intermediate
MCOI-4	05/10/11	6316.65	Transducer	498.9	522	Intermediate
MCOI-4	05/09/11	6316.38	Transducer	498.9	522	Intermediate
MCOI-4	05/08/11	6316.1	Transducer	498.9	522	Intermediate
MCOI-4	05/07/11	6316.01	Transducer	498.9	522	Intermediate
MCOI-4	05/06/11	6315.53	Transducer	498.9	522	Intermediate
MCOI-4	05/05/11	6315.56	Transducer	498.9	522	Intermediate
MCOI-4	05/04/11	6315.21	Transducer	498.9	522	Intermediate
MCOI-4	05/02/11	6315.48	Transducer	498.9	522	Intermediate
MCOI-4	05/01/11	6316.03	Transducer	498.9	522	Intermediate
MCOI-4	04/30/11	6316.36	Transducer	498.9	522	Intermediate
MCOI-4	04/29/11	6315.41	Transducer	498.9	522	Intermediate
MCOI-4	04/28/11	6315.48	Transducer	498.9	522	Intermediate
MCOI-4	04/27/11	6316.33	Transducer	498.9	522	Intermediate
MCOI-4	04/26/11	6316.17	Transducer	498.9	522	Intermediate
MCOI-4	04/25/11	6316.06	Transducer	498.9	522	Intermediate
MCOI-4	04/24/11	6315.85	Transducer	498.9	522	Intermediate
MCOI-4	04/23/11	6316.01	Transducer	498.9	522	Intermediate
MCOI-4	04/22/11	6315.94	Transducer	498.9	522	Intermediate
MCOI-4	04/21/11	6315.72	Transducer	498.9	522	Intermediate
MCOI-4	04/20/11	6315.94	Transducer	498.9	522	Intermediate
MCOI-4	04/19/11	6316.33	Transducer	498.9	522	Intermediate
MCOI-4	04/18/11	6316.12	Transducer	498.9	522	Intermediate
MCOI-4	04/17/11	6315.83	Transducer	498.9	522	Intermediate
MCOI-4	04/16/11	6315.62	Transducer	498.9	522	Intermediate
MCOI-4	04/15/11	6316.09	Transducer	498.9	522	Intermediate
MCOI-4	04/14/11	6316.12	Transducer	498.9	522	Intermediate
MCOI-4	04/13/11	6315.83	Transducer	498.9	522	Intermediate
MCOI-4	04/12/11	6315.26	Transducer	498.9	522	Intermediate
MCOI-4	04/11/11	6315.75	Transducer	498.9	522	Intermediate
MCOI-4	04/10/11	6316.37	Transducer	498.9	522	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-4	04/09/11	6316.37	Transducer	498.9	522	Intermediate
MCOI-4	04/08/11	6316.39	Transducer	498.9	522	Intermediate
MCOI-4	04/07/11	6316.07	Transducer	498.9	522	Intermediate
MCOI-4	04/06/11	6315.98	Transducer	498.9	522	Intermediate
MCOI-4	04/05/11	6315.56	Transducer	498.9	522	Intermediate
MCOI-4	04/04/11	6316.49	Transducer	498.9	522	Intermediate
MCOI-4	04/03/11	6316.04	Transducer	498.9	522	Intermediate
MCOI-4	04/02/11	6315.78	Transducer	498.9	522	Intermediate
MCOI-4	04/01/11	6315.97	Transducer	498.9	522	Intermediate
MCOI-4	03/31/11	6315.93	Transducer	498.9	522	Intermediate
MCOI-4	03/30/11	6315.8	Transducer	498.9	522	Intermediate
MCOI-4	03/29/11	6316.21	Transducer	498.9	522	Intermediate
MCOI-4	03/28/11	6316.24	Transducer	498.9	522	Intermediate
MCOI-4	03/27/11	6316.49	Transducer	498.9	522	Intermediate
MCOI-4	03/26/11	6316.53	Transducer	498.9	522	Intermediate
MCOI-4	03/25/11	6316.27	Transducer	498.9	522	Intermediate
MCOI-4	03/24/11	6316.04	Transducer	498.9	522	Intermediate
MCOI-4	03/23/11	6316.32	Transducer	498.9	522	Intermediate
MCOI-4	03/22/11	6316.61	Transducer	498.9	522	Intermediate
MCOI-4	03/21/11	6316.09	Transducer	498.9	522	Intermediate
MCOI-4	03/20/11	6316.2	Transducer	498.9	522	Intermediate
MCOI-4	03/19/11	6315.78	Transducer	498.9	522	Intermediate
MCOI-4	03/18/11	6315.94	Transducer	498.9	522	Intermediate
MCOI-4	03/17/11	6316.07	Transducer	498.9	522	Intermediate
MCOI-4	03/16/11	6315.87	Transducer	498.9	522	Intermediate
MCOI-4	03/15/11	6315.74	Transducer	498.9	522	Intermediate
MCOI-4	03/14/11	6315.73	Transducer	498.9	522	Intermediate
MCOI-4	03/13/11	6316.1	Transducer	498.9	522	Intermediate
MCOI-4	03/12/11	6315.98	Transducer	498.9	522	Intermediate
MCOI-4	03/11/11	6315.32	Transducer	498.9	522	Intermediate
MCOI-4	03/10/11	6315.16	Transducer	498.9	522	Intermediate
MCOI-4	03/09/11	6316.14	Transducer	498.9	522	Intermediate
MCOI-4	03/08/11	6317.07	Transducer	498.9	522	Intermediate
MCOI-4	03/07/11	6316.52	Transducer	498.9	522	Intermediate
MCOI-4	03/06/11	6315.5	Transducer	498.9	522	Intermediate
MCOI-4	03/05/11	6315.79	Transducer	498.9	522	Intermediate
MCOI-4	03/04/11	6316.07	Transducer	498.9	522	Intermediate
MCOI-4	03/03/11	6315.74	Transducer	498.9	522	Intermediate
MCOI-4	03/02/11	6315.45	Transducer	498.9	522	Intermediate
MCOI-4	03/01/11	6315.26	Transducer	498.9	522	Intermediate
MCOI-4	02/28/11	6316.52	Transducer	498.9	522	Intermediate
MCOI-4	02/27/11	6316.58	Transducer	498.9	522	Intermediate
MCOI-4	02/26/11	6316.23	Transducer	498.9	522	Intermediate
MCOI-4	02/25/11	6316.1	Transducer	498.9	522	Intermediate
MCOI-4	02/24/11	6316.28	Transducer	498.9	522	Intermediate
MCOI-4	02/23/11	6316.13	Transducer	498.9	522	Intermediate
MCOI-4	02/22/11	6316.22	Transducer	498.9	522	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-4	02/21/11	6316.69	Transducer	498.9	522	Intermediate
MCOI-4	02/20/11	6316.41	Transducer	498.9	522	Intermediate
MCOI-4	02/19/11	6315.81	Transducer	498.9	522	Intermediate
MCOI-4	02/18/11	6316.09	Transducer	498.9	522	Intermediate
MCOI-4	02/17/11	6315.08	Transducer	498.9	522	Intermediate
MCOI-4	02/16/11	6315.94	Transducer	498.9	522	Intermediate
MCOI-4	02/15/11	6315.77	Transducer	498.9	522	Intermediate
MCOI-4	02/14/11	6315.64	Transducer	498.9	522	Intermediate
MCOI-4	02/13/11	6315.23	Transducer	498.9	522	Intermediate
MCOI-4	02/12/11	6315.42	Transducer	498.9	522	Intermediate
MCOI-4	02/11/11	6315.84	Transducer	498.9	522	Intermediate
MCOI-4	02/10/11	6315.71	Transducer	498.9	522	Intermediate
MCOI-4	02/09/11	6316.56	Transducer	498.9	522	Intermediate
MCOI-4	02/08/11	6316.04	Transducer	498.9	522	Intermediate
MCOI-4	02/07/11	6315.87	Transducer	498.9	522	Intermediate
MCOI-4	02/06/11	6316.51	Transducer	498.9	522	Intermediate
MCOI-4	02/05/11	6316.05	Transducer	498.9	522	Intermediate
MCOI-4	02/04/11	6315.82	Transducer	498.9	522	Intermediate
MCOI-4	02/03/11	6315.64	Transducer	498.9	522	Intermediate
MCOI-4	02/02/11	6316.3	Transducer	498.9	522	Intermediate
MCOI-4	02/01/11	6316.67	Transducer	498.9	522	Intermediate
MCOI-4	01/31/11	6316.19	Transducer	498.9	522	Intermediate
MCOI-4	01/30/11	6316.18	Transducer	498.9	522	Intermediate
MCOI-4	01/29/11	6315.94	Transducer	498.9	522	Intermediate
MCOI-4	01/28/11	6315.6	Transducer	498.9	522	Intermediate
MCOI-4	01/27/11	6315.57	Transducer	498.9	522	Intermediate
MCOI-4	01/26/11	6315.93	Transducer	498.9	522	Intermediate
MCOI-4	01/25/11	6315.85	Transducer	498.9	522	Intermediate
MCOI-4	01/24/11	6315.91	Transducer	498.9	522	Intermediate
MCOI-4	01/23/11	6316.35	Transducer	498.9	522	Intermediate
MCOI-4	01/22/11	6315.86	Transducer	498.9	522	Intermediate
MCOI-4	01/21/11	6315.72	Transducer	498.9	522	Intermediate
MCOI-4	01/20/11	6316.47	Transducer	498.9	522	Intermediate
MCOI-4	01/19/11	6316.03	Transducer	498.9	522	Intermediate
MCOI-4	01/18/11	6316.48	Transducer	498.9	522	Intermediate
MCOI-4	01/17/11	6316.15	Transducer	498.9	522	Intermediate
MCOI-4	01/16/11	6315.86	Transducer	498.9	522	Intermediate
MCOI-4	01/15/11	6315.71	Transducer	498.9	522	Intermediate
MCOI-4	01/14/11	6315.55	Transducer	498.9	522	Intermediate
MCOI-4	01/13/11	6315.3	Transducer	498.9	522	Intermediate
MCOI-4	01/12/11	6315.18	Transducer	498.9	522	Intermediate
MCOI-4	01/11/11	6315.87	Transducer	498.9	522	Intermediate
MCOI-4	01/10/11	6316.71	Transducer	498.9	522	Intermediate
MCOI-4	01/09/11	6316.84	Transducer	498.9	522	Intermediate
MCOI-4	01/08/11	6316.26	Transducer	498.9	522	Intermediate
MCOI-4	01/07/11	6315.68	Transducer	498.9	522	Intermediate
MCOI-4	01/06/11	6315.6	Transducer	498.9	522	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-4	01/05/11	6315.9	Transducer	498.9	522	Intermediate
MCOI-4	01/04/11	6316.01	Transducer	498.9	522	Intermediate
MCOI-4	01/03/11	6315.58	Transducer	498.9	522	Intermediate
MCOI-4	01/02/11	6315.61	Transducer	498.9	522	Intermediate
MCOI-4	01/01/11	6316.62	Transducer	498.9	522	Intermediate
MCOI-4	12/31/10	6317.91	Transducer	498.9	522	Intermediate
MCOI-4	12/30/10	6317.53	Transducer	498.9	522	Intermediate
MCOI-4	12/29/10	6316.41	Transducer	498.9	522	Intermediate
MCOI-4	12/28/10	6316.16	Transducer	498.9	522	Intermediate
MCOI-4	12/27/10	6316.18	Transducer	498.9	522	Intermediate
MCOI-4	12/26/10	6315.51	Transducer	498.9	522	Intermediate
MCOI-4	12/25/10	6315.58	Transducer	498.9	522	Intermediate
MCOI-4	12/24/10	6316.18	Transducer	498.9	522	Intermediate
MCOI-4	12/23/10	6315.74	Transducer	498.9	522	Intermediate
MCOI-4	12/22/10	6315.76	Transducer	498.9	522	Intermediate
MCOI-4	12/21/10	6316.17	Transducer	498.9	522	Intermediate
MCOI-4	12/20/10	6316.35	Transducer	498.9	522	Intermediate
MCOI-4	12/19/10	6316.28	Transducer	498.9	522	Intermediate
MCOI-4	12/18/10	6316.21	Transducer	498.9	522	Intermediate
MCOI-4	12/17/10	6316.51	Transducer	498.9	522	Intermediate
MCOI-4	12/16/10	6316.81	Transducer	498.9	522	Intermediate
MCOI-4	12/15/10	6316.6	Transducer	498.9	522	Intermediate
MCOI-4	12/14/10	6315.93	Transducer	498.9	522	Intermediate
MCOI-4	12/13/10	6315.63	Transducer	498.9	522	Intermediate
MCOI-4	12/12/10	6316.05	Transducer	498.9	522	Intermediate
MCOI-4	12/11/10	6316.4	Transducer	498.9	522	Intermediate
MCOI-4	12/10/10	6316.2	Transducer	498.9	522	Intermediate
MCOI-4	12/09/10	6315.85	Transducer	498.9	522	Intermediate
MCOI-4	12/08/10	6315.9	Transducer	498.9	522	Intermediate
MCOI-4	12/07/10	6315.87	Transducer	498.9	522	Intermediate
MCOI-4	12/06/10	6315.72	Transducer	498.9	522	Intermediate
MCOI-4	12/05/10	6315.8	Transducer	498.9	522	Intermediate
MCOI-4	12/04/10	6316	Transducer	498.9	522	Intermediate
MCOI-4	12/03/10	6315.77	Transducer	498.9	522	Intermediate
MCOI-4	12/02/10	6315.68	Transducer	498.9	522	Intermediate
MCOI-4	12/01/10	6315.44	Transducer	498.9	522	Intermediate
MCOI-4	11/30/10	6316.29	Transducer	498.9	522	Intermediate
MCOI-4	11/29/10	6317.39	Transducer	498.9	522	Intermediate
MCOI-4	11/28/10	6316.49	Transducer	498.9	522	Intermediate
MCOI-4	11/27/10	6315.7	Transducer	498.9	522	Intermediate
MCOI-4	11/26/10	6316.13	Transducer	498.9	522	Intermediate
MCOI-4	11/25/10	6316.97	Transducer	498.9	522	Intermediate
MCOI-4	11/24/10	6316.66	Transducer	498.9	522	Intermediate
MCOI-4	11/23/10	6316.31	Transducer	498.9	522	Intermediate
MCOI-4	11/22/10	6316.92	Transducer	498.9	522	Intermediate
MCOI-4	11/21/10	6316.68	Transducer	498.9	522	Intermediate
MCOI-4	11/20/10	6316.25	Transducer	498.9	522	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-4	11/19/10	6314.27	Transducer	498.9	522	Intermediate
MCOI-4	11/18/10	6314.75	Transducer	498.9	522	Intermediate
MCOI-4	11/17/10	6315.9	Transducer	498.9	522	Intermediate
MCOI-4	11/16/10	6315.81	Transducer	498.9	522	Intermediate
MCOI-4	11/15/10	6315.92	Transducer	498.9	522	Intermediate
MCOI-4	11/14/10	6315.3	Transducer	498.9	522	Intermediate
MCOI-4	11/13/10	6314.81	Transducer	498.9	522	Intermediate
MCOI-4	11/12/10	6315.14	Transducer	498.9	522	Intermediate
MCOI-4	11/11/10	6315.76	Transducer	498.9	522	Intermediate
MCOI-4	11/10/10	6316.02	Transducer	498.9	522	Intermediate
MCOI-4	11/09/10	6316.05	Transducer	498.9	522	Intermediate
MCOI-4	11/08/10	6315.37	Transducer	498.9	522	Intermediate
MCOI-4	11/07/10	6315.19	Transducer	498.9	522	Intermediate
MCOI-4	11/06/10	6315.24	Transducer	498.9	522	Intermediate
MCOI-4	11/05/10	6314.94	Transducer	498.9	522	Intermediate
MCOI-4	11/04/10	6314.6	Transducer	498.9	522	Intermediate
MCOI-4	11/03/10	6314.62	Transducer	498.9	522	Intermediate
MCOI-4	11/02/10	6314.7	Transducer	498.9	522	Intermediate
MCOI-4	11/01/10	6315.26	Transducer	498.9	522	Intermediate
MCOI-4	10/31/10	6315.48	Transducer	498.9	522	Intermediate
MCOI-4	10/30/10	6314.81	Transducer	498.9	522	Intermediate
MCOI-5	08/21/12	6134.05	Manual	689.04	699	Intermediate
MCOI-5	08/08/12	6133.737	Transducer	689.04	699	Intermediate
MCOI-5	08/07/12	6133.792	Transducer	689.04	699	Intermediate
MCOI-5	08/06/12	6133.656	Transducer	689.04	699	Intermediate
MCOI-5	08/05/12	6133.726	Transducer	689.04	699	Intermediate
MCOI-5	08/04/12	6133.892	Transducer	689.04	699	Intermediate
MCOI-5	08/03/12	6133.782	Transducer	689.04	699	Intermediate
MCOI-5	08/02/12	6133.817	Transducer	689.04	699	Intermediate
MCOI-5	08/01/12	6133.753	Transducer	689.04	699	Intermediate
MCOI-5	07/31/12	6133.808	Transducer	689.04	699	Intermediate
MCOI-5	07/30/12	6133.825	Transducer	689.04	699	Intermediate
MCOI-5	07/29/12	6133.766	Transducer	689.04	699	Intermediate
MCOI-5	07/28/12	6133.748	Transducer	689.04	699	Intermediate
MCOI-5	07/27/12	6133.786	Transducer	689.04	699	Intermediate
MCOI-5	07/26/12	6133.867	Transducer	689.04	699	Intermediate
MCOI-5	07/25/12	6133.854	Transducer	689.04	699	Intermediate
MCOI-5	07/24/12	6133.773	Transducer	689.04	699	Intermediate
MCOI-5	07/23/12	6133.773	Transducer	689.04	699	Intermediate
MCOI-5	07/22/12	6133.779	Transducer	689.04	699	Intermediate
MCOI-5	07/21/12	6133.775	Transducer	689.04	699	Intermediate
MCOI-5	07/20/12	6133.771	Transducer	689.04	699	Intermediate
MCOI-5	07/19/12	6133.812	Transducer	689.04	699	Intermediate
MCOI-5	07/18/12	6133.879	Transducer	689.04	699	Intermediate
MCOI-5	07/17/12	6133.909	Transducer	689.04	699	Intermediate
MCOI-5	07/16/12	6133.867	Transducer	689.04	699	Intermediate
MCOI-5	07/15/12	6133.848	Transducer	689.04	699	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-5	07/14/12	6133.848	Transducer	689.04	699	Intermediate
MCOI-5	07/13/12	6133.881	Transducer	689.04	699	Intermediate
MCOI-5	07/12/12	6133.927	Transducer	689.04	699	Intermediate
MCOI-5	07/11/12	6133.938	Transducer	689.04	699	Intermediate
MCOI-5	07/10/12	6134.008	Transducer	689.04	699	Intermediate
MCOI-5	07/09/12	6134.066	Transducer	689.04	699	Intermediate
MCOI-5	07/08/12	6134.103	Transducer	689.04	699	Intermediate
MCOI-5	07/07/12	6134.145	Transducer	689.04	699	Intermediate
MCOI-5	07/06/12	6134.209	Transducer	689.04	699	Intermediate
MCOI-5	07/05/12	6134.255	Transducer	689.04	699	Intermediate
MCOI-5	07/04/12	6134.258	Transducer	689.04	699	Intermediate
MCOI-5	07/03/12	6134.266	Transducer	689.04	699	Intermediate
MCOI-5	07/02/12	6134.28	Transducer	689.04	699	Intermediate
MCOI-5	07/01/12	6134.326	Transducer	689.04	699	Intermediate
MCOI-5	06/30/12	6134.366	Transducer	689.04	699	Intermediate
MCOI-5	06/29/12	6134.308	Transducer	689.04	699	Intermediate
MCOI-5	06/28/12	6134.361	Transducer	689.04	699	Intermediate
MCOI-5	06/27/12	6134.507	Transducer	689.04	699	Intermediate
MCOI-5	06/26/12	6134.517	Transducer	689.04	699	Intermediate
MCOI-5	06/25/12	6134.48	Transducer	689.04	699	Intermediate
MCOI-5	06/24/12	6134.572	Transducer	689.04	699	Intermediate
MCOI-5	06/23/12	6134.709	Transducer	689.04	699	Intermediate
MCOI-5	06/22/12	6134.599	Transducer	689.04	699	Intermediate
MCOI-5	06/21/12	6134.636	Transducer	689.04	699	Intermediate
MCOI-5	06/20/12	6134.799	Transducer	689.04	699	Intermediate
MCOI-5	06/19/12	6134.78	Transducer	689.04	699	Intermediate
MCOI-5	06/18/12	6134.766	Transducer	689.04	699	Intermediate
MCOI-5	06/17/12	6134.555	Transducer	689.04	699	Intermediate
MCOI-5	06/16/12	6134.705	Transducer	689.04	699	Intermediate
MCOI-5	06/15/12	6134.831	Transducer	689.04	699	Intermediate
MCOI-5	06/14/12	6134.864	Transducer	689.04	699	Intermediate
MCOI-5	06/13/12	6134.817	Transducer	689.04	699	Intermediate
MCOI-5	06/12/12	6134.736	Transducer	689.04	699	Intermediate
MCOI-5	06/11/12	6134.835	Transducer	689.04	699	Intermediate
MCOI-5	06/10/12	6134.985	Transducer	689.04	699	Intermediate
MCOI-5	06/09/12	6134.947	Transducer	689.04	699	Intermediate
MCOI-5	06/08/12	6134.841	Transducer	689.04	699	Intermediate
MCOI-5	06/07/12	6134.941	Transducer	689.04	699	Intermediate
MCOI-5	06/06/12	6134.96	Transducer	689.04	699	Intermediate
MCOI-5	06/05/12	6134.874	Transducer	689.04	699	Intermediate
MCOI-5	06/05/12	6134.862	Transducer	689.04	699	Intermediate
MCOI-5	06/04/12	6134.988	Transducer	689.04	699	Intermediate
MCOI-5	06/03/12	6135.097	Transducer	689.04	699	Intermediate
MCOI-5	06/02/12	6135.171	Transducer	689.04	699	Intermediate
MCOI-5	06/01/12	6135.161	Transducer	689.04	699	Intermediate
MCOI-5	05/31/12	6135.249	Transducer	689.04	699	Intermediate
MCOI-5	05/30/12	6135.267	Transducer	689.04	699	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-5	05/29/12	6135.236	Transducer	689.04	699	Intermediate
MCOI-5	05/28/12	6135.235	Transducer	689.04	699	Intermediate
MCOI-5	05/27/12	6135.247	Transducer	689.04	699	Intermediate
MCOI-5	05/26/12	6135.149	Transducer	689.04	699	Intermediate
MCOI-5	05/25/12	6135.11	Transducer	689.04	699	Intermediate
MCOI-5	05/24/12	6135.136	Transducer	689.04	699	Intermediate
MCOI-5	05/23/12	6134.94	Transducer	689.04	699	Intermediate
MCOI-5	05/22/12	6134.673	Transducer	689.04	699	Intermediate
MCOI-5	05/21/12	6134.563	Transducer	689.04	699	Intermediate
MCOI-5	05/20/12	6134.658	Transducer	689.04	699	Intermediate
MCOI-5	05/19/12	6134.812	Transducer	689.04	699	Intermediate
MCOI-5	05/18/12	6134.81	Transducer	689.04	699	Intermediate
MCOI-5	05/17/12	6134.706	Transducer	689.04	699	Intermediate
MCOI-5	05/16/12	6134.629	Transducer	689.04	699	Intermediate
MCOI-5	05/15/12	6134.688	Transducer	689.04	699	Intermediate
MCOI-5	05/14/12	6134.783	Transducer	689.04	699	Intermediate
MCOI-5	05/13/12	6134.774	Transducer	689.04	699	Intermediate
MCOI-5	05/12/12	6134.834	Transducer	689.04	699	Intermediate
MCOI-5	05/11/12	6135.11	Transducer	689.04	699	Intermediate
MCOI-5	05/10/12	6135.077	Transducer	689.04	699	Intermediate
MCOI-5	05/09/12	6135.008	Transducer	689.04	699	Intermediate
MCOI-5	05/08/12	6135.068	Transducer	689.04	699	Intermediate
MCOI-5	05/07/12	6135.187	Transducer	689.04	699	Intermediate
MCOI-5	05/06/12	6135.26	Transducer	689.04	699	Intermediate
MCOI-5	05/05/12	6135.247	Transducer	689.04	699	Intermediate
MCOI-5	05/04/12	6135.207	Transducer	689.04	699	Intermediate
MCOI-5	05/03/12	6135.242	Transducer	689.04	699	Intermediate
MCOI-5	05/02/12	6135.258	Transducer	689.04	699	Intermediate
MCOI-5	05/01/12	6135.218	Transducer	689.04	699	Intermediate
MCOI-5	04/30/12	6135.077	Transducer	689.04	699	Intermediate
MCOI-5	04/29/12	6135.112	Transducer	689.04	699	Intermediate
MCOI-5	04/28/12	6135.088	Transducer	689.04	699	Intermediate
MCOI-5	04/27/12	6135.134	Transducer	689.04	699	Intermediate
MCOI-5	04/26/12	6134.993	Transducer	689.04	699	Intermediate
MCOI-5	04/25/12	6135.107	Transducer	689.04	699	Intermediate
MCOI-5	04/24/12	6135.125	Transducer	689.04	699	Intermediate
MCOI-5	04/23/12	6135.086	Transducer	689.04	699	Intermediate
MCOI-5	04/22/12	6135.198	Transducer	689.04	699	Intermediate
MCOI-5	04/21/12	6135.31	Transducer	689.04	699	Intermediate
MCOI-5	04/20/12	6135.423	Transducer	689.04	699	Intermediate
MCOI-5	04/19/12	6135.531	Transducer	689.04	699	Intermediate
MCOI-5	04/18/12	6135.439	Transducer	689.04	699	Intermediate
MCOI-5	04/17/12	6135.363	Transducer	689.04	699	Intermediate
MCOI-5	04/16/12	6135.406	Transducer	689.04	699	Intermediate
MCOI-5	04/15/12	6135.622	Transducer	689.04	699	Intermediate
MCOI-5	04/14/12	6135.589	Transducer	689.04	699	Intermediate
MCOI-5	04/13/12	6135.385	Transducer	689.04	699	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-5	04/12/12	6135.47	Transducer	689.04	699	Intermediate
MCOI-5	04/11/12	6135.379	Transducer	689.04	699	Intermediate
MCOI-5	04/10/12	6135.463	Transducer	689.04	699	Intermediate
MCOI-5	04/09/12	6135.518	Transducer	689.04	699	Intermediate
MCOI-5	04/08/12	6135.485	Transducer	689.04	699	Intermediate
MCOI-5	04/07/12	6135.754	Transducer	689.04	699	Intermediate
MCOI-5	04/06/12	6135.906	Transducer	689.04	699	Intermediate
MCOI-5	04/05/12	6135.86	Transducer	689.04	699	Intermediate
MCOI-5	04/04/12	6135.778	Transducer	689.04	699	Intermediate
MCOI-5	04/03/12	6135.834	Transducer	689.04	699	Intermediate
MCOI-5	04/02/12	6135.891	Transducer	689.04	699	Intermediate
MCOI-5	04/01/12	6135.717	Transducer	689.04	699	Intermediate
MCOI-5	03/31/12	6135.646	Transducer	689.04	699	Intermediate
MCOI-5	03/30/12	6135.716	Transducer	689.04	699	Intermediate
MCOI-5	03/29/12	6135.8	Transducer	689.04	699	Intermediate
MCOI-5	03/28/12	6135.805	Transducer	689.04	699	Intermediate
MCOI-5	03/27/12	6135.915	Transducer	689.04	699	Intermediate
MCOI-5	03/26/12	6136.015	Transducer	689.04	699	Intermediate
MCOI-5	03/25/12	6135.984	Transducer	689.04	699	Intermediate
MCOI-5	03/24/12	6136.039	Transducer	689.04	699	Intermediate
MCOI-5	03/23/12	6136.094	Transducer	689.04	699	Intermediate
MCOI-5	03/22/12	6136.1	Transducer	689.04	699	Intermediate
MCOI-5	03/21/12	6135.979	Transducer	689.04	699	Intermediate
MCOI-5	03/20/12	6136.085	Transducer	689.04	699	Intermediate
MCOI-5	03/19/12	6135.966	Transducer	689.04	699	Intermediate
MCOI-5	03/18/12	6135.831	Transducer	689.04	699	Intermediate
MCOI-5	03/17/12	6135.705	Transducer	689.04	699	Intermediate
MCOI-5	03/16/12	6135.641	Transducer	689.04	699	Intermediate
MCOI-5	03/15/12	6135.642	Transducer	689.04	699	Intermediate
MCOI-5	03/14/12	6135.754	Transducer	689.04	699	Intermediate
MCOI-5	03/13/12	6135.741	Transducer	689.04	699	Intermediate
MCOI-5	03/12/12	6135.886	Transducer	689.04	699	Intermediate
MCOI-5	03/11/12	6136.014	Transducer	689.04	699	Intermediate
MCOI-5	03/10/12	6135.791	Transducer	689.04	699	Intermediate
MCOI-5	03/09/12	6135.642	Transducer	689.04	699	Intermediate
MCOI-5	03/08/12	6136.048	Transducer	689.04	699	Intermediate
MCOI-5	03/07/12	6136.259	Transducer	689.04	699	Intermediate
MCOI-5	03/06/12	6136.026	Transducer	689.04	699	Intermediate
MCOI-5	03/05/12	6135.951	Transducer	689.04	699	Intermediate
MCOI-5	03/04/12	6136.017	Transducer	689.04	699	Intermediate
MCOI-5	03/03/12	6136.156	Transducer	689.04	699	Intermediate
MCOI-5	03/02/12	6136.363	Transducer	689.04	699	Intermediate
MCOI-5	03/01/12	6136.275	Transducer	689.04	699	Intermediate
MCOI-5	02/29/12	6136.173	Transducer	689.04	699	Intermediate
MCOI-5	02/28/12	6136.354	Transducer	689.04	699	Intermediate
MCOI-5	02/27/12	6136.24	Transducer	689.04	699	Intermediate
MCOI-5	02/26/12	6136.405	Transducer	689.04	699	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-5	02/25/12	6136.191	Transducer	689.04	699	Intermediate
MCOI-5	02/24/12	6136.314	Transducer	689.04	699	Intermediate
MCOI-5	02/23/12	6136.542	Transducer	689.04	699	Intermediate
MCOI-5	02/22/12	6136.29	Transducer	689.04	699	Intermediate
MCOI-5	02/21/12	6136.266	Transducer	689.04	699	Intermediate
MCOI-5	02/20/12	6136.518	Transducer	689.04	699	Intermediate
MCOI-5	02/19/12	6136.321	Transducer	689.04	699	Intermediate
MCOI-5	02/18/12	6136.288	Transducer	689.04	699	Intermediate
MCOI-5	02/17/12	6136.178	Transducer	689.04	699	Intermediate
MCOI-5	02/16/12	6136.07	Transducer	689.04	699	Intermediate
MCOI-5	02/15/12	6136.231	Transducer	689.04	699	Intermediate
MCOI-5	02/14/12	6136.045	Transducer	689.04	699	Intermediate
MCOI-5	02/13/12	6136.065	Transducer	689.04	699	Intermediate
MCOI-5	02/12/12	6135.758	Transducer	689.04	699	Intermediate
MCOI-5	02/11/12	6135.772	Transducer	689.04	699	Intermediate
MCOI-5	02/10/12	6135.801	Transducer	689.04	699	Intermediate
MCOI-5	02/09/12	6135.867	Transducer	689.04	699	Intermediate
MCOI-5	02/08/12	6135.812	Transducer	689.04	699	Intermediate
MCOI-5	02/07/12	6136.026	Transducer	689.04	699	Intermediate
MCOI-5	02/06/12	6135.994	Transducer	689.04	699	Intermediate
MCOI-5	02/05/12	6135.911	Transducer	689.04	699	Intermediate
MCOI-5	02/04/12	6135.999	Transducer	689.04	699	Intermediate
MCOI-5	02/03/12	6136.271	Transducer	689.04	699	Intermediate
MCOI-5	02/02/12	6136.127	Transducer	689.04	699	Intermediate
MCOI-5	02/01/12	6136.094	Transducer	689.04	699	Intermediate
MCOI-5	01/31/12	6136.299	Transducer	689.04	699	Intermediate
MCOI-5	01/30/12	6136.242	Transducer	689.04	699	Intermediate
MCOI-5	01/29/12	6136.224	Transducer	689.04	699	Intermediate
MCOI-5	01/28/12	6136.335	Transducer	689.04	699	Intermediate
MCOI-5	01/27/12	6136.634	Transducer	689.04	699	Intermediate
MCOI-5	01/26/12	6136.502	Transducer	689.04	699	Intermediate
MCOI-5	01/25/12	6136.469	Transducer	689.04	699	Intermediate
MCOI-5	01/24/12	6136.634	Transducer	689.04	699	Intermediate
MCOI-5	01/23/12	6136.365	Transducer	689.04	699	Intermediate
MCOI-5	01/22/12	6136.681	Transducer	689.04	699	Intermediate
MCOI-5	01/21/12	6136.222	Transducer	689.04	699	Intermediate
MCOI-5	01/20/12	6136.343	Transducer	689.04	699	Intermediate
MCOI-5	01/19/12	6136.18	Transducer	689.04	699	Intermediate
MCOI-5	01/18/12	6136.079	Transducer	689.04	699	Intermediate
MCOI-5	01/17/12	6136.215	Transducer	689.04	699	Intermediate
MCOI-5	01/16/12	6136.215	Transducer	689.04	699	Intermediate
MCOI-5	01/15/12	6136.043	Transducer	689.04	699	Intermediate
MCOI-5	01/14/12	6135.972	Transducer	689.04	699	Intermediate
MCOI-5	01/13/12	6136.083	Transducer	689.04	699	Intermediate
MCOI-5	01/12/12	6135.99	Transducer	689.04	699	Intermediate
MCOI-5	01/11/12	6136.03	Transducer	689.04	699	Intermediate
MCOI-5	01/10/12	6135.794	Transducer	689.04	699	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-5	01/09/12	6135.706	Transducer	689.04	699	Intermediate
MCOI-5	01/08/12	6135.842	Transducer	689.04	699	Intermediate
MCOI-5	01/07/12	6135.71	Transducer	689.04	699	Intermediate
MCOI-5	01/06/12	6135.769	Transducer	689.04	699	Intermediate
MCOI-5	01/05/12	6135.553	Transducer	689.04	699	Intermediate
MCOI-5	01/04/12	6135.71	Transducer	689.04	699	Intermediate
MCOI-5	01/03/12	6135.703	Transducer	689.04	699	Intermediate
MCOI-5	01/02/12	6135.697	Transducer	689.04	699	Intermediate
MCOI-5	01/01/12	6135.809	Transducer	689.04	699	Intermediate
MCOI-5	12/31/11	6136.089	Transducer	689.04	699	Intermediate
MCOI-5	12/30/11	6136.079	Transducer	689.04	699	Intermediate
MCOI-5	12/29/11	6136.072	Transducer	689.04	699	Intermediate
MCOI-5	12/28/11	6136.182	Transducer	689.04	699	Intermediate
MCOI-5	12/27/11	6136.184	Transducer	689.04	699	Intermediate
MCOI-5	12/26/11	6136.339	Transducer	689.04	699	Intermediate
MCOI-5	12/25/11	6136.253	Transducer	689.04	699	Intermediate
MCOI-5	12/24/11	6136.356	Transducer	689.04	699	Intermediate
MCOI-5	12/23/11	6136.39	Transducer	689.04	699	Intermediate
MCOI-5	12/22/11	6136.551	Transducer	689.04	699	Intermediate
MCOI-5	12/21/11	6136.474	Transducer	689.04	699	Intermediate
MCOI-5	12/20/11	6136.346	Transducer	689.04	699	Intermediate
MCOI-5	12/19/11	6136.489	Transducer	689.04	699	Intermediate
MCOI-5	12/18/11	6136.171	Transducer	689.04	699	Intermediate
MCOI-5	12/17/11	6136.134	Transducer	689.04	699	Intermediate
MCOI-5	12/16/11	6136.284	Transducer	689.04	699	Intermediate
MCOI-5	12/15/11	6136.357	Transducer	689.04	699	Intermediate
MCOI-5	12/14/11	6136.526	Transducer	689.04	699	Intermediate
MCOI-5	12/13/11	6136.412	Transducer	689.04	699	Intermediate
MCOI-5	12/12/11	6136.443	Transducer	689.04	699	Intermediate
MCOI-5	12/11/11	6136.376	Transducer	689.04	699	Intermediate
MCOI-5	12/10/11	6136.299	Transducer	689.04	699	Intermediate
MCOI-5	12/09/11	6136.501	Transducer	689.04	699	Intermediate
MCOI-5	12/08/11	6136.562	Transducer	689.04	699	Intermediate
MCOI-5	12/07/11	6136.447	Transducer	689.04	699	Intermediate
MCOI-5	12/06/11	6136.487	Transducer	689.04	699	Intermediate
MCOI-5	12/05/11	6136.559	Transducer	689.04	699	Intermediate
MCOI-5	12/04/11	6136.418	Transducer	689.04	699	Intermediate
MCOI-5	12/03/11	6136.573	Transducer	689.04	699	Intermediate
MCOI-5	12/02/11	6136.196	Transducer	689.04	699	Intermediate
MCOI-5	12/01/11	6136.368	Transducer	689.04	699	Intermediate
MCOI-5	12/01/11	6136.495	Transducer	689.04	699	Intermediate
MCOI-5	11/30/11	6136.253	Transducer	689.04	699	Intermediate
MCOI-5	11/29/11	6136.317	Transducer	689.04	699	Intermediate
MCOI-5	11/28/11	6136.339	Transducer	689.04	699	Intermediate
MCOI-5	11/27/11	6136.303	Transducer	689.04	699	Intermediate
MCOI-5	11/26/11	6136.727	Transducer	689.04	699	Intermediate
MCOI-5	11/25/11	6136.763	Transducer	689.04	699	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-5	11/24/11	6136.703	Transducer	689.04	699	Intermediate
MCOI-5	11/23/11	6136.685	Transducer	689.04	699	Intermediate
MCOI-5	11/22/11	6136.868	Transducer	689.04	699	Intermediate
MCOI-5	11/21/11	6136.972	Transducer	689.04	699	Intermediate
MCOI-5	11/20/11	6137.04	Transducer	689.04	699	Intermediate
MCOI-5	11/19/11	6137.193	Transducer	689.04	699	Intermediate
MCOI-5	11/18/11	6137.029	Transducer	689.04	699	Intermediate
MCOI-5	11/17/11	6136.8	Transducer	689.04	699	Intermediate
MCOI-5	11/16/11	6137.029	Transducer	689.04	699	Intermediate
MCOI-5	11/15/11	6136.994	Transducer	689.04	699	Intermediate
MCOI-5	11/14/11	6136.999	Transducer	689.04	699	Intermediate
MCOI-5	11/13/11	6136.999	Transducer	689.04	699	Intermediate
MCOI-5	11/12/11	6136.974	Transducer	689.04	699	Intermediate
MCOI-5	11/11/11	6136.791	Transducer	689.04	699	Intermediate
MCOI-5	11/10/11	6136.666	Transducer	689.04	699	Intermediate
MCOI-5	11/09/11	6136.692	Transducer	689.04	699	Intermediate
MCOI-5	11/08/11	6137.102	Transducer	689.04	699	Intermediate
MCOI-5	11/07/11	6136.921	Transducer	689.04	699	Intermediate
MCOI-5	11/06/11	6136.846	Transducer	689.04	699	Intermediate
MCOI-5	11/05/11	6136.913	Transducer	689.04	699	Intermediate
MCOI-5	11/04/11	6136.626	Transducer	689.04	699	Intermediate
MCOI-5	11/03/11	6136.417	Transducer	689.04	699	Intermediate
MCOI-5	11/02/11	6136.826	Transducer	689.04	699	Intermediate
MCOI-5	11/01/11	6136.635	Transducer	689.04	699	Intermediate
MCOI-5	10/31/11	6136.522	Transducer	689.04	699	Intermediate
MCOI-5	10/30/11	6136.641	Transducer	689.04	699	Intermediate
MCOI-5	10/29/11	6136.56	Transducer	689.04	699	Intermediate
MCOI-5	10/28/11	6136.634	Transducer	689.04	699	Intermediate
MCOI-5	10/27/11	6136.725	Transducer	689.04	699	Intermediate
MCOI-5	10/26/11	6136.661	Transducer	689.04	699	Intermediate
MCOI-5	10/25/11	6136.621	Transducer	689.04	699	Intermediate
MCOI-5	10/24/11	6136.57	Transducer	689.04	699	Intermediate
MCOI-5	10/23/11	6136.646	Transducer	689.04	699	Intermediate
MCOI-5	10/22/11	6136.701	Transducer	689.04	699	Intermediate
MCOI-5	10/21/11	6136.754	Transducer	689.04	699	Intermediate
MCOI-5	10/20/11	6136.915	Transducer	689.04	699	Intermediate
MCOI-5	10/19/11	6136.818	Transducer	689.04	699	Intermediate
MCOI-5	10/18/11	6136.913	Transducer	689.04	699	Intermediate
MCOI-5	10/17/11	6137.05	Transducer	689.04	699	Intermediate
MCOI-5	10/16/11	6137.015	Transducer	689.04	699	Intermediate
MCOI-5	10/15/11	6137.079	Transducer	689.04	699	Intermediate
MCOI-5	10/14/11	6137.184	Transducer	689.04	699	Intermediate
MCOI-5	10/13/11	6137.12	Transducer	689.04	699	Intermediate
MCOI-5	10/12/11	6137.222	Transducer	689.04	699	Intermediate
MCOI-5	10/11/11	6137.213	Transducer	689.04	699	Intermediate
MCOI-5	10/10/11	6137.083	Transducer	689.04	699	Intermediate
MCOI-5	10/09/11	6137.014	Transducer	689.04	699	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-5	10/08/11	6137.043	Transducer	689.04	699	Intermediate
MCOI-5	10/07/11	6136.876	Transducer	689.04	699	Intermediate
MCOI-5	10/06/11	6136.842	Transducer	689.04	699	Intermediate
MCOI-5	10/05/11	6136.664	Transducer	689.04	699	Intermediate
MCOI-5	10/04/11	6136.558	Transducer	689.04	699	Intermediate
MCOI-5	10/03/11	6136.564	Transducer	689.04	699	Intermediate
MCOI-5	10/02/11	6136.591	Transducer	689.04	699	Intermediate
MCOI-5	10/01/11	6136.637	Transducer	689.04	699	Intermediate
MCOI-5	09/30/11	6136.549	Transducer	689.04	699	Intermediate
MCOI-5	09/29/11	6136.728	Transducer	689.04	699	Intermediate
MCOI-5	09/28/11	6136.655	Transducer	689.04	699	Intermediate
MCOI-5	09/27/11	6136.69	Transducer	689.04	699	Intermediate
MCOI-5	09/26/11	6136.751	Transducer	689.04	699	Intermediate
MCOI-5	09/25/11	6136.708	Transducer	689.04	699	Intermediate
MCOI-5	09/24/11	6136.591	Transducer	689.04	699	Intermediate
MCOI-5	09/23/11	6136.564	Transducer	689.04	699	Intermediate
MCOI-5	09/22/11	6136.657	Transducer	689.04	699	Intermediate
MCOI-5	09/21/11	6136.651	Transducer	689.04	699	Intermediate
MCOI-5	09/20/11	6136.635	Transducer	689.04	699	Intermediate
MCOI-5	09/19/11	6136.544	Transducer	689.04	699	Intermediate
MCOI-5	09/18/11	6136.576	Transducer	689.04	699	Intermediate
MCOI-5	09/17/11	6136.595	Transducer	689.04	699	Intermediate
MCOI-5	09/16/11	6136.569	Transducer	689.04	699	Intermediate
MCOI-5	09/15/11	6136.516	Transducer	689.04	699	Intermediate
MCOI-5	09/14/11	6136.503	Transducer	689.04	699	Intermediate
MCOI-5	09/13/11	6136.461	Transducer	689.04	699	Intermediate
MCOI-5	09/12/11	6136.445	Transducer	689.04	699	Intermediate
MCOI-5	09/11/11	6136.509	Transducer	689.04	699	Intermediate
MCOI-5	09/10/11	6136.591	Transducer	689.04	699	Intermediate
MCOI-5	09/09/11	6136.611	Transducer	689.04	699	Intermediate
MCOI-5	09/08/11	6136.553	Transducer	689.04	699	Intermediate
MCOI-5	09/07/11	6136.726	Transducer	689.04	699	Intermediate
MCOI-5	09/06/11	6136.75	Transducer	689.04	699	Intermediate
MCOI-5	09/05/11	6136.701	Transducer	689.04	699	Intermediate
MCOI-5	09/04/11	6136.75	Transducer	689.04	699	Intermediate
MCOI-5	09/03/11	6136.829	Transducer	689.04	699	Intermediate
MCOI-5	09/02/11	6136.715	Transducer	689.04	699	Intermediate
MCOI-5	09/01/11	6136.712	Transducer	689.04	699	Intermediate
MCOI-5	08/31/11	6136.732	Transducer	689.04	699	Intermediate
MCOI-5	08/30/11	6136.707	Transducer	689.04	699	Intermediate
MCOI-5	08/29/11	6136.68	Transducer	689.04	699	Intermediate
MCOI-5	08/29/11	6136.686	Transducer	689.04	699	Intermediate
MCOI-5	08/28/11	6136.65	Transducer	689.04	699	Intermediate
MCOI-5	08/27/11	6136.61	Transducer	689.04	699	Intermediate
MCOI-5	08/26/11	6136.65	Transducer	689.04	699	Intermediate
MCOI-5	08/25/11	6136.69	Transducer	689.04	699	Intermediate
MCOI-5	08/24/11	6136.77	Transducer	689.04	699	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-5	08/23/11	6136.79	Transducer	689.04	699	Intermediate
MCOI-5	08/22/11	6136.74	Transducer	689.04	699	Intermediate
MCOI-5	08/21/11	6136.82	Transducer	689.04	699	Intermediate
MCOI-5	08/20/11	6136.9	Transducer	689.04	699	Intermediate
MCOI-5	08/19/11	6136.9	Transducer	689.04	699	Intermediate
MCOI-5	08/18/11	6136.81	Transducer	689.04	699	Intermediate
MCOI-5	08/17/11	6136.86	Transducer	689.04	699	Intermediate
MCOI-5	08/16/11	6137	Transducer	689.04	699	Intermediate
MCOI-5	08/15/11	6136.98	Transducer	689.04	699	Intermediate
MCOI-5	08/14/11	6136.85	Transducer	689.04	699	Intermediate
MCOI-5	08/13/11	6136.94	Transducer	689.04	699	Intermediate
MCOI-5	08/12/11	6136.94	Transducer	689.04	699	Intermediate
MCOI-5	08/11/11	6136.8	Transducer	689.04	699	Intermediate
MCOI-5	08/10/11	6136.96	Transducer	689.04	699	Intermediate
MCOI-5	08/09/11	6136.88	Transducer	689.04	699	Intermediate
MCOI-5	08/08/11	6136.87	Transducer	689.04	699	Intermediate
MCOI-5	08/07/11	6136.81	Transducer	689.04	699	Intermediate
MCOI-5	08/06/11	6136.77	Transducer	689.04	699	Intermediate
MCOI-5	08/05/11	6136.78	Transducer	689.04	699	Intermediate
MCOI-5	08/04/11	6136.79	Transducer	689.04	699	Intermediate
MCOI-5	08/03/11	6136.78	Transducer	689.04	699	Intermediate
MCOI-5	08/02/11	6136.81	Transducer	689.04	699	Intermediate
MCOI-5	08/01/11	6136.79	Transducer	689.04	699	Intermediate
MCOI-5	07/31/11	6136.82	Transducer	689.04	699	Intermediate
MCOI-5	07/30/11	6136.87	Transducer	689.04	699	Intermediate
MCOI-5	07/29/11	6136.96	Transducer	689.04	699	Intermediate
MCOI-5	07/28/11	6137.05	Transducer	689.04	699	Intermediate
MCOI-5	07/27/11	6137.06	Transducer	689.04	699	Intermediate
MCOI-5	07/26/11	6137.03	Transducer	689.04	699	Intermediate
MCOI-5	07/25/11	6136.94	Transducer	689.04	699	Intermediate
MCOI-5	07/24/11	6137	Transducer	689.04	699	Intermediate
MCOI-5	07/23/11	6137.09	Transducer	689.04	699	Intermediate
MCOI-5	07/22/11	6137.11	Transducer	689.04	699	Intermediate
MCOI-5	07/21/11	6137.09	Transducer	689.04	699	Intermediate
MCOI-5	07/20/11	6137.07	Transducer	689.04	699	Intermediate
MCOI-5	07/19/11	6137.03	Transducer	689.04	699	Intermediate
MCOI-5	07/18/11	6137.01	Transducer	689.04	699	Intermediate
MCOI-5	07/17/11	6137.09	Transducer	689.04	699	Intermediate
MCOI-5	07/16/11	6137.19	Transducer	689.04	699	Intermediate
MCOI-5	07/15/11	6137.19	Transducer	689.04	699	Intermediate
MCOI-5	07/14/11	6137.14	Transducer	689.04	699	Intermediate
MCOI-5	07/13/11	6137.09	Transducer	689.04	699	Intermediate
MCOI-5	07/12/11	6137.06	Transducer	689.04	699	Intermediate
MCOI-5	07/11/11	6137.05	Transducer	689.04	699	Intermediate
MCOI-5	07/10/11	6137.05	Transducer	689.04	699	Intermediate
MCOI-5	07/09/11	6137.1	Transducer	689.04	699	Intermediate
MCOI-5	07/08/11	6137.06	Transducer	689.04	699	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-5	07/07/11	6137.03	Transducer	689.04	699	Intermediate
MCOI-5	07/06/11	6137.05	Transducer	689.04	699	Intermediate
MCOI-5	07/05/11	6137.1	Transducer	689.04	699	Intermediate
MCOI-5	07/04/11	6137.15	Transducer	689.04	699	Intermediate
MCOI-5	07/03/11	6137.16	Transducer	689.04	699	Intermediate
MCOI-5	07/02/11	6137.26	Transducer	689.04	699	Intermediate
MCOI-5	07/01/11	6137.36	Transducer	689.04	699	Intermediate
MCOI-5	06/30/11	6137.41	Transducer	689.04	699	Intermediate
MCOI-5	06/29/11	6137.41	Transducer	689.04	699	Intermediate
MCOI-5	06/28/11	6137.43	Transducer	689.04	699	Intermediate
MCOI-5	06/27/11	6137.61	Transducer	689.04	699	Intermediate
MCOI-5	06/26/11	6137.65	Transducer	689.04	699	Intermediate
MCOI-5	06/25/11	6137.7	Transducer	689.04	699	Intermediate
MCOI-5	06/24/11	6137.74	Transducer	689.04	699	Intermediate
MCOI-5	06/23/11	6137.68	Transducer	689.04	699	Intermediate
MCOI-5	06/22/11	6137.69	Transducer	689.04	699	Intermediate
MCOI-5	06/21/11	6137.73	Transducer	689.04	699	Intermediate
MCOI-5	06/20/11	6137.82	Transducer	689.04	699	Intermediate
MCOI-5	06/19/11	6137.68	Transducer	689.04	699	Intermediate
MCOI-5	06/18/11	6137.58	Transducer	689.04	699	Intermediate
MCOI-5	06/17/11	6137.67	Transducer	689.04	699	Intermediate
MCOI-5	06/16/11	6137.62	Transducer	689.04	699	Intermediate
MCOI-5	06/15/11	6137.46	Transducer	689.04	699	Intermediate
MCOI-5	06/14/11	6137.51	Transducer	689.04	699	Intermediate
MCOI-5	06/13/11	6137.55	Transducer	689.04	699	Intermediate
MCOI-5	06/12/11	6137.58	Transducer	689.04	699	Intermediate
MCOI-5	06/11/11	6137.51	Transducer	689.04	699	Intermediate
MCOI-5	06/10/11	6137.53	Transducer	689.04	699	Intermediate
MCOI-5	06/09/11	6137.57	Transducer	689.04	699	Intermediate
MCOI-5	06/08/11	6137.58	Transducer	689.04	699	Intermediate
MCOI-5	06/07/11	6137.64	Transducer	689.04	699	Intermediate
MCOI-5	06/06/11	6137.57	Transducer	689.04	699	Intermediate
MCOI-5	06/05/11	6137.56	Transducer	689.04	699	Intermediate
MCOI-5	06/04/11	6137.79	Transducer	689.04	699	Intermediate
MCOI-5	06/03/11	6137.96	Transducer	689.04	699	Intermediate
MCOI-5	06/02/11	6137.98	Transducer	689.04	699	Intermediate
MCOI-5	06/01/11	6137.88	Transducer	689.04	699	Intermediate
MCOI-5	05/31/11	6137.97	Transducer	689.04	699	Intermediate
MCOI-5	05/30/11	6138.35	Transducer	689.04	699	Intermediate
MCOI-5	05/29/11	6138.29	Transducer	689.04	699	Intermediate
MCOI-5	05/28/11	6138.19	Transducer	689.04	699	Intermediate
MCOI-5	05/27/11	6138.06	Transducer	689.04	699	Intermediate
MCOI-5	05/26/11	6138.13	Transducer	689.04	699	Intermediate
MCOI-5	05/25/11	6138.26	Transducer	689.04	699	Intermediate
MCOI-5	05/24/11	6138.42	Transducer	689.04	699	Intermediate
MCOI-5	05/23/11	6138.34	Transducer	689.04	699	Intermediate
MCOI-5	05/22/11	6138.31	Transducer	689.04	699	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-5	05/21/11	6138.3	Transducer	689.04	699	Intermediate
MCOI-5	05/20/11	6138.31	Transducer	689.04	699	Intermediate
MCOI-5	05/19/11	6138.39	Transducer	689.04	699	Intermediate
MCOI-5	05/18/11	6138.3	Transducer	689.04	699	Intermediate
MCOI-5	05/17/11	6138.23	Transducer	689.04	699	Intermediate
MCOI-5	05/16/11	6138.12	Transducer	689.04	699	Intermediate
MCOI-5	05/15/11	6138.17	Transducer	689.04	699	Intermediate
MCOI-5	05/14/11	6138.09	Transducer	689.04	699	Intermediate
MCOI-5	05/13/11	6138.06	Transducer	689.04	699	Intermediate
MCOI-5	05/12/11	6138.17	Transducer	689.04	699	Intermediate
MCOI-5	05/11/11	6138.27	Transducer	689.04	699	Intermediate
MCOI-5	05/10/11	6138.13	Transducer	689.04	699	Intermediate
MCOI-5	05/09/11	6138.07	Transducer	689.04	699	Intermediate
MCOI-5	05/08/11	6137.96	Transducer	689.04	699	Intermediate
MCOI-5	05/07/11	6137.95	Transducer	689.04	699	Intermediate
MCOI-5	05/06/11	6137.91	Transducer	689.04	699	Intermediate
MCOI-5	05/05/11	6137.98	Transducer	689.04	699	Intermediate
MCOI-5	05/04/11	6138.07	Transducer	689.04	699	Intermediate
MCOI-5	05/03/11	6138.09	Transducer	689.04	699	Intermediate
MCOI-5	05/02/11	6138.29	Transducer	689.04	699	Intermediate
MCOI-5	05/01/11	6138.57	Transducer	689.04	699	Intermediate
MCOI-5	04/30/11	6138.63	Transducer	689.04	699	Intermediate
MCOI-5	04/29/11	6138.57	Transducer	689.04	699	Intermediate
MCOI-5	04/28/11	6138.35	Transducer	689.04	699	Intermediate
MCOI-5	04/27/11	6138.64	Transducer	689.04	699	Intermediate
MCOI-5	04/26/11	6138.65	Transducer	689.04	699	Intermediate
MCOI-5	04/25/11	6138.48	Transducer	689.04	699	Intermediate
MCOI-5	04/24/11	6138.43	Transducer	689.04	699	Intermediate
MCOI-5	04/23/11	6138.45	Transducer	689.04	699	Intermediate
MCOI-5	04/22/11	6138.43	Transducer	689.04	699	Intermediate
MCOI-5	04/21/11	6138.34	Transducer	689.04	699	Intermediate
MCOI-5	04/20/11	6138.31	Transducer	689.04	699	Intermediate
MCOI-5	04/19/11	6138.47	Transducer	689.04	699	Intermediate
MCOI-5	04/18/11	6138.36	Transducer	689.04	699	Intermediate
MCOI-5	04/17/11	6138.34	Transducer	689.04	699	Intermediate
MCOI-5	04/16/11	6138.3	Transducer	689.04	699	Intermediate
MCOI-5	04/15/11	6138.38	Transducer	689.04	699	Intermediate
MCOI-5	04/14/11	6138.55	Transducer	689.04	699	Intermediate
MCOI-5	04/13/11	6138.51	Transducer	689.04	699	Intermediate
MCOI-5	04/12/11	6138.42	Transducer	689.04	699	Intermediate
MCOI-5	04/11/11	6138.43	Transducer	689.04	699	Intermediate
MCOI-5	04/10/11	6138.63	Transducer	689.04	699	Intermediate
MCOI-5	04/09/11	6138.65	Transducer	689.04	699	Intermediate
MCOI-5	04/08/11	6138.62	Transducer	689.04	699	Intermediate
MCOI-5	04/07/11	6138.52	Transducer	689.04	699	Intermediate
MCOI-5	04/06/11	6138.59	Transducer	689.04	699	Intermediate
MCOI-5	04/05/11	6138.4	Transducer	689.04	699	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-5	04/04/11	6138.57	Transducer	689.04	699	Intermediate
MCOI-5	04/03/11	6138.69	Transducer	689.04	699	Intermediate
MCOI-5	04/02/11	6138.57	Transducer	689.04	699	Intermediate
MCOI-5	04/01/11	6138.69	Transducer	689.04	699	Intermediate
MCOI-5	03/31/11	6138.69	Transducer	689.04	699	Intermediate
MCOI-5	03/30/11	6138.65	Transducer	689.04	699	Intermediate
MCOI-5	03/29/11	6138.77	Transducer	689.04	699	Intermediate
MCOI-5	03/28/11	6138.74	Transducer	689.04	699	Intermediate
MCOI-5	03/27/11	6138.73	Transducer	689.04	699	Intermediate
MCOI-5	03/26/11	6138.62	Transducer	689.04	699	Intermediate
MCOI-5	03/25/11	6138.43	Transducer	689.04	699	Intermediate
MCOI-5	03/24/11	6138.37	Transducer	689.04	699	Intermediate
MCOI-5	03/23/11	6138.28	Transducer	689.04	699	Intermediate
MCOI-5	03/22/11	6138.4	Transducer	689.04	699	Intermediate
MCOI-5	03/21/11	6138.18	Transducer	689.04	699	Intermediate
MCOI-5	03/20/11	6138.16	Transducer	689.04	699	Intermediate
MCOI-5	03/19/11	6138.06	Transducer	689.04	699	Intermediate
MCOI-5	03/18/11	6138.12	Transducer	689.04	699	Intermediate
MCOI-5	03/17/11	6138.22	Transducer	689.04	699	Intermediate
MCOI-5	03/16/11	6138.19	Transducer	689.04	699	Intermediate
MCOI-5	03/15/11	6138.28	Transducer	689.04	699	Intermediate
MCOI-5	03/14/11	6138.2	Transducer	689.04	699	Intermediate
MCOI-5	03/13/11	6138.47	Transducer	689.04	699	Intermediate
MCOI-5	03/12/11	6138.5	Transducer	689.04	699	Intermediate
MCOI-5	03/11/11	6138.46	Transducer	689.04	699	Intermediate
MCOI-5	03/10/11	6138.31	Transducer	689.04	699	Intermediate
MCOI-5	03/09/11	6138.49	Transducer	689.04	699	Intermediate
MCOI-5	03/08/11	6138.85	Transducer	689.04	699	Intermediate
MCOI-5	03/07/11	6138.76	Transducer	689.04	699	Intermediate
MCOI-5	03/06/11	6138.52	Transducer	689.04	699	Intermediate
MCOI-5	03/05/11	6138.44	Transducer	689.04	699	Intermediate
MCOI-5	03/04/11	6138.81	Transducer	689.04	699	Intermediate
MCOI-5	03/03/11	6138.75	Transducer	689.04	699	Intermediate
MCOI-5	03/02/11	6138.73	Transducer	689.04	699	Intermediate
MCOI-5	03/01/11	6138.52	Transducer	689.04	699	Intermediate
MCOI-5	02/28/11	6138.92	Transducer	689.04	699	Intermediate
MCOI-5	02/27/11	6139.14	Transducer	689.04	699	Intermediate
MCOI-5	02/26/11	6138.97	Transducer	689.04	699	Intermediate
MCOI-5	02/25/11	6138.78	Transducer	689.04	699	Intermediate
MCOI-5	02/24/11	6138.87	Transducer	689.04	699	Intermediate
MCOI-5	02/23/11	6138.69	Transducer	689.04	699	Intermediate
MCOI-5	02/22/11	6138.6	Transducer	689.04	699	Intermediate
MCOI-5	02/21/11	6138.62	Transducer	689.04	699	Intermediate
MCOI-5	02/20/11	6138.61	Transducer	689.04	699	Intermediate
MCOI-5	02/19/11	6138.23	Transducer	689.04	699	Intermediate
MCOI-5	02/18/11	6138.23	Transducer	689.04	699	Intermediate
MCOI-5	02/17/11	6138.42	Transducer	689.04	699	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-5	02/16/11	6138.28	Transducer	689.04	699	Intermediate
MCOI-5	02/15/11	6138.31	Transducer	689.04	699	Intermediate
MCOI-5	02/14/11	6138.3	Transducer	689.04	699	Intermediate
MCOI-5	02/13/11	6138.33	Transducer	689.04	699	Intermediate
MCOI-5	02/12/11	6138.4	Transducer	689.04	699	Intermediate
MCOI-5	02/11/11	6138.65	Transducer	689.04	699	Intermediate
MCOI-5	02/10/11	6138.69	Transducer	689.04	699	Intermediate
MCOI-5	02/09/11	6138.72	Transducer	689.04	699	Intermediate
MCOI-5	02/08/11	6138.88	Transducer	689.04	699	Intermediate
MCOI-5	02/07/11	6138.5	Transducer	689.04	699	Intermediate
MCOI-5	02/06/11	6138.79	Transducer	689.04	699	Intermediate
MCOI-5	02/05/11	6138.67	Transducer	689.04	699	Intermediate
MCOI-5	02/04/11	6138.6	Transducer	689.04	699	Intermediate
MCOI-5	02/03/11	6138.48	Transducer	689.04	699	Intermediate
MCOI-5	02/02/11	6138.62	Transducer	689.04	699	Intermediate
MCOI-5	02/01/11	6138.71	Transducer	689.04	699	Intermediate
MCOI-5	01/31/11	6138.57	Transducer	689.04	699	Intermediate
MCOI-5	01/30/11	6138.47	Transducer	689.04	699	Intermediate
MCOI-5	01/29/11	6138.52	Transducer	689.04	699	Intermediate
MCOI-5	01/28/11	6138.44	Transducer	689.04	699	Intermediate
MCOI-5	01/27/11	6138.46	Transducer	689.04	699	Intermediate
MCOI-5	01/26/11	6138.66	Transducer	689.04	699	Intermediate
MCOI-5	01/25/11	6138.57	Transducer	689.04	699	Intermediate
MCOI-5	01/24/11	6138.71	Transducer	689.04	699	Intermediate
MCOI-5	01/23/11	6138.74	Transducer	689.04	699	Intermediate
MCOI-5	01/22/11	6138.61	Transducer	689.04	699	Intermediate
MCOI-5	01/21/11	6138.59	Transducer	689.04	699	Intermediate
MCOI-5	01/20/11	6138.66	Transducer	689.04	699	Intermediate
MCOI-5	01/19/11	6138.58	Transducer	689.04	699	Intermediate
MCOI-5	01/18/11	6138.63	Transducer	689.04	699	Intermediate
MCOI-5	01/17/11	6138.58	Transducer	689.04	699	Intermediate
MCOI-5	01/16/11	6138.6	Transducer	689.04	699	Intermediate
MCOI-5	01/15/11	6138.56	Transducer	689.04	699	Intermediate
MCOI-5	01/14/11	6138.77	Transducer	689.04	699	Intermediate
MCOI-5	01/13/11	6138.77	Transducer	689.04	699	Intermediate
MCOI-5	01/12/11	6138.86	Transducer	689.04	699	Intermediate
MCOI-5	01/11/11	6138.93	Transducer	689.04	699	Intermediate
MCOI-5	01/10/11	6139.33	Transducer	689.04	699	Intermediate
MCOI-5	01/09/11	6139.34	Transducer	689.04	699	Intermediate
MCOI-5	01/08/11	6139.22	Transducer	689.04	699	Intermediate
MCOI-5	01/07/11	6139.19	Transducer	689.04	699	Intermediate
MCOI-5	01/06/11	6139.22	Transducer	689.04	699	Intermediate
MCOI-5	01/05/11	6139.38	Transducer	689.04	699	Intermediate
MCOI-5	01/04/11	6139.51	Transducer	689.04	699	Intermediate
MCOI-5	01/03/11	6139.5	Transducer	689.04	699	Intermediate
MCOI-5	01/02/11	6139.29	Transducer	689.04	699	Intermediate
MCOI-5	01/01/11	6139.34	Transducer	689.04	699	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-5	12/31/10	6139.52	Transducer	689.04	699	Intermediate
MCOI-5	12/30/10	6139.31	Transducer	689.04	699	Intermediate
MCOI-5	12/29/10	6138.85	Transducer	689.04	699	Intermediate
MCOI-5	12/28/10	6138.72	Transducer	689.04	699	Intermediate
MCOI-5	12/27/10	6138.8	Transducer	689.04	699	Intermediate
MCOI-5	12/26/10	6138.7	Transducer	689.04	699	Intermediate
MCOI-5	12/25/10	6138.75	Transducer	689.04	699	Intermediate
MCOI-5	12/24/10	6138.99	Transducer	689.04	699	Intermediate
MCOI-5	12/23/10	6139.02	Transducer	689.04	699	Intermediate
MCOI-5	12/22/10	6138.95	Transducer	689.04	699	Intermediate
MCOI-5	12/21/10	6139.07	Transducer	689.04	699	Intermediate
MCOI-5	12/20/10	6139.12	Transducer	689.04	699	Intermediate
MCOI-5	12/19/10	6139	Transducer	689.04	699	Intermediate
MCOI-5	12/18/10	6138.88	Transducer	689.04	699	Intermediate
MCOI-5	12/17/10	6138.87	Transducer	689.04	699	Intermediate
MCOI-5	12/16/10	6138.77	Transducer	689.04	699	Intermediate
MCOI-5	12/15/10	6138.73	Transducer	689.04	699	Intermediate
MCOI-5	12/14/10	6138.49	Transducer	689.04	699	Intermediate
MCOI-5	12/13/10	6138.37	Transducer	689.04	699	Intermediate
MCOI-5	12/12/10	6138.36	Transducer	689.04	699	Intermediate
MCOI-5	12/11/10	6138.57	Transducer	689.04	699	Intermediate
MCOI-5	12/10/10	6138.55	Transducer	689.04	699	Intermediate
MCOI-5	12/09/10	6138.52	Transducer	689.04	699	Intermediate
MCOI-5	12/08/10	6138.46	Transducer	689.04	699	Intermediate
MCOI-5	12/07/10	6138.73	Transducer	689.04	699	Intermediate
MCOI-5	12/06/10	6138.69	Transducer	689.04	699	Intermediate
MCOI-5	12/05/10	6138.88	Transducer	689.04	699	Intermediate
MCOI-5	12/04/10	6139.06	Transducer	689.04	699	Intermediate
MCOI-5	12/03/10	6139.13	Transducer	689.04	699	Intermediate
MCOI-5	12/02/10	6139.23	Transducer	689.04	699	Intermediate
MCOI-5	12/01/10	6139.23	Transducer	689.04	699	Intermediate
MCOI-5	11/30/10	6139.32	Transducer	689.04	699	Intermediate
MCOI-5	11/29/10	6139.75	Transducer	689.04	699	Intermediate
MCOI-5	11/28/10	6139.62	Transducer	689.04	699	Intermediate
MCOI-5	11/27/10	6139.31	Transducer	689.04	699	Intermediate
MCOI-5	11/26/10	6139.31	Transducer	689.04	699	Intermediate
MCOI-5	11/25/10	6139.58	Transducer	689.04	699	Intermediate
MCOI-5	11/24/10	6139.56	Transducer	689.04	699	Intermediate
MCOI-5	11/23/10	6139.23	Transducer	689.04	699	Intermediate
MCOI-5	11/22/10	6139.45	Transducer	689.04	699	Intermediate
MCOI-5	11/21/10	6139.35	Transducer	689.04	699	Intermediate
MCOI-5	11/20/10	6139.27	Transducer	689.04	699	Intermediate
MCOI-5	11/19/10	6139.18	Transducer	689.04	699	Intermediate
MCOI-5	11/18/10	6139.01	Transducer	689.04	699	Intermediate
MCOI-5	11/17/10	6139.35	Transducer	689.04	699	Intermediate
MCOI-5	11/16/10	6138.72	Transducer	689.04	699	Intermediate
MCOI-5	11/15/10	6139.39	Transducer	689.04	699	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-5	11/14/10	6139.19	Transducer	689.04	699	Intermediate
MCOI-5	11/13/10	6138.95	Transducer	689.04	699	Intermediate
MCOI-5	11/12/10	6138.94	Transducer	689.04	699	Intermediate
MCOI-5	11/11/10	6139.03	Transducer	689.04	699	Intermediate
MCOI-5	11/10/10	6138.88	Transducer	689.04	699	Intermediate
MCOI-5	11/09/10	6138.89	Transducer	689.04	699	Intermediate
MCOI-5	11/08/10	6138.6	Transducer	689.04	699	Intermediate
MCOI-5	11/07/10	6138.54	Transducer	689.04	699	Intermediate
MCOI-5	11/06/10	6138.6	Transducer	689.04	699	Intermediate
MCOI-5	11/05/10	6138.65	Transducer	689.04	699	Intermediate
MCOI-5	11/04/10	6138.61	Transducer	689.04	699	Intermediate
MCOI-5	11/03/10	6138.78	Transducer	689.04	699	Intermediate
MCOI-5	11/02/10	6138.86	Transducer	689.04	699	Intermediate
MCOI-5	11/01/10	6139.15	Transducer	689.04	699	Intermediate
MCOI-5	10/31/10	6139.33	Transducer	689.04	699	Intermediate
MCOI-5	10/30/10	6139.3	Transducer	689.04	699	Intermediate
MCOI-6	11/15/12	6152.84	Transducer	686	708.3	Intermediate
MCOI-6	11/14/12	6152.93	Transducer	686	708.3	Intermediate
MCOI-6	11/13/12	6153.09	Transducer	686	708.3	Intermediate
MCOI-6	11/12/12	6153.27	Transducer	686	708.3	Intermediate
MCOI-6	11/11/12	6153.49	Transducer	686	708.3	Intermediate
MCOI-6	11/10/12	6153.12	Transducer	686	708.3	Intermediate
MCOI-6	11/09/12	6152.75	Transducer	686	708.3	Intermediate
MCOI-6	11/08/12	6152.54	Transducer	686	708.3	Intermediate
MCOI-6	11/07/12	6152.42	Transducer	686	708.3	Intermediate
MCOI-6	11/06/12	6152.52	Transducer	686	708.3	Intermediate
MCOI-6	11/05/12	6152.58	Transducer	686	708.3	Intermediate
MCOI-6	11/04/12	6152.69	Transducer	686	708.3	Intermediate
MCOI-6	11/03/12	6152.74	Transducer	686	708.3	Intermediate
MCOI-6	11/02/12	6152.66	Transducer	686	708.3	Intermediate
MCOI-6	11/01/12	6152.59	Transducer	686	708.3	Intermediate
MCOI-6	10/31/12	6152.68	Transducer	686	708.3	Intermediate
MCOI-6	10/30/12	6152.75	Transducer	686	708.3	Intermediate
MCOI-6	10/29/12	6152.86	Transducer	686	708.3	Intermediate
MCOI-6	10/28/12	6153.01	Transducer	686	708.3	Intermediate
MCOI-6	10/27/12	6153.09	Transducer	686	708.3	Intermediate
MCOI-6	10/26/12	6153.31	Transducer	686	708.3	Intermediate
MCOI-6	10/25/12	6153.49	Transducer	686	708.3	Intermediate
MCOI-6	10/24/12	6153.42	Transducer	686	708.3	Intermediate
MCOI-6	10/23/12	6153.39	Transducer	686	708.3	Intermediate
MCOI-6	10/22/12	6153.39	Transducer	686	708.3	Intermediate
MCOI-6	10/21/12	6153.34	Transducer	686	708.3	Intermediate
MCOI-6	10/20/12	6153.2	Transducer	686	708.3	Intermediate
MCOI-6	10/19/12	6153.16	Transducer	686	708.3	Intermediate
MCOI-6	10/18/12	6153.19	Transducer	686	708.3	Intermediate
MCOI-6	10/17/12	6153.12	Transducer	686	708.3	Intermediate
MCOI-6	10/16/12	6152.89	Transducer	686	708.3	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-6	10/15/12	6152.83	Transducer	686	708.3	Intermediate
MCOI-6	10/14/12	6152.97	Transducer	686	708.3	Intermediate
MCOI-6	10/13/12	6153.1	Transducer	686	708.3	Intermediate
MCOI-6	10/12/12	6153.02	Transducer	686	708.3	Intermediate
MCOI-6	10/11/12	6153.1	Transducer	686	708.3	Intermediate
MCOI-6	10/10/12	6153.12	Transducer	686	708.3	Intermediate
MCOI-6	10/09/12	6153.16	Transducer	686	708.3	Intermediate
MCOI-6	10/08/12	6153.12	Transducer	686	708.3	Intermediate
MCOI-6	10/07/12	6153.08	Transducer	686	708.3	Intermediate
MCOI-6	10/06/12	6153.04	Transducer	686	708.3	Intermediate
MCOI-6	10/05/12	6152.97	Transducer	686	708.3	Intermediate
MCOI-6	10/04/12	6152.99	Transducer	686	708.3	Intermediate
MCOI-6	10/03/12	6153.05	Manual	686	708.3	Intermediate
MCOI-6	10/03/12	6153.01	Transducer	686	708.3	Intermediate
MCOI-6	09/08/12	6152.811	Transducer	686	708.3	Intermediate
MCOI-6	09/07/12	6152.947	Transducer	686	708.3	Intermediate
MCOI-6	09/06/12	6152.89	Transducer	686	708.3	Intermediate
MCOI-6	09/05/12	6152.896	Transducer	686	708.3	Intermediate
MCOI-6	09/04/12	6152.842	Transducer	686	708.3	Intermediate
MCOI-6	09/03/12	6152.868	Transducer	686	708.3	Intermediate
MCOI-6	09/02/12	6152.838	Transducer	686	708.3	Intermediate
MCOI-6	09/01/12	6152.85	Transducer	686	708.3	Intermediate
MCOI-6	08/31/12	6152.864	Transducer	686	708.3	Intermediate
MCOI-6	08/30/12	6152.825	Transducer	686	708.3	Intermediate
MCOI-6	08/29/12	6152.795	Transducer	686	708.3	Intermediate
MCOI-6	08/28/12	6152.882	Transducer	686	708.3	Intermediate
MCOI-6	08/27/12	6153.084	Transducer	686	708.3	Intermediate
MCOI-6	08/26/12	6153.242	Transducer	686	708.3	Intermediate
MCOI-6	08/25/12	6153.268	Transducer	686	708.3	Intermediate
MCOI-6	08/24/12	6153.128	Transducer	686	708.3	Intermediate
MCOI-6	08/23/12	6153.023	Transducer	686	708.3	Intermediate
MCOI-6	08/22/12	6152.985	Transducer	686	708.3	Intermediate
MCOI-6	08/21/12	6153.06	Manual	686	708.3	Intermediate
MCOI-6	08/21/12	6153.04	Transducer	686	708.3	Intermediate
MCOI-6	08/20/12	6153.001	Transducer	686	708.3	Intermediate
MCOI-6	08/19/12	6152.974	Transducer	686	708.3	Intermediate
MCOI-6	08/18/12	6152.862	Transducer	686	708.3	Intermediate
MCOI-6	08/17/12	6152.77	Transducer	686	708.3	Intermediate
MCOI-6	08/16/12	6152.806	Transducer	686	708.3	Intermediate
MCOI-6	08/15/12	6152.701	Transducer	686	708.3	Intermediate
MCOI-6	08/14/12	6152.549	Transducer	686	708.3	Intermediate
MCOI-6	08/13/12	6152.485	Transducer	686	708.3	Intermediate
MCOI-6	08/12/12	6152.551	Transducer	686	708.3	Intermediate
MCOI-6	08/11/12	6152.466	Transducer	686	708.3	Intermediate
MCOI-6	08/10/12	6152.402	Transducer	686	708.3	Intermediate
MCOI-6	08/09/12	6152.393	Transducer	686	708.3	Intermediate
MCOI-6	08/08/12	6152.477	Transducer	686	708.3	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-6	08/07/12	6152.525	Transducer	686	708.3	Intermediate
MCOI-6	08/06/12	6152.491	Transducer	686	708.3	Intermediate
MCOI-6	08/05/12	6152.673	Transducer	686	708.3	Intermediate
MCOI-6	08/04/12	6152.826	Transducer	686	708.3	Intermediate
MCOI-6	08/03/12	6152.67	Transducer	686	708.3	Intermediate
MCOI-6	08/02/12	6152.665	Transducer	686	708.3	Intermediate
MCOI-6	08/01/12	6152.595	Transducer	686	708.3	Intermediate
MCOI-6	07/31/12	6152.638	Transducer	686	708.3	Intermediate
MCOI-6	07/30/12	6152.658	Transducer	686	708.3	Intermediate
MCOI-6	07/29/12	6152.642	Transducer	686	708.3	Intermediate
MCOI-6	07/28/12	6152.692	Transducer	686	708.3	Intermediate
MCOI-6	07/27/12	6152.779	Transducer	686	708.3	Intermediate
MCOI-6	07/26/12	6152.818	Transducer	686	708.3	Intermediate
MCOI-6	07/25/12	6152.698	Transducer	686	708.3	Intermediate
MCOI-6	07/24/12	6152.561	Transducer	686	708.3	Intermediate
MCOI-6	07/23/12	6152.547	Transducer	686	708.3	Intermediate
MCOI-6	07/22/12	6152.568	Transducer	686	708.3	Intermediate
MCOI-6	07/21/12	6152.601	Transducer	686	708.3	Intermediate
MCOI-6	07/20/12	6152.68	Transducer	686	708.3	Intermediate
MCOI-6	07/19/12	6152.791	Transducer	686	708.3	Intermediate
MCOI-6	07/18/12	6152.852	Transducer	686	708.3	Intermediate
MCOI-6	07/17/12	6152.796	Transducer	686	708.3	Intermediate
MCOI-6	07/16/12	6152.658	Transducer	686	708.3	Intermediate
MCOI-6	07/15/12	6152.582	Transducer	686	708.3	Intermediate
MCOI-6	07/14/12	6152.543	Transducer	686	708.3	Intermediate
MCOI-6	07/13/12	6152.529	Transducer	686	708.3	Intermediate
MCOI-6	07/12/12	6152.529	Transducer	686	708.3	Intermediate
MCOI-6	07/11/12	6152.527	Transducer	686	708.3	Intermediate
MCOI-6	07/10/12	6152.606	Transducer	686	708.3	Intermediate
MCOI-6	07/09/12	6152.692	Transducer	686	708.3	Intermediate
MCOI-6	07/08/12	6152.784	Transducer	686	708.3	Intermediate
MCOI-6	07/07/12	6152.937	Transducer	686	708.3	Intermediate
MCOI-6	07/06/12	6153.073	Transducer	686	708.3	Intermediate
MCOI-6	07/05/12	6153.117	Transducer	686	708.3	Intermediate
MCOI-6	07/04/12	6153.091	Transducer	686	708.3	Intermediate
MCOI-6	07/03/12	6153.074	Transducer	686	708.3	Intermediate
MCOI-6	07/02/12	6153.04	Transducer	686	708.3	Intermediate
MCOI-6	07/01/12	6153.006	Transducer	686	708.3	Intermediate
MCOI-6	06/30/12	6152.972	Transducer	686	708.3	Intermediate
MCOI-6	06/29/12	6152.927	Transducer	686	708.3	Intermediate
MCOI-6	06/28/12	6153.016	Transducer	686	708.3	Intermediate
MCOI-6	06/27/12	6153.143	Transducer	686	708.3	Intermediate
MCOI-6	06/26/12	6153.135	Transducer	686	708.3	Intermediate
MCOI-6	06/25/12	6153.165	Transducer	686	708.3	Intermediate
MCOI-6	06/24/12	6153.301	Transducer	686	708.3	Intermediate
MCOI-6	06/23/12	6153.44	Transducer	686	708.3	Intermediate
MCOI-6	06/22/12	6153.422	Transducer	686	708.3	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-6	06/21/12	6153.582	Transducer	686	708.3	Intermediate
MCOI-6	06/20/12	6153.687	Transducer	686	708.3	Intermediate
MCOI-6	06/19/12	6153.531	Transducer	686	708.3	Intermediate
MCOI-6	06/18/12	6153.426	Transducer	686	708.3	Intermediate
MCOI-6	06/17/12	6153.285	Transducer	686	708.3	Intermediate
MCOI-6	06/16/12	6153.483	Transducer	686	708.3	Intermediate
MCOI-6	06/15/12	6153.565	Transducer	686	708.3	Intermediate
MCOI-6	06/14/12	6153.529	Transducer	686	708.3	Intermediate
MCOI-6	06/13/12	6153.485	Transducer	686	708.3	Intermediate
MCOI-6	06/12/12	6153.531	Transducer	686	708.3	Intermediate
MCOI-6	06/11/12	6153.725	Transducer	686	708.3	Intermediate
MCOI-6	06/10/12	6153.81	Transducer	686	708.3	Intermediate
MCOI-6	06/09/12	6153.696	Transducer	686	708.3	Intermediate
MCOI-6	06/08/12	6153.599	Transducer	686	708.3	Intermediate
MCOI-6	06/07/12	6153.664	Transducer	686	708.3	Intermediate
MCOI-6	06/06/12	6153.57	Transducer	686	708.3	Intermediate
MCOI-6	06/05/12	6153.506	Transducer	686	708.3	Intermediate
MCOI-6	06/05/12	6153.511	Transducer	686	708.3	Intermediate
MCOI-6	06/04/12	6153.491	Transducer	686	708.3	Intermediate
MCOI-6	06/03/12	6153.591	Transducer	686	708.3	Intermediate
MCOI-6	06/02/12	6153.632	Transducer	686	708.3	Intermediate
MCOI-6	06/01/12	6153.648	Transducer	686	708.3	Intermediate
MCOI-6	05/31/12	6153.765	Transducer	686	708.3	Intermediate
MCOI-6	05/30/12	6153.838	Transducer	686	708.3	Intermediate
MCOI-6	05/29/12	6153.958	Transducer	686	708.3	Intermediate
MCOI-6	05/28/12	6154.142	Transducer	686	708.3	Intermediate
MCOI-6	05/27/12	6154.291	Transducer	686	708.3	Intermediate
MCOI-6	05/26/12	6154.284	Transducer	686	708.3	Intermediate
MCOI-6	05/25/12	6154.248	Transducer	686	708.3	Intermediate
MCOI-6	05/24/12	6154.054	Transducer	686	708.3	Intermediate
MCOI-6	05/23/12	6153.644	Transducer	686	708.3	Intermediate
MCOI-6	05/22/12	6153.393	Transducer	686	708.3	Intermediate
MCOI-6	05/21/12	6153.422	Transducer	686	708.3	Intermediate
MCOI-6	05/20/12	6153.62	Transducer	686	708.3	Intermediate
MCOI-6	05/19/12	6153.632	Transducer	686	708.3	Intermediate
MCOI-6	05/18/12	6153.371	Transducer	686	708.3	Intermediate
MCOI-6	05/17/12	6153.112	Transducer	686	708.3	Intermediate
MCOI-6	05/16/12	6153.006	Transducer	686	708.3	Intermediate
MCOI-6	05/15/12	6153.088	Transducer	686	708.3	Intermediate
MCOI-6	05/14/12	6153.214	Transducer	686	708.3	Intermediate
MCOI-6	05/13/12	6153.288	Transducer	686	708.3	Intermediate
MCOI-6	05/12/12	6153.473	Transducer	686	708.3	Intermediate
MCOI-6	05/11/12	6153.665	Transducer	686	708.3	Intermediate
MCOI-6	05/10/12	6153.532	Transducer	686	708.3	Intermediate
MCOI-6	05/09/12	6153.526	Transducer	686	708.3	Intermediate
MCOI-6	05/08/12	6153.665	Transducer	686	708.3	Intermediate
MCOI-6	05/07/12	6153.811	Transducer	686	708.3	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-6	05/06/12	6153.903	Transducer	686	708.3	Intermediate
MCOI-6	05/05/12	6153.932	Transducer	686	708.3	Intermediate
MCOI-6	05/04/12	6153.981	Transducer	686	708.3	Intermediate
MCOI-6	05/03/12	6154.093	Transducer	686	708.3	Intermediate
MCOI-6	05/02/12	6154.107	Transducer	686	708.3	Intermediate
MCOI-6	05/01/12	6154.054	Transducer	686	708.3	Intermediate
MCOI-6	04/30/12	6153.964	Transducer	686	708.3	Intermediate
MCOI-6	04/29/12	6153.987	Transducer	686	708.3	Intermediate
MCOI-6	04/28/12	6153.873	Transducer	686	708.3	Intermediate
MCOI-6	04/27/12	6153.756	Transducer	686	708.3	Intermediate
MCOI-6	04/26/12	6153.512	Transducer	686	708.3	Intermediate
MCOI-6	04/25/12	6153.52	Transducer	686	708.3	Intermediate
MCOI-6	04/24/12	6153.479	Transducer	686	708.3	Intermediate
MCOI-6	04/23/12	6153.473	Transducer	686	708.3	Intermediate
MCOI-6	04/22/12	6153.644	Transducer	686	708.3	Intermediate
MCOI-6	04/21/12	6153.813	Transducer	686	708.3	Intermediate
MCOI-6	04/20/12	6153.971	Transducer	686	708.3	Intermediate
MCOI-6	04/19/12	6154.062	Transducer	686	708.3	Intermediate
MCOI-6	04/18/12	6154.049	Transducer	686	708.3	Intermediate
MCOI-6	04/17/12	6154.214	Transducer	686	708.3	Intermediate
MCOI-6	04/16/12	6154.483	Transducer	686	708.3	Intermediate
MCOI-6	04/15/12	6154.643	Transducer	686	708.3	Intermediate
MCOI-6	04/14/12	6154.295	Transducer	686	708.3	Intermediate
MCOI-6	04/13/12	6153.918	Transducer	686	708.3	Intermediate
MCOI-6	04/12/12	6153.784	Transducer	686	708.3	Intermediate
MCOI-6	04/11/12	6153.594	Transducer	686	708.3	Intermediate
MCOI-6	04/10/12	6153.656	Transducer	686	708.3	Intermediate
MCOI-6	04/09/12	6153.757	Transducer	686	708.3	Intermediate
MCOI-6	04/08/12	6153.906	Transducer	686	708.3	Intermediate
MCOI-6	04/07/12	6154.353	Transducer	686	708.3	Intermediate
MCOI-6	04/06/12	6154.575	Transducer	686	708.3	Intermediate
MCOI-6	04/05/12	6154.624	Transducer	686	708.3	Intermediate
MCOI-6	04/04/12	6154.697	Transducer	686	708.3	Intermediate
MCOI-6	04/03/12	6154.806	Transducer	686	708.3	Intermediate
MCOI-6	04/02/12	6154.569	Transducer	686	708.3	Intermediate
MCOI-6	04/01/12	6154.249	Transducer	686	708.3	Intermediate
MCOI-6	03/31/12	6154.151	Transducer	686	708.3	Intermediate
MCOI-6	03/30/12	6154.173	Transducer	686	708.3	Intermediate
MCOI-6	03/29/12	6154.195	Transducer	686	708.3	Intermediate
MCOI-6	03/28/12	6154.216	Transducer	686	708.3	Intermediate
MCOI-6	03/27/12	6154.309	Transducer	686	708.3	Intermediate
MCOI-6	03/26/12	6154.375	Transducer	686	708.3	Intermediate
MCOI-6	03/25/12	6154.44	Transducer	686	708.3	Intermediate
MCOI-6	03/24/12	6154.656	Transducer	686	708.3	Intermediate
MCOI-6	03/23/12	6154.901	Transducer	686	708.3	Intermediate
MCOI-6	03/22/12	6155.066	Transducer	686	708.3	Intermediate
MCOI-6	03/21/12	6155.144	Transducer	686	708.3	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-6	03/20/12	6155.27	Transducer	686	708.3	Intermediate
MCOI-6	03/19/12	6154.933	Transducer	686	708.3	Intermediate
MCOI-6	03/18/12	6154.508	Transducer	686	708.3	Intermediate
MCOI-6	03/17/12	6154.234	Transducer	686	708.3	Intermediate
MCOI-6	03/16/12	6154.13	Transducer	686	708.3	Intermediate
MCOI-6	03/15/12	6154.194	Transducer	686	708.3	Intermediate
MCOI-6	03/14/12	6154.32	Transducer	686	708.3	Intermediate
MCOI-6	03/13/12	6154.355	Transducer	686	708.3	Intermediate
MCOI-6	03/12/12	6154.469	Transducer	686	708.3	Intermediate
MCOI-6	03/11/12	6154.422	Transducer	686	708.3	Intermediate
MCOI-6	03/10/12	6154.226	Transducer	686	708.3	Intermediate
MCOI-6	03/09/12	6154.332	Transducer	686	708.3	Intermediate
MCOI-6	03/08/12	6154.747	Transducer	686	708.3	Intermediate
MCOI-6	03/07/12	6154.591	Transducer	686	708.3	Intermediate
MCOI-6	03/06/12	6154.195	Transducer	686	708.3	Intermediate
MCOI-6	03/05/12	6154.013	Transducer	686	708.3	Intermediate
MCOI-6	03/04/12	6154.269	Transducer	686	708.3	Intermediate
MCOI-6	03/03/12	6154.571	Transducer	686	708.3	Intermediate
MCOI-6	03/02/12	6154.653	Transducer	686	708.3	Intermediate
MCOI-6	03/01/12	6154.473	Transducer	686	708.3	Intermediate
MCOI-6	02/29/12	6154.428	Transducer	686	708.3	Intermediate
MCOI-6	02/28/12	6154.502	Transducer	686	708.3	Intermediate
MCOI-6	02/27/12	6154.44	Transducer	686	708.3	Intermediate
MCOI-6	02/26/12	6154.553	Transducer	686	708.3	Intermediate
MCOI-6	02/25/12	6154.463	Transducer	686	708.3	Intermediate
MCOI-6	02/24/12	6154.724	Transducer	686	708.3	Intermediate
MCOI-6	02/23/12	6154.801	Transducer	686	708.3	Intermediate
MCOI-6	02/22/12	6154.622	Transducer	686	708.3	Intermediate
MCOI-6	02/21/12	6154.763	Transducer	686	708.3	Intermediate
MCOI-6	02/20/12	6154.971	Transducer	686	708.3	Intermediate
MCOI-6	02/19/12	6154.738	Transducer	686	708.3	Intermediate
MCOI-6	02/18/12	6154.769	Transducer	686	708.3	Intermediate
MCOI-6	02/17/12	6154.781	Transducer	686	708.3	Intermediate
MCOI-6	02/16/12	6154.895	Transducer	686	708.3	Intermediate
MCOI-6	02/15/12	6155.05	Transducer	686	708.3	Intermediate
MCOI-6	02/14/12	6154.722	Transducer	686	708.3	Intermediate
MCOI-6	02/13/12	6154.473	Transducer	686	708.3	Intermediate
MCOI-6	02/12/12	6154.065	Transducer	686	708.3	Intermediate
MCOI-6	02/11/12	6154.049	Transducer	686	708.3	Intermediate
MCOI-6	02/10/12	6154.057	Transducer	686	708.3	Intermediate
MCOI-6	02/09/12	6154.073	Transducer	686	708.3	Intermediate
MCOI-6	02/08/12	6154.092	Transducer	686	708.3	Intermediate
MCOI-6	02/07/12	6154.308	Transducer	686	708.3	Intermediate
MCOI-6	02/06/12	6154.261	Transducer	686	708.3	Intermediate
MCOI-6	02/05/12	6154.302	Transducer	686	708.3	Intermediate
MCOI-6	02/04/12	6154.516	Transducer	686	708.3	Intermediate
MCOI-6	02/03/12	6154.648	Transducer	686	708.3	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-6	02/02/12	6154.334	Transducer	686	708.3	Intermediate
MCOI-6	02/01/12	6154.289	Transducer	686	708.3	Intermediate
MCOI-6	01/31/12	6154.345	Transducer	686	708.3	Intermediate
MCOI-6	01/30/12	6154.243	Transducer	686	708.3	Intermediate
MCOI-6	01/29/12	6154.353	Transducer	686	708.3	Intermediate
MCOI-6	01/28/12	6154.636	Transducer	686	708.3	Intermediate
MCOI-6	01/27/12	6154.918	Transducer	686	708.3	Intermediate
MCOI-6	01/26/12	6154.949	Transducer	686	708.3	Intermediate
MCOI-6	01/25/12	6155.119	Transducer	686	708.3	Intermediate
MCOI-6	01/24/12	6155.325	Transducer	686	708.3	Intermediate
MCOI-6	01/23/12	6155.217	Transducer	686	708.3	Intermediate
MCOI-6	01/22/12	6155.34	Transducer	686	708.3	Intermediate
MCOI-6	01/21/12	6154.871	Transducer	686	708.3	Intermediate
MCOI-6	01/20/12	6154.895	Transducer	686	708.3	Intermediate
MCOI-6	01/19/12	6154.736	Transducer	686	708.3	Intermediate
MCOI-6	01/18/12	6154.738	Transducer	686	708.3	Intermediate
MCOI-6	01/17/12	6154.877	Transducer	686	708.3	Intermediate
MCOI-6	01/16/12	6154.716	Transducer	686	708.3	Intermediate
MCOI-6	01/15/12	6154.575	Transducer	686	708.3	Intermediate
MCOI-6	01/14/12	6154.691	Transducer	686	708.3	Intermediate
MCOI-6	01/13/12	6154.944	Transducer	686	708.3	Intermediate
MCOI-6	01/12/12	6154.926	Transducer	686	708.3	Intermediate
MCOI-6	01/11/12	6154.883	Transducer	686	708.3	Intermediate
MCOI-6	01/10/12	6154.687	Transducer	686	708.3	Intermediate
MCOI-6	01/09/12	6154.667	Transducer	686	708.3	Intermediate
MCOI-6	01/08/12	6154.591	Transducer	686	708.3	Intermediate
MCOI-6	01/07/12	6154.179	Transducer	686	708.3	Intermediate
MCOI-6	01/06/12	6153.965	Transducer	686	708.3	Intermediate
MCOI-6	01/05/12	6153.694	Transducer	686	708.3	Intermediate
MCOI-6	01/04/12	6153.88	Transducer	686	708.3	Intermediate
MCOI-6	01/03/12	6153.912	Transducer	686	708.3	Intermediate
MCOI-6	01/02/12	6154.063	Transducer	686	708.3	Intermediate
MCOI-6	01/01/12	6154.342	Transducer	686	708.3	Intermediate
MCOI-6	12/31/11	6154.516	Transducer	686	708.3	Intermediate
MCOI-6	12/30/11	6154.402	Transducer	686	708.3	Intermediate
MCOI-6	12/29/11	6154.298	Transducer	686	708.3	Intermediate
MCOI-6	12/28/11	6154.363	Transducer	686	708.3	Intermediate
MCOI-6	12/27/11	6154.347	Transducer	686	708.3	Intermediate
MCOI-6	12/26/11	6154.495	Transducer	686	708.3	Intermediate
MCOI-6	12/25/11	6154.577	Transducer	686	708.3	Intermediate
MCOI-6	12/24/11	6154.905	Transducer	686	708.3	Intermediate
MCOI-6	12/23/11	6155.176	Transducer	686	708.3	Intermediate
MCOI-6	12/22/11	6155.376	Transducer	686	708.3	Intermediate
MCOI-6	12/21/11	6155.189	Transducer	686	708.3	Intermediate
MCOI-6	12/20/11	6154.93	Transducer	686	708.3	Intermediate
MCOI-6	12/19/11	6154.724	Transducer	686	708.3	Intermediate
MCOI-6	12/18/11	6154.412	Transducer	686	708.3	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-6	12/17/11	6154.548	Transducer	686	708.3	Intermediate
MCOI-6	12/16/11	6154.854	Transducer	686	708.3	Intermediate
MCOI-6	12/15/11	6155.034	Transducer	686	708.3	Intermediate
MCOI-6	12/14/11	6155.081	Transducer	686	708.3	Intermediate
MCOI-6	12/13/11	6154.854	Transducer	686	708.3	Intermediate
MCOI-6	12/12/11	6154.756	Transducer	686	708.3	Intermediate
MCOI-6	12/11/11	6154.626	Transducer	686	708.3	Intermediate
MCOI-6	12/10/11	6154.648	Transducer	686	708.3	Intermediate
MCOI-6	12/09/11	6154.915	Transducer	686	708.3	Intermediate
MCOI-6	12/08/11	6154.991	Transducer	686	708.3	Intermediate
MCOI-6	12/07/11	6155.042	Transducer	686	708.3	Intermediate
MCOI-6	12/06/11	6155.234	Transducer	686	708.3	Intermediate
MCOI-6	12/05/11	6155.391	Transducer	686	708.3	Intermediate
MCOI-6	12/04/11	6155.262	Transducer	686	708.3	Intermediate
MCOI-6	12/03/11	6155.197	Transducer	686	708.3	Intermediate
MCOI-6	12/02/11	6154.752	Transducer	686	708.3	Intermediate
MCOI-6	12/01/11	6154.738	Transducer	686	708.3	Intermediate
MCOI-6	12/01/11	6154.787	Transducer	686	708.3	Intermediate
MCOI-6	11/30/11	6154.369	Transducer	686	708.3	Intermediate
MCOI-6	11/29/11	6154.428	Transducer	686	708.3	Intermediate
MCOI-6	11/28/11	6154.475	Transducer	686	708.3	Intermediate
MCOI-6	11/27/11	6154.583	Transducer	686	708.3	Intermediate
MCOI-6	11/26/11	6154.995	Transducer	686	708.3	Intermediate
MCOI-6	11/25/11	6154.838	Transducer	686	708.3	Intermediate
MCOI-6	11/24/11	6154.785	Transducer	686	708.3	Intermediate
MCOI-6	11/23/11	6154.901	Transducer	686	708.3	Intermediate
MCOI-6	11/22/11	6155.231	Transducer	686	708.3	Intermediate
MCOI-6	11/21/11	6155.407	Transducer	686	708.3	Intermediate
MCOI-6	11/20/11	6155.541	Transducer	686	708.3	Intermediate
MCOI-6	11/19/11	6155.574	Transducer	686	708.3	Intermediate
MCOI-6	11/18/11	6155.372	Transducer	686	708.3	Intermediate
MCOI-6	11/17/11	6155.353	Transducer	686	708.3	Intermediate
MCOI-6	11/16/11	6155.702	Transducer	686	708.3	Intermediate
MCOI-6	11/15/11	6155.686	Transducer	686	708.3	Intermediate
MCOI-6	11/14/11	6155.59	Transducer	686	708.3	Intermediate
MCOI-6	11/13/11	6155.382	Transducer	686	708.3	Intermediate
MCOI-6	11/12/11	6155.151	Transducer	686	708.3	Intermediate
MCOI-6	11/11/11	6154.95	Transducer	686	708.3	Intermediate
MCOI-6	11/10/11	6155.012	Transducer	686	708.3	Intermediate
MCOI-6	11/09/11	6155.35	Transducer	686	708.3	Intermediate
MCOI-6	11/08/11	6155.703	Transducer	686	708.3	Intermediate
MCOI-6	11/07/11	6155.584	Transducer	686	708.3	Intermediate
MCOI-6	11/06/11	6155.505	Transducer	686	708.3	Intermediate
MCOI-6	11/05/11	6155.248	Transducer	686	708.3	Intermediate
MCOI-6	11/04/11	6154.883	Transducer	686	708.3	Intermediate
MCOI-6	11/03/11	6154.809	Transducer	686	708.3	Intermediate
MCOI-6	11/02/11	6155.132	Transducer	686	708.3	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-6	11/01/11	6154.842	Transducer	686	708.3	Intermediate
MCOI-6	10/31/11	6154.767	Transducer	686	708.3	Intermediate
MCOI-6	10/30/11	6154.948	Transducer	686	708.3	Intermediate
MCOI-6	10/29/11	6154.938	Transducer	686	708.3	Intermediate
MCOI-6	10/28/11	6155.107	Transducer	686	708.3	Intermediate
MCOI-6	10/27/11	6155.144	Transducer	686	708.3	Intermediate
MCOI-6	10/26/11	6154.913	Transducer	686	708.3	Intermediate
MCOI-6	10/25/11	6154.789	Transducer	686	708.3	Intermediate
MCOI-6	10/24/11	6154.73	Transducer	686	708.3	Intermediate
MCOI-6	10/23/11	6154.811	Transducer	686	708.3	Intermediate
MCOI-6	10/22/11	6154.879	Transducer	686	708.3	Intermediate
MCOI-6	10/21/11	6154.948	Transducer	686	708.3	Intermediate
MCOI-6	10/20/11	6155.021	Transducer	686	708.3	Intermediate
MCOI-6	10/19/11	6154.94	Transducer	686	708.3	Intermediate
MCOI-6	10/18/11	6155.077	Transducer	686	708.3	Intermediate
MCOI-6	10/17/11	6155.148	Transducer	686	708.3	Intermediate
MCOI-6	10/16/11	6155.15	Transducer	686	708.3	Intermediate
MCOI-6	10/15/11	6155.295	Transducer	686	708.3	Intermediate
MCOI-6	10/14/11	6155.45	Transducer	686	708.3	Intermediate
MCOI-6	10/13/11	6155.497	Transducer	686	708.3	Intermediate
MCOI-6	10/12/11	6155.698	Transducer	686	708.3	Intermediate
MCOI-6	10/11/11	6155.729	Transducer	686	708.3	Intermediate
MCOI-6	10/10/11	6155.731	Transducer	686	708.3	Intermediate
MCOI-6	10/09/11	6155.841	Transducer	686	708.3	Intermediate
MCOI-6	10/08/11	6155.964	Transducer	686	708.3	Intermediate
MCOI-6	10/07/11	6155.772	Transducer	686	708.3	Intermediate
MCOI-6	10/06/11	6155.47	Transducer	686	708.3	Intermediate
MCOI-6	10/05/11	6155.13	Transducer	686	708.3	Intermediate
MCOI-6	10/04/11	6154.948	Transducer	686	708.3	Intermediate
MCOI-6	10/03/11	6154.922	Transducer	686	708.3	Intermediate
MCOI-6	10/02/11	6154.94	Transducer	686	708.3	Intermediate
MCOI-6	10/01/11	6155.014	Transducer	686	708.3	Intermediate
MCOI-6	09/30/11	6155.06	Transducer	686	708.3	Intermediate
MCOI-6	09/29/11	6155.3	Transducer	686	708.3	Intermediate
MCOI-6	09/28/11	6155.295	Transducer	686	708.3	Intermediate
MCOI-6	09/27/11	6155.378	Transducer	686	708.3	Intermediate
MCOI-6	09/26/11	6155.362	Transducer	686	708.3	Intermediate
MCOI-6	09/25/11	6155.209	Transducer	686	708.3	Intermediate
MCOI-6	09/24/11	6155.087	Transducer	686	708.3	Intermediate
MCOI-6	09/23/11	6155.13	Transducer	686	708.3	Intermediate
MCOI-6	09/22/11	6155.266	Transducer	686	708.3	Intermediate
MCOI-6	09/21/11	6155.262	Transducer	686	708.3	Intermediate
MCOI-6	09/20/11	6155.254	Transducer	686	708.3	Intermediate
MCOI-6	09/19/11	6155.246	Transducer	686	708.3	Intermediate
MCOI-6	09/18/11	6155.36	Transducer	686	708.3	Intermediate
MCOI-6	09/17/11	6155.375	Transducer	686	708.3	Intermediate
MCOI-6	09/16/11	6155.291	Transducer	686	708.3	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-6	09/15/11	6155.146	Transducer	686	708.3	Intermediate
MCOI-6	09/14/11	6155.017	Transducer	686	708.3	Intermediate
MCOI-6	09/13/11	6154.917	Transducer	686	708.3	Intermediate
MCOI-6	09/12/11	6154.896	Transducer	686	708.3	Intermediate
MCOI-6	09/11/11	6154.954	Transducer	686	708.3	Intermediate
MCOI-6	09/10/11	6155.017	Transducer	686	708.3	Intermediate
MCOI-6	09/09/11	6155.028	Transducer	686	708.3	Intermediate
MCOI-6	09/08/11	6155.036	Transducer	686	708.3	Intermediate
MCOI-6	09/07/11	6155.242	Transducer	686	708.3	Intermediate
MCOI-6	09/06/11	6155.287	Transducer	686	708.3	Intermediate
MCOI-6	09/05/11	6155.331	Transducer	686	708.3	Intermediate
MCOI-6	09/04/11	6155.486	Transducer	686	708.3	Intermediate
MCOI-6	09/03/11	6155.562	Transducer	686	708.3	Intermediate
MCOI-6	09/02/11	6155.48	Transducer	686	708.3	Intermediate
MCOI-6	09/01/11	6155.513	Transducer	686	708.3	Intermediate
MCOI-6	08/31/11	6155.486	Transducer	686	708.3	Intermediate
MCOI-6	08/30/11	6155.362	Transducer	686	708.3	Intermediate
MCOI-6	08/29/11	6155.258	Transducer	686	708.3	Intermediate
MCOI-6	08/28/11	6155.156	Transducer	686	708.3	Intermediate
MCOI-6	08/27/11	6155.13	Transducer	686	708.3	Intermediate
MCOI-6	08/26/11	6155.191	Transducer	686	708.3	Intermediate
MCOI-6	08/25/11	6155.274	Transducer	686	708.3	Intermediate
MCOI-6	08/24/11	6155.342	Transducer	686	708.3	Intermediate
MCOI-6	08/23/11	6155.34	Transducer	686	708.3	Intermediate
MCOI-6	08/22/11	6155.329	Transducer	686	708.3	Intermediate
MCOI-6	08/21/11	6155.454	Transducer	686	708.3	Intermediate
MCOI-6	08/20/11	6155.482	Transducer	686	708.3	Intermediate
MCOI-6	08/19/11	6155.42	Transducer	686	708.3	Intermediate
MCOI-6	08/19/11	6155.496	Transducer	686	708.3	Intermediate
MCOI-6	08/18/11	6155.37	Transducer	686	708.3	Intermediate
MCOI-6	08/17/11	6155.49	Transducer	686	708.3	Intermediate
MCOI-6	08/16/11	6155.61	Transducer	686	708.3	Intermediate
MCOI-6	08/15/11	6155.58	Transducer	686	708.3	Intermediate
MCOI-6	08/14/11	6155.56	Transducer	686	708.3	Intermediate
MCOI-6	08/13/11	6155.73	Transducer	686	708.3	Intermediate
MCOI-6	08/12/11	6155.78	Transducer	686	708.3	Intermediate
MCOI-6	08/11/11	6155.69	Transducer	686	708.3	Intermediate
MCOI-6	08/10/11	6155.67	Transducer	686	708.3	Intermediate
MCOI-6	08/09/11	6155.58	Transducer	686	708.3	Intermediate
MCOI-6	08/08/11	6155.53	Transducer	686	708.3	Intermediate
MCOI-6	08/07/11	6155.45	Transducer	686	708.3	Intermediate
MCOI-6	08/06/11	6155.4	Transducer	686	708.3	Intermediate
MCOI-6	08/05/11	6155.37	Transducer	686	708.3	Intermediate
MCOI-6	08/04/11	6155.3	Transducer	686	708.3	Intermediate
MCOI-6	08/03/11	6155.23	Transducer	686	708.3	Intermediate
MCOI-6	08/02/11	6155.2	Transducer	686	708.3	Intermediate
MCOI-6	08/01/11	6155.19	Transducer	686	708.3	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-6	07/31/11	6155.29	Transducer	686	708.3	Intermediate
MCOI-6	07/30/11	6155.41	Transducer	686	708.3	Intermediate
MCOI-6	07/29/11	6155.58	Transducer	686	708.3	Intermediate
MCOI-6	07/28/11	6155.64	Transducer	686	708.3	Intermediate
MCOI-6	07/27/11	6155.59	Transducer	686	708.3	Intermediate
MCOI-6	07/26/11	6155.51	Transducer	686	708.3	Intermediate
MCOI-6	07/25/11	6155.51	Transducer	686	708.3	Intermediate
MCOI-6	07/24/11	6155.65	Transducer	686	708.3	Intermediate
MCOI-6	07/23/11	6155.73	Transducer	686	708.3	Intermediate
MCOI-6	07/22/11	6155.69	Transducer	686	708.3	Intermediate
MCOI-6	07/21/11	6155.6	Transducer	686	708.3	Intermediate
MCOI-6	07/20/11	6155.53	Transducer	686	708.3	Intermediate
MCOI-6	07/19/11	6155.5	Transducer	686	708.3	Intermediate
MCOI-6	07/18/11	6155.58	Transducer	686	708.3	Intermediate
MCOI-6	07/17/11	6155.75	Transducer	686	708.3	Intermediate
MCOI-6	07/16/11	6155.89	Transducer	686	708.3	Intermediate
MCOI-6	07/15/11	6155.87	Transducer	686	708.3	Intermediate
MCOI-6	07/14/11	6155.79	Transducer	686	708.3	Intermediate
MCOI-6	07/13/11	6155.74	Transducer	686	708.3	Intermediate
MCOI-6	07/12/11	6155.74	Transducer	686	708.3	Intermediate
MCOI-6	07/11/11	6155.75	Transducer	686	708.3	Intermediate
MCOI-6	07/10/11	6155.73	Transducer	686	708.3	Intermediate
MCOI-6	07/09/11	6155.71	Transducer	686	708.3	Intermediate
MCOI-6	07/08/11	6155.59	Transducer	686	708.3	Intermediate
MCOI-6	07/07/11	6155.51	Transducer	686	708.3	Intermediate
MCOI-6	07/06/11	6155.51	Transducer	686	708.3	Intermediate
MCOI-6	07/05/11	6155.52	Transducer	686	708.3	Intermediate
MCOI-6	07/04/11	6155.55	Transducer	686	708.3	Intermediate
MCOI-6	07/03/11	6155.56	Transducer	686	708.3	Intermediate
MCOI-6	07/02/11	6155.66	Transducer	686	708.3	Intermediate
MCOI-6	07/01/11	6155.7	Transducer	686	708.3	Intermediate
MCOI-6	06/30/11	6155.7	Transducer	686	708.3	Intermediate
MCOI-6	06/29/11	6155.71	Transducer	686	708.3	Intermediate
MCOI-6	06/28/11	6155.8	Transducer	686	708.3	Intermediate
MCOI-6	06/27/11	6156.01	Transducer	686	708.3	Intermediate
MCOI-6	06/26/11	6156.04	Transducer	686	708.3	Intermediate
MCOI-6	06/25/11	6156.08	Transducer	686	708.3	Intermediate
MCOI-6	06/24/11	6156.12	Transducer	686	708.3	Intermediate
MCOI-6	06/23/11	6156.15	Transducer	686	708.3	Intermediate
MCOI-6	06/22/11	6156.3	Transducer	686	708.3	Intermediate
MCOI-6	06/21/11	6156.48	Transducer	686	708.3	Intermediate
MCOI-6	06/20/11	6156.51	Transducer	686	708.3	Intermediate
MCOI-6	06/19/11	6156.3	Transducer	686	708.3	Intermediate
MCOI-6	06/18/11	6156.25	Transducer	686	708.3	Intermediate
MCOI-6	06/17/11	6156.28	Transducer	686	708.3	Intermediate
MCOI-6	06/16/11	6156.14	Transducer	686	708.3	Intermediate
MCOI-6	06/15/11	6156.02	Transducer	686	708.3	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-6	06/14/11	6156.11	Transducer	686	708.3	Intermediate
MCOI-6	06/13/11	6156.18	Transducer	686	708.3	Intermediate
MCOI-6	06/12/11	6156.21	Transducer	686	708.3	Intermediate
MCOI-6	06/11/11	6156.12	Transducer	686	708.3	Intermediate
MCOI-6	06/10/11	6156.12	Transducer	686	708.3	Intermediate
MCOI-6	06/09/11	6156.08	Transducer	686	708.3	Intermediate
MCOI-6	06/08/11	6155.94	Transducer	686	708.3	Intermediate
MCOI-6	06/07/11	6155.83	Transducer	686	708.3	Intermediate
MCOI-6	06/06/11	6155.69	Transducer	686	708.3	Intermediate
MCOI-6	06/05/11	6155.71	Transducer	686	708.3	Intermediate
MCOI-6	06/04/11	6155.94	Transducer	686	708.3	Intermediate
MCOI-6	06/03/11	6156.06	Transducer	686	708.3	Intermediate
MCOI-6	06/02/11	6156.07	Transducer	686	708.3	Intermediate
MCOI-6	06/01/11	6156.08	Transducer	686	708.3	Intermediate
MCOI-6	05/31/11	6156.22	Transducer	686	708.3	Intermediate
MCOI-6	05/30/11	6156.59	Transducer	686	708.3	Intermediate
MCOI-6	05/29/11	6156.4	Transducer	686	708.3	Intermediate
MCOI-6	05/28/11	6156.2	Transducer	686	708.3	Intermediate
MCOI-6	05/27/11	6156.12	Transducer	686	708.3	Intermediate
MCOI-6	05/26/11	6156.1	Transducer	686	708.3	Intermediate
MCOI-6	05/25/11	6156.31	Transducer	686	708.3	Intermediate
MCOI-6	05/24/11	6156.42	Transducer	686	708.3	Intermediate
MCOI-6	05/23/11	6156.39	Transducer	686	708.3	Intermediate
MCOI-6	05/22/11	6156.48	Transducer	686	708.3	Intermediate
MCOI-6	05/21/11	6156.63	Transducer	686	708.3	Intermediate
MCOI-6	05/20/11	6156.78	Transducer	686	708.3	Intermediate
MCOI-6	05/19/11	6156.78	Transducer	686	708.3	Intermediate
MCOI-6	05/18/11	6156.5	Transducer	686	708.3	Intermediate
MCOI-6	05/17/11	6156.25	Transducer	686	708.3	Intermediate
MCOI-6	05/16/11	6156.11	Transducer	686	708.3	Intermediate
MCOI-6	05/15/11	6156.2	Transducer	686	708.3	Intermediate
MCOI-6	05/14/11	6156.26	Transducer	686	708.3	Intermediate
MCOI-6	05/13/11	6156.5	Transducer	686	708.3	Intermediate
MCOI-6	05/12/11	6156.84	Transducer	686	708.3	Intermediate
MCOI-6	05/11/11	6157	Transducer	686	708.3	Intermediate
MCOI-6	05/10/11	6156.74	Transducer	686	708.3	Intermediate
MCOI-6	05/09/11	6156.45	Transducer	686	708.3	Intermediate
MCOI-6	05/08/11	6156.12	Transducer	686	708.3	Intermediate
MCOI-6	05/07/11	6155.9	Transducer	686	708.3	Intermediate
MCOI-6	05/06/11	6155.7	Transducer	686	708.3	Intermediate
MCOI-6	05/05/11	6155.74	Transducer	686	708.3	Intermediate
MCOI-6	05/04/11	6155.85	Transducer	686	708.3	Intermediate
MCOI-6	05/03/11	6155.99	Transducer	686	708.3	Intermediate
MCOI-6	05/02/11	6156.38	Transducer	686	708.3	Intermediate
MCOI-6	05/01/11	6156.7	Transducer	686	708.3	Intermediate
MCOI-6	04/30/11	6156.71	Transducer	686	708.3	Intermediate
MCOI-6	04/29/11	6156.63	Transducer	686	708.3	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-6	04/28/11	6156.63	Transducer	686	708.3	Intermediate
MCOI-6	04/27/11	6157.04	Transducer	686	708.3	Intermediate
MCOI-6	04/26/11	6156.94	Transducer	686	708.3	Intermediate
MCOI-6	04/25/11	6156.67	Transducer	686	708.3	Intermediate
MCOI-6	04/24/11	6156.62	Transducer	686	708.3	Intermediate
MCOI-6	04/23/11	6156.64	Transducer	686	708.3	Intermediate
MCOI-6	04/22/11	6156.61	Transducer	686	708.3	Intermediate
MCOI-6	04/21/11	6156.56	Transducer	686	708.3	Intermediate
MCOI-6	04/20/11	6156.62	Transducer	686	708.3	Intermediate
MCOI-6	04/19/11	6156.73	Transducer	686	708.3	Intermediate
MCOI-6	04/18/11	6156.51	Transducer	686	708.3	Intermediate
MCOI-6	04/17/11	6156.4	Transducer	686	708.3	Intermediate
MCOI-6	04/16/11	6156.37	Transducer	686	708.3	Intermediate
MCOI-6	04/15/11	6156.46	Transducer	686	708.3	Intermediate
MCOI-6	04/14/11	6156.52	Transducer	686	708.3	Intermediate
MCOI-6	04/13/11	6156.45	Transducer	686	708.3	Intermediate
MCOI-6	04/12/11	6156.48	Transducer	686	708.3	Intermediate
MCOI-6	04/11/11	6156.75	Transducer	686	708.3	Intermediate
MCOI-6	04/10/11	6157.03	Transducer	686	708.3	Intermediate
MCOI-6	04/09/11	6156.97	Transducer	686	708.3	Intermediate
MCOI-6	04/08/11	6156.82	Transducer	686	708.3	Intermediate
MCOI-6	04/07/11	6156.64	Transducer	686	708.3	Intermediate
MCOI-6	04/06/11	6156.65	Transducer	686	708.3	Intermediate
MCOI-6	04/05/11	6156.53	Transducer	686	708.3	Intermediate
MCOI-6	04/04/11	6156.75	Transducer	686	708.3	Intermediate
MCOI-6	04/03/11	6156.72	Transducer	686	708.3	Intermediate
MCOI-6	04/02/11	6156.62	Transducer	686	708.3	Intermediate
MCOI-6	04/01/11	6156.77	Transducer	686	708.3	Intermediate
MCOI-6	03/31/11	6156.87	Transducer	686	708.3	Intermediate
MCOI-6	03/30/11	6156.96	Transducer	686	708.3	Intermediate
MCOI-6	03/29/11	6157.23	Transducer	686	708.3	Intermediate
MCOI-6	03/28/11	6157.29	Transducer	686	708.3	Intermediate
MCOI-6	03/27/11	6157.33	Transducer	686	708.3	Intermediate
MCOI-6	03/26/11	6157.22	Transducer	686	708.3	Intermediate
MCOI-6	03/25/11	6157.06	Transducer	686	708.3	Intermediate
MCOI-6	03/24/11	6157.01	Transducer	686	708.3	Intermediate
MCOI-6	03/23/11	6157.01	Transducer	686	708.3	Intermediate
MCOI-6	03/22/11	6156.99	Transducer	686	708.3	Intermediate
MCOI-6	03/21/11	6156.65	Transducer	686	708.3	Intermediate
MCOI-6	03/20/11	6156.58	Transducer	686	708.3	Intermediate
MCOI-6	03/19/11	6156.43	Transducer	686	708.3	Intermediate
MCOI-6	03/18/11	6156.49	Transducer	686	708.3	Intermediate
MCOI-6	03/17/11	6156.5	Transducer	686	708.3	Intermediate
MCOI-6	03/16/11	6156.4	Transducer	686	708.3	Intermediate
MCOI-6	03/15/11	6156.44	Transducer	686	708.3	Intermediate
MCOI-6	03/14/11	6156.39	Transducer	686	708.3	Intermediate
MCOI-6	03/13/11	6156.61	Transducer	686	708.3	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-6	03/12/11	6156.6	Transducer	686	708.3	Intermediate
MCOI-6	03/11/11	6156.65	Transducer	686	708.3	Intermediate
MCOI-6	03/10/11	6156.78	Transducer	686	708.3	Intermediate
MCOI-6	03/09/11	6157.19	Transducer	686	708.3	Intermediate
MCOI-6	03/08/11	6157.33	Transducer	686	708.3	Intermediate
MCOI-6	03/07/11	6156.88	Transducer	686	708.3	Intermediate
MCOI-6	03/06/11	6156.52	Transducer	686	708.3	Intermediate
MCOI-6	03/05/11	6156.5	Transducer	686	708.3	Intermediate
MCOI-6	03/04/11	6156.79	Transducer	686	708.3	Intermediate
MCOI-6	03/03/11	6156.74	Transducer	686	708.3	Intermediate
MCOI-6	03/02/11	6156.9	Transducer	686	708.3	Intermediate
MCOI-6	03/01/11	6157.12	Transducer	686	708.3	Intermediate
MCOI-6	02/28/11	6157.56	Transducer	686	708.3	Intermediate
MCOI-6	02/27/11	6157.66	Transducer	686	708.3	Intermediate
MCOI-6	02/26/11	6157.48	Transducer	686	708.3	Intermediate
MCOI-6	02/25/11	6157.38	Transducer	686	708.3	Intermediate
MCOI-6	02/24/11	6157.53	Transducer	686	708.3	Intermediate
MCOI-6	02/23/11	6157.45	Transducer	686	708.3	Intermediate
MCOI-6	02/22/11	6157.47	Transducer	686	708.3	Intermediate
MCOI-6	02/21/11	6157.48	Transducer	686	708.3	Intermediate
MCOI-6	02/20/11	6157.32	Transducer	686	708.3	Intermediate
MCOI-6	02/19/11	6156.96	Transducer	686	708.3	Intermediate
MCOI-6	02/18/11	6156.95	Transducer	686	708.3	Intermediate
MCOI-6	02/17/11	6156.88	Transducer	686	708.3	Intermediate
MCOI-6	02/16/11	6156.5	Transducer	686	708.3	Intermediate
MCOI-6	02/15/11	6156.38	Transducer	686	708.3	Intermediate
MCOI-6	02/14/11	6156.34	Transducer	686	708.3	Intermediate
MCOI-6	02/13/11	6156.43	Transducer	686	708.3	Intermediate
MCOI-6	02/12/11	6156.66	Transducer	686	708.3	Intermediate
MCOI-6	02/11/11	6157.03	Transducer	686	708.3	Intermediate
MCOI-6	02/10/11	6157.11	Transducer	686	708.3	Intermediate
MCOI-6	02/09/11	6157.13	Transducer	686	708.3	Intermediate
MCOI-6	02/08/11	6157.11	Transducer	686	708.3	Intermediate
MCOI-6	02/07/11	6156.84	Transducer	686	708.3	Intermediate
MCOI-6	02/06/11	6157.06	Transducer	686	708.3	Intermediate
MCOI-6	02/05/11	6156.85	Transducer	686	708.3	Intermediate
MCOI-6	02/04/11	6156.87	Transducer	686	708.3	Intermediate
MCOI-6	02/03/11	6156.94	Transducer	686	708.3	Intermediate
MCOI-6	02/02/11	6157.22	Transducer	686	708.3	Intermediate
MCOI-6	02/01/11	6157.18	Transducer	686	708.3	Intermediate
MCOI-6	01/31/11	6156.85	Transducer	686	708.3	Intermediate
MCOI-6	01/30/11	6156.64	Transducer	686	708.3	Intermediate
MCOI-6	01/29/11	6156.55	Transducer	686	708.3	Intermediate
MCOI-6	01/28/11	6156.47	Transducer	686	708.3	Intermediate
MCOI-6	01/27/11	6156.58	Transducer	686	708.3	Intermediate
MCOI-6	01/26/11	6156.85	Transducer	686	708.3	Intermediate
MCOI-6	01/25/11	6156.86	Transducer	686	708.3	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-6	01/24/11	6157.04	Transducer	686	708.3	Intermediate
MCOI-6	01/23/11	6157.11	Transducer	686	708.3	Intermediate
MCOI-6	01/22/11	6156.99	Transducer	686	708.3	Intermediate
MCOI-6	01/21/11	6157.06	Transducer	686	708.3	Intermediate
MCOI-6	01/20/11	6157.18	Transducer	686	708.3	Intermediate
MCOI-6	01/19/11	6156.96	Transducer	686	708.3	Intermediate
MCOI-6	01/18/11	6156.85	Transducer	686	708.3	Intermediate
MCOI-6	01/17/11	6156.55	Transducer	686	708.3	Intermediate
MCOI-6	01/16/11	6156.38	Transducer	686	708.3	Intermediate
MCOI-6	01/15/11	6156.27	Transducer	686	708.3	Intermediate
MCOI-6	01/14/11	6156.45	Transducer	686	708.3	Intermediate
MCOI-6	01/13/11	6156.6	Transducer	686	708.3	Intermediate
MCOI-6	01/12/11	6156.96	Transducer	686	708.3	Intermediate
MCOI-6	01/11/11	6157.32	Transducer	686	708.3	Intermediate
MCOI-6	01/10/11	6157.67	Transducer	686	708.3	Intermediate
MCOI-6	01/09/11	6157.38	Transducer	686	708.3	Intermediate
MCOI-6	01/08/11	6156.97	Transducer	686	708.3	Intermediate
MCOI-6	01/07/11	6156.83	Transducer	686	708.3	Intermediate
MCOI-6	01/06/11	6156.92	Transducer	686	708.3	Intermediate
MCOI-6	01/05/11	6157.22	Transducer	686	708.3	Intermediate
MCOI-6	01/04/11	6157.48	Transducer	686	708.3	Intermediate
MCOI-6	01/03/11	6157.75	Transducer	686	708.3	Intermediate
MCOI-6	01/02/11	6158.06	Transducer	686	708.3	Intermediate
MCOI-6	01/01/11	6158.55	Transducer	686	708.3	Intermediate
MCOI-6	12/31/10	6158.67	Transducer	686	708.3	Intermediate
MCOI-6	12/30/10	6157.94	Transducer	686	708.3	Intermediate
MCOI-6	12/29/10	6157.16	Transducer	686	708.3	Intermediate
MCOI-6	12/28/10	6156.86	Transducer	686	708.3	Intermediate
MCOI-6	12/27/10	6156.79	Transducer	686	708.3	Intermediate
MCOI-6	12/26/10	6156.66	Transducer	686	708.3	Intermediate
MCOI-6	12/25/10	6156.81	Transducer	686	708.3	Intermediate
MCOI-6	12/24/10	6157.12	Transducer	686	708.3	Intermediate
MCOI-6	12/23/10	6157.18	Transducer	686	708.3	Intermediate
MCOI-6	12/22/10	6157.29	Transducer	686	708.3	Intermediate
MCOI-6	12/21/10	6157.58	Transducer	686	708.3	Intermediate
MCOI-6	12/20/10	6157.7	Transducer	686	708.3	Intermediate
MCOI-6	12/19/10	6157.67	Transducer	686	708.3	Intermediate
MCOI-6	12/18/10	6157.67	Transducer	686	708.3	Intermediate
MCOI-6	12/17/10	6157.73	Transducer	686	708.3	Intermediate
MCOI-6	12/16/10	6157.54	Transducer	686	708.3	Intermediate
MCOI-6	12/15/10	6157.24	Transducer	686	708.3	Intermediate
MCOI-6	12/14/10	6156.93	Transducer	686	708.3	Intermediate
MCOI-6	12/13/10	6156.88	Transducer	686	708.3	Intermediate
MCOI-6	12/12/10	6156.96	Transducer	686	708.3	Intermediate
MCOI-6	12/11/10	6157.05	Transducer	686	708.3	Intermediate
MCOI-6	12/10/10	6156.84	Transducer	686	708.3	Intermediate
MCOI-6	12/09/10	6156.66	Transducer	686	708.3	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
MCOI-6	12/08/10	6156.54	Transducer	686	708.3	Intermediate
MCOI-6	12/07/10	6156.65	Transducer	686	708.3	Intermediate
MCOI-6	12/06/10	6156.54	Transducer	686	708.3	Intermediate
MCOI-6	12/05/10	6156.67	Transducer	686	708.3	Intermediate
MCOI-6	12/04/10	6156.78	Transducer	686	708.3	Intermediate
MCOI-6	12/03/10	6156.85	Transducer	686	708.3	Intermediate
MCOI-6	12/02/10	6157.09	Transducer	686	708.3	Intermediate
MCOI-6	12/01/10	6157.32	Transducer	686	708.3	Intermediate
MCOI-6	11/30/10	6157.7	Transducer	686	708.3	Intermediate
MCOI-6	11/29/10	6157.99	Transducer	686	708.3	Intermediate
MCOI-6	11/28/10	6157.61	Transducer	686	708.3	Intermediate
MCOI-6	11/27/10	6157.42	Transducer	686	708.3	Intermediate
MCOI-6	11/26/10	6157.7	Transducer	686	708.3	Intermediate
MCOI-6	11/25/10	6158.03	Transducer	686	708.3	Intermediate
MCOI-6	11/24/10	6157.89	Transducer	686	708.3	Intermediate
MCOI-6	11/23/10	6157.65	Transducer	686	708.3	Intermediate
MCOI-6	11/22/10	6157.78	Transducer	686	708.3	Intermediate
MCOI-6	11/21/10	6157.51	Transducer	686	708.3	Intermediate
MCOI-6	11/20/10	6157.36	Transducer	686	708.3	Intermediate
MCOI-6	11/19/10	6157.36	Transducer	686	708.3	Intermediate
MCOI-6	11/18/10	6157.49	Transducer	686	708.3	Intermediate
MCOI-6	11/17/10	6158.03	Transducer	686	708.3	Intermediate
MCOI-6	11/16/10	6157.84	Transducer	686	708.3	Intermediate
MCOI-6	11/15/10	6157.77	Transducer	686	708.3	Intermediate
MCOI-6	11/14/10	6157.55	Transducer	686	708.3	Intermediate
MCOI-6	11/13/10	6157.53	Transducer	686	708.3	Intermediate
MCOI-6	11/12/10	6157.81	Transducer	686	708.3	Intermediate
MCOI-6	11/11/10	6157.96	Transducer	686	708.3	Intermediate
MCOI-6	11/10/10	6157.55	Transducer	686	708.3	Intermediate
MCOI-6	11/09/10	6157.23	Transducer	686	708.3	Intermediate
MCOI-6	11/08/10	6156.7	Transducer	686	708.3	Intermediate
MCOI-6	11/07/10	6156.47	Transducer	686	708.3	Intermediate
MCOI-6	11/06/10	6156.36	Transducer	686	708.3	Intermediate
MCOI-6	11/05/10	6156.27	Transducer	686	708.3	Intermediate
MCOI-6	11/04/10	6156.22	Transducer	686	708.3	Intermediate
MCOI-6	11/03/10	6156.42	Transducer	686	708.3	Intermediate
MCOI-6	11/02/10	6156.56	Transducer	686	708.3	Intermediate
MCOI-6	11/01/10	6156.82	Transducer	686	708.3	Intermediate
MCOI-6	10/31/10	6156.84	Transducer	686	708.3	Intermediate
MCOI-6	10/30/10	6156.81	Transducer	686	708.3	Intermediate
R-1	11/15/12	5877.23	Transducer	1031.12	1057.42	Regional
R-1	11/14/12	5877.18	Transducer	1031.12	1057.42	Regional
R-1	11/13/12	5877.16	Transducer	1031.12	1057.42	Regional
R-1	11/12/12	5877.16	Transducer	1031.12	1057.42	Regional
R-1	11/11/12	5877.63	Transducer	1031.12	1057.42	Regional
R-1	11/10/12	5877.63	Transducer	1031.12	1057.42	Regional
R-1	11/09/12	5877.48	Transducer	1031.12	1057.42	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-1	11/08/12	5877.36	Transducer	1031.12	1057.42	Regional
R-1	11/07/12	5877.22	Transducer	1031.12	1057.42	Regional
R-1	11/06/12	5877.3	Transducer	1031.12	1057.42	Regional
R-1	11/05/12	5877.21	Transducer	1031.12	1057.42	Regional
R-1	11/04/12	5877.25	Transducer	1031.12	1057.42	Regional
R-1	11/03/12	5877.41	Transducer	1031.12	1057.42	Regional
R-1	11/02/12	5877.48	Transducer	1031.12	1057.42	Regional
R-1	11/01/12	5877.4	Transducer	1031.12	1057.42	Regional
R-1	10/31/12	5877.38	Transducer	1031.12	1057.42	Regional
R-1	10/30/12	5877.36	Transducer	1031.12	1057.42	Regional
R-1	10/29/12	5877.39	Transducer	1031.12	1057.42	Regional
R-1	10/28/12	5877.46	Transducer	1031.12	1057.42	Regional
R-1	10/27/12	5877.37	Transducer	1031.12	1057.42	Regional
R-1	10/26/12	5877.42	Transducer	1031.12	1057.42	Regional
R-1	10/25/12	5877.45	Manual	1031.12	1057.42	Regional
R-1	10/25/12	5877.58	Transducer	1031.12	1057.42	Regional
R-1	10/24/12	5877.54	Transducer	1031.12	1057.42	Regional
R-1	10/23/12	5877.51	Transducer	1031.12	1057.42	Regional
R-1	10/22/12	5877.54	Transducer	1031.12	1057.42	Regional
R-1	10/21/12	5877.63	Transducer	1031.12	1057.42	Regional
R-1	10/20/12	5877.52	Transducer	1031.12	1057.42	Regional
R-1	10/19/12	5877.37	Transducer	1031.12	1057.42	Regional
R-1	10/18/12	5877.54	Transducer	1031.12	1057.42	Regional
R-1	10/17/12	5877.69	Transducer	1031.12	1057.42	Regional
R-1	10/16/12	5877.56	Transducer	1031.12	1057.42	Regional
R-1	10/15/12	5877.33	Transducer	1031.12	1057.42	Regional
R-1	10/14/12	5877.41	Transducer	1031.12	1057.42	Regional
R-1	10/13/12	5877.53	Transducer	1031.12	1057.42	Regional
R-1	10/12/12	5877.42	Transducer	1031.12	1057.42	Regional
R-1	10/11/12	5877.46	Transducer	1031.12	1057.42	Regional
R-1	10/10/12	5877.43	Transducer	1031.12	1057.42	Regional
R-1	10/09/12	5877.55	Transducer	1031.12	1057.42	Regional
R-1	10/08/12	5877.47	Transducer	1031.12	1057.42	Regional
R-1	10/07/12	5877.45	Transducer	1031.12	1057.42	Regional
R-1	10/06/12	5877.53	Transducer	1031.12	1057.42	Regional
R-1	10/05/12	5877.43	Transducer	1031.12	1057.42	Regional
R-1	10/04/12	5877.39	Transducer	1031.12	1057.42	Regional
R-1	10/03/12	5877.49	Transducer	1031.12	1057.42	Regional
R-1	10/02/12	5877.35	Transducer	1031.12	1057.42	Regional
R-1	10/01/12	5877.36	Transducer	1031.12	1057.42	Regional
R-1	09/30/12	5877.36	Transducer	1031.12	1057.42	Regional
R-1	09/29/12	5877.35	Transducer	1031.12	1057.42	Regional
R-1	09/28/12	5877.45	Transducer	1031.12	1057.42	Regional
R-1	09/27/12	5877.42	Transducer	1031.12	1057.42	Regional
R-1	09/26/12	5877.5	Transducer	1031.12	1057.42	Regional
R-1	09/25/12	5877.47	Transducer	1031.12	1057.42	Regional
R-1	09/24/12	5877.33	Transducer	1031.12	1057.42	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-1	09/23/12	5877.31	Transducer	1031.12	1057.42	Regional
R-1	09/22/12	5877.37	Transducer	1031.12	1057.42	Regional
R-1	09/21/12	5877.36	Transducer	1031.12	1057.42	Regional
R-1	09/20/12	5877.33	Transducer	1031.12	1057.42	Regional
R-1	09/19/12	5877.31	Transducer	1031.12	1057.42	Regional
R-1	09/18/12	5877.34	Transducer	1031.12	1057.42	Regional
R-1	09/17/12	5877.41	Transducer	1031.12	1057.42	Regional
R-1	09/16/12	5877.28	Transducer	1031.12	1057.42	Regional
R-1	09/15/12	5877.17	Transducer	1031.12	1057.42	Regional
R-1	09/14/12	5877.1	Transducer	1031.12	1057.42	Regional
R-1	09/13/12	5877.21	Transducer	1031.12	1057.42	Regional
R-1	09/12/12	5877.34	Transducer	1031.12	1057.42	Regional
R-1	09/11/12	5877.3	Transducer	1031.12	1057.42	Regional
R-1	09/10/12	5877.23	Transducer	1031.12	1057.42	Regional
R-1	09/09/12	5877.11	Transducer	1031.12	1057.42	Regional
R-1	09/08/12	5877.16	Transducer	1031.12	1057.42	Regional
R-1	09/07/12	5877.26	Transducer	1031.12	1057.42	Regional
R-1	09/06/12	5877.25	Transducer	1031.12	1057.42	Regional
R-1	09/05/12	5877.29	Transducer	1031.12	1057.42	Regional
R-1	09/04/12	5877.25	Transducer	1031.12	1057.42	Regional
R-1	09/03/12	5877.27	Transducer	1031.12	1057.42	Regional
R-1	09/02/12	5877.26	Transducer	1031.12	1057.42	Regional
R-1	09/01/12	5877.2	Transducer	1031.12	1057.42	Regional
R-1	08/31/12	5877.22	Transducer	1031.12	1057.42	Regional
R-1	08/30/12	5877.18	Transducer	1031.12	1057.42	Regional
R-1	08/29/12	5877.09	Transducer	1031.12	1057.42	Regional
R-1	08/28/12	5877.09	Transducer	1031.12	1057.42	Regional
R-1	08/27/12	5877.12	Transducer	1031.12	1057.42	Regional
R-1	08/26/12	5877.33	Transducer	1031.12	1057.42	Regional
R-1	08/25/12	5877.44	Transducer	1031.12	1057.42	Regional
R-1	08/24/12	5877.38	Transducer	1031.12	1057.42	Regional
R-1	08/23/12	5877.29	Transducer	1031.12	1057.42	Regional
R-1	08/22/12	5877.22	Transducer	1031.12	1057.42	Regional
R-1	08/21/12	5877.28	Transducer	1031.12	1057.42	Regional
R-1	08/20/12	5877.2	Transducer	1031.12	1057.42	Regional
R-1	08/19/12	5877.34	Transducer	1031.12	1057.42	Regional
R-1	08/18/12	5877.27	Transducer	1031.12	1057.42	Regional
R-1	08/17/12	5877.19	Transducer	1031.12	1057.42	Regional
R-1	08/16/12	5877.24	Transducer	1031.12	1057.42	Regional
R-1	08/15/12	5877.22	Transducer	1031.12	1057.42	Regional
R-1	08/14/12	5877.13	Transducer	1031.12	1057.42	Regional
R-1	08/13/12	5877.08	Transducer	1031.12	1057.42	Regional
R-1	08/12/12	5877.23	Transducer	1031.12	1057.42	Regional
R-1	08/11/12	5877.24	Transducer	1031.12	1057.42	Regional
R-1	08/10/12	5877.21	Transducer	1031.12	1057.42	Regional
R-1	08/09/12	5877.15	Transducer	1031.12	1057.42	Regional
R-1	08/08/12	5877.2	Transducer	1031.12	1057.42	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-1	08/07/12	5877.2	Transducer	1031.12	1057.42	Regional
R-1	08/06/12	5877.02	Transducer	1031.12	1057.42	Regional
R-1	08/05/12	5877.18	Transducer	1031.12	1057.42	Regional
R-1	08/04/12	5877.32	Transducer	1031.12	1057.42	Regional
R-1	08/03/12	5877.3	Transducer	1031.12	1057.42	Regional
R-1	08/02/12	5877.29	Transducer	1031.12	1057.42	Regional
R-1	08/01/12	5877.24	Transducer	1031.12	1057.42	Regional
R-1	07/31/12	5877.35	Transducer	1031.12	1057.42	Regional
R-1	07/30/12	5877.3	Transducer	1031.12	1057.42	Regional
R-1	07/29/12	5877.26	Transducer	1031.12	1057.42	Regional
R-1	07/28/12	5877.23	Transducer	1031.12	1057.42	Regional
R-1	07/27/12	5877.38	Transducer	1031.12	1057.42	Regional
R-1	07/26/12	5877.45	Transducer	1031.12	1057.42	Regional
R-1	07/25/12	5877.48	Transducer	1031.12	1057.42	Regional
R-1	07/24/12	5877.35	Transducer	1031.12	1057.42	Regional
R-1	07/23/12	5877.32	Transducer	1031.12	1057.42	Regional
R-1	07/22/12	5877.25	Transducer	1031.12	1057.42	Regional
R-1	07/21/12	5877.25	Transducer	1031.12	1057.42	Regional
R-1	07/20/12	5877.18	Transducer	1031.12	1057.42	Regional
R-1	07/19/12	5877.28	Transducer	1031.12	1057.42	Regional
R-1	07/18/12	5877.38	Transducer	1031.12	1057.42	Regional
R-1	07/17/12	5877.38	Transducer	1031.12	1057.42	Regional
R-1	07/16/12	5877.36	Transducer	1031.12	1057.42	Regional
R-1	07/15/12	5877.3	Transducer	1031.12	1057.42	Regional
R-1	07/14/12	5877.26	Transducer	1031.12	1057.42	Regional
R-1	07/13/12	5877.2	Transducer	1031.12	1057.42	Regional
R-1	07/12/12	5877.21	Transducer	1031.12	1057.42	Regional
R-1	07/11/12	5877.15	Transducer	1031.12	1057.42	Regional
R-1	07/10/12	5877.13	Transducer	1031.12	1057.42	Regional
R-1	07/09/12	5877.16	Transducer	1031.12	1057.42	Regional
R-1	07/08/12	5877.17	Transducer	1031.12	1057.42	Regional
R-1	07/07/12	5877.2	Transducer	1031.12	1057.42	Regional
R-1	07/06/12	5877.21	Transducer	1031.12	1057.42	Regional
R-1	07/05/12	5877.29	Transducer	1031.12	1057.42	Regional
R-1	07/04/12	5877.34	Transducer	1031.12	1057.42	Regional
R-1	07/03/12	5877.3	Transducer	1031.12	1057.42	Regional
R-1	07/02/12	5877.28	Transducer	1031.12	1057.42	Regional
R-1	07/01/12	5877.32	Transducer	1031.12	1057.42	Regional
R-1	06/30/12	5877.31	Transducer	1031.12	1057.42	Regional
R-1	06/29/12	5877.15	Transducer	1031.12	1057.42	Regional
R-1	06/28/12	5877.19	Transducer	1031.12	1057.42	Regional
R-1	06/27/12	5877.3	Transducer	1031.12	1057.42	Regional
R-1	06/26/12	5877.27	Transducer	1031.12	1057.42	Regional
R-1	06/25/12	5877.21	Transducer	1031.12	1057.42	Regional
R-1	06/24/12	5877.33	Transducer	1031.12	1057.42	Regional
R-1	06/23/12	5877.52	Transducer	1031.12	1057.42	Regional
R-1	06/22/12	5877.39	Transducer	1031.12	1057.42	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-1	06/21/12	5877.44	Transducer	1031.12	1057.42	Regional
R-1	06/20/12	5877.7	Transducer	1031.12	1057.42	Regional
R-1	06/19/12	5877.66	Transducer	1031.12	1057.42	Regional
R-1	06/18/12	5877.6	Transducer	1031.12	1057.42	Regional
R-1	06/17/12	5877.32	Transducer	1031.12	1057.42	Regional
R-1	06/16/12	5877.48	Transducer	1031.12	1057.42	Regional
R-1	06/15/12	5877.66	Transducer	1031.12	1057.42	Regional
R-1	06/14/12	5877.69	Transducer	1031.12	1057.42	Regional
R-1	06/13/12	5877.6	Transducer	1031.12	1057.42	Regional
R-1	06/12/12	5877.44	Transducer	1031.12	1057.42	Regional
R-1	06/11/12	5877.6	Transducer	1031.12	1057.42	Regional
R-1	06/10/12	5877.77	Transducer	1031.12	1057.42	Regional
R-1	06/09/12	5877.71	Transducer	1031.12	1057.42	Regional
R-1	06/08/12	5877.61	Transducer	1031.12	1057.42	Regional
R-1	06/07/12	5877.67	Transducer	1031.12	1057.42	Regional
R-1	06/06/12	5877.63	Transducer	1031.12	1057.42	Regional
R-1	06/05/12	5877.61	Transducer	1031.12	1057.42	Regional
R-1	06/05/12	5877.817	Transducer	1031.12	1057.42	Regional
R-1	06/04/12	5877.825	Transducer	1031.12	1057.42	Regional
R-1	06/03/12	5877.892	Transducer	1031.12	1057.42	Regional
R-1	06/02/12	5877.864	Transducer	1031.12	1057.42	Regional
R-1	06/01/12	5877.86	Transducer	1031.12	1057.42	Regional
R-1	05/31/12	5877.917	Transducer	1031.12	1057.42	Regional
R-1	05/30/12	5877.874	Transducer	1031.12	1057.42	Regional
R-1	05/29/12	5877.817	Transducer	1031.12	1057.42	Regional
R-1	05/28/12	5877.846	Transducer	1031.12	1057.42	Regional
R-1	05/27/12	5877.957	Transducer	1031.12	1057.42	Regional
R-1	05/26/12	5878.017	Transducer	1031.12	1057.42	Regional
R-1	05/25/12	5878.161	Transducer	1031.12	1057.42	Regional
R-1	05/24/12	5878.286	Transducer	1031.12	1057.42	Regional
R-1	05/23/12	5878.085	Transducer	1031.12	1057.42	Regional
R-1	05/22/12	5877.802	Transducer	1031.12	1057.42	Regional
R-1	05/21/12	5877.688	Transducer	1031.12	1057.42	Regional
R-1	05/20/12	5877.81	Transducer	1031.12	1057.42	Regional
R-1	05/19/12	5878.024	Transducer	1031.12	1057.42	Regional
R-1	05/18/12	5878.08	Transducer	1031.12	1057.42	Regional
R-1	05/17/12	5877.842	Transducer	1031.12	1057.42	Regional
R-1	05/16/12	5877.66	Transducer	1031.12	1057.42	Regional
R-1	05/15/12	5877.664	Transducer	1031.12	1057.42	Regional
R-1	05/14/12	5877.71	Transducer	1031.12	1057.42	Regional
R-1	05/13/12	5877.634	Transducer	1031.12	1057.42	Regional
R-1	05/12/12	5877.691	Transducer	1031.12	1057.42	Regional
R-1	05/11/12	5878.009	Transducer	1031.12	1057.42	Regional
R-1	05/10/12	5877.851	Transducer	1031.12	1057.42	Regional
R-1	05/09/12	5877.74	Transducer	1031.12	1057.42	Regional
R-1	05/08/12	5877.721	Transducer	1031.12	1057.42	Regional
R-1	05/07/12	5877.875	Transducer	1031.12	1057.42	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-1	05/06/12	5877.913	Transducer	1031.12	1057.42	Regional
R-1	05/05/12	5877.917	Transducer	1031.12	1057.42	Regional
R-1	05/04/12	5877.853	Transducer	1031.12	1057.42	Regional
R-1	05/03/12	5877.935	Transducer	1031.12	1057.42	Regional
R-1	05/02/12	5878.012	Transducer	1031.12	1057.42	Regional
R-1	05/01/12	5878.016	Transducer	1031.12	1057.42	Regional
R-1	04/30/12	5877.912	Transducer	1031.12	1057.42	Regional
R-1	04/29/12	5878.025	Transducer	1031.12	1057.42	Regional
R-1	04/28/12	5877.994	Transducer	1031.12	1057.42	Regional
R-1	04/27/12	5878.063	Transducer	1031.12	1057.42	Regional
R-1	04/26/12	5877.861	Transducer	1031.12	1057.42	Regional
R-1	04/25/12	5877.926	Transducer	1031.12	1057.42	Regional
R-1	04/24/12	5877.867	Transducer	1031.12	1057.42	Regional
R-1	04/23/12	5877.748	Transducer	1031.12	1057.42	Regional
R-1	04/22/12	5877.817	Transducer	1031.12	1057.42	Regional
R-1	04/21/12	5877.867	Transducer	1031.12	1057.42	Regional
R-1	04/20/12	5877.967	Transducer	1031.12	1057.42	Regional
R-1	04/19/12	5878.07	Transducer	1031.12	1057.42	Regional
R-1	04/18/12	5877.918	Transducer	1031.12	1057.42	Regional
R-1	04/17/12	5877.829	Transducer	1031.12	1057.42	Regional
R-1	04/16/12	5877.959	Transducer	1031.12	1057.42	Regional
R-1	04/15/12	5878.348	Transducer	1031.12	1057.42	Regional
R-1	04/14/12	5878.327	Transducer	1031.12	1057.42	Regional
R-1	04/13/12	5878.11	Transducer	1031.12	1057.42	Regional
R-1	04/12/12	5878.119	Transducer	1031.12	1057.42	Regional
R-1	04/11/12	5877.972	Transducer	1031.12	1057.42	Regional
R-1	04/10/12	5877.888	Transducer	1031.12	1057.42	Regional
R-1	04/09/12	5877.814	Transducer	1031.12	1057.42	Regional
R-1	04/08/12	5877.663	Transducer	1031.12	1057.42	Regional
R-1	04/07/12	5877.975	Transducer	1031.12	1057.42	Regional
R-1	04/06/12	5878.124	Transducer	1031.12	1057.42	Regional
R-1	04/05/12	5878.088	Transducer	1031.12	1057.42	Regional
R-1	04/04/12	5878.09	Transducer	1031.12	1057.42	Regional
R-1	04/03/12	5878.209	Transducer	1031.12	1057.42	Regional
R-1	04/02/12	5878.342	Transducer	1031.12	1057.42	Regional
R-1	04/01/12	5878.109	Transducer	1031.12	1057.42	Regional
R-1	03/31/12	5878.005	Transducer	1031.12	1057.42	Regional
R-1	03/30/12	5878.046	Transducer	1031.12	1057.42	Regional
R-1	03/29/12	5878.08	Transducer	1031.12	1057.42	Regional
R-1	03/28/12	5878.001	Transducer	1031.12	1057.42	Regional
R-1	03/27/12	5878.066	Transducer	1031.12	1057.42	Regional
R-1	03/26/12	5878.122	Transducer	1031.12	1057.42	Regional
R-1	03/25/12	5877.948	Transducer	1031.12	1057.42	Regional
R-1	03/24/12	5877.958	Transducer	1031.12	1057.42	Regional
R-1	03/23/12	5878.073	Transducer	1031.12	1057.42	Regional
R-1	03/22/12	5878.093	Transducer	1031.12	1057.42	Regional
R-1	03/21/12	5878.095	Transducer	1031.12	1057.42	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-1	03/20/12	5878.419	Transducer	1031.12	1057.42	Regional
R-1	03/19/12	5878.396	Transducer	1031.12	1057.42	Regional
R-1	03/18/12	5878.271	Transducer	1031.12	1057.42	Regional
R-1	03/17/12	5878.089	Transducer	1031.12	1057.42	Regional
R-1	03/16/12	5878.014	Transducer	1031.12	1057.42	Regional
R-1	03/15/12	5877.957	Transducer	1031.12	1057.42	Regional
R-1	03/14/12	5878.043	Transducer	1031.12	1057.42	Regional
R-1	03/13/12	5877.989	Transducer	1031.12	1057.42	Regional
R-1	03/12/12	5878.118	Transducer	1031.12	1057.42	Regional
R-1	03/11/12	5878.232	Transducer	1031.12	1057.42	Regional
R-1	03/10/12	5877.903	Transducer	1031.12	1057.42	Regional
R-1	03/09/12	5877.71	Transducer	1031.12	1057.42	Regional
R-1	03/08/12	5878.147	Transducer	1031.12	1057.42	Regional
R-1	03/07/12	5878.358	Transducer	1031.12	1057.42	Regional
R-1	03/06/12	5878.053	Transducer	1031.12	1057.42	Regional
R-1	03/05/12	5877.87	Transducer	1031.12	1057.42	Regional
R-1	03/04/12	5877.891	Transducer	1031.12	1057.42	Regional
R-1	03/03/12	5878.111	Transducer	1031.12	1057.42	Regional
R-1	03/02/12	5878.357	Transducer	1031.12	1057.42	Regional
R-1	03/01/12	5878.265	Transducer	1031.12	1057.42	Regional
R-1	02/29/12	5878.116	Transducer	1031.12	1057.42	Regional
R-1	02/28/12	5878.313	Transducer	1031.12	1057.42	Regional
R-1	02/27/12	5878.127	Transducer	1031.12	1057.42	Regional
R-1	02/26/12	5878.22	Transducer	1031.12	1057.42	Regional
R-1	02/25/12	5877.984	Transducer	1031.12	1057.42	Regional
R-1	02/24/12	5878.112	Transducer	1031.12	1057.42	Regional
R-1	02/23/12	5878.375	Transducer	1031.12	1057.42	Regional
R-1	02/22/12	5878.069	Transducer	1031.12	1057.42	Regional
R-1	02/21/12	5878.084	Transducer	1031.12	1057.42	Regional
R-1	02/20/12	5878.381	Transducer	1031.12	1057.42	Regional
R-1	02/19/12	5878.176	Transducer	1031.12	1057.42	Regional
R-1	02/18/12	5878.141	Transducer	1031.12	1057.42	Regional
R-1	02/17/12	5878.098	Transducer	1031.12	1057.42	Regional
R-1	02/16/12	5878.064	Transducer	1031.12	1057.42	Regional
R-1	02/15/12	5878.385	Transducer	1031.12	1057.42	Regional
R-1	02/14/12	5878.304	Transducer	1031.12	1057.42	Regional
R-1	02/13/12	5878.342	Transducer	1031.12	1057.42	Regional
R-1	02/12/12	5878.006	Transducer	1031.12	1057.42	Regional
R-1	02/11/12	5877.929	Transducer	1031.12	1057.42	Regional
R-1	02/10/12	5877.944	Transducer	1031.12	1057.42	Regional
R-1	02/09/12	5877.984	Transducer	1031.12	1057.42	Regional
R-1	02/08/12	5877.852	Transducer	1031.12	1057.42	Regional
R-1	02/07/12	5878.053	Transducer	1031.12	1057.42	Regional
R-1	02/06/12	5877.917	Transducer	1031.12	1057.42	Regional
R-1	02/05/12	5877.784	Transducer	1031.12	1057.42	Regional
R-1	02/04/12	5877.927	Transducer	1031.12	1057.42	Regional
R-1	02/03/12	5878.189	Transducer	1031.12	1057.42	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-1	02/02/12	5878.018	Transducer	1031.12	1057.42	Regional
R-1	02/01/12	5877.87	Transducer	1031.12	1057.42	Regional
R-1	01/31/12	5878.035	Transducer	1031.12	1057.42	Regional
R-1	01/30/12	5877.885	Transducer	1031.12	1057.42	Regional
R-1	01/29/12	5877.748	Transducer	1031.12	1057.42	Regional
R-1	01/28/12	5877.816	Transducer	1031.12	1057.42	Regional
R-1	01/27/12	5878.055	Transducer	1031.12	1057.42	Regional
R-1	01/26/12	5877.921	Transducer	1031.12	1057.42	Regional
R-1	01/25/12	5877.92	Transducer	1031.12	1057.42	Regional
R-1	01/24/12	5878.179	Transducer	1031.12	1057.42	Regional
R-1	01/23/12	5878.021	Transducer	1031.12	1057.42	Regional
R-1	01/22/12	5878.375	Transducer	1031.12	1057.42	Regional
R-1	01/21/12	5878	Transducer	1031.12	1057.42	Regional
R-1	01/20/12	5878.106	Transducer	1031.12	1057.42	Regional
R-1	01/19/12	5877.925	Transducer	1031.12	1057.42	Regional
R-1	01/18/12	5877.832	Transducer	1031.12	1057.42	Regional
R-1	01/17/12	5878.022	Transducer	1031.12	1057.42	Regional
R-1	01/16/12	5878.045	Transducer	1031.12	1057.42	Regional
R-1	01/15/12	5877.813	Transducer	1031.12	1057.42	Regional
R-1	01/14/12	5877.745	Transducer	1031.12	1057.42	Regional
R-1	01/13/12	5877.912	Transducer	1031.12	1057.42	Regional
R-1	01/12/12	5877.945	Transducer	1031.12	1057.42	Regional
R-1	01/11/12	5878.01	Transducer	1031.12	1057.42	Regional
R-1	01/10/12	5877.807	Transducer	1031.12	1057.42	Regional
R-1	01/09/12	5877.79	Transducer	1031.12	1057.42	Regional
R-1	01/08/12	5878.031	Transducer	1031.12	1057.42	Regional
R-1	01/07/12	5877.919	Transducer	1031.12	1057.42	Regional
R-1	01/06/12	5877.866	Transducer	1031.12	1057.42	Regional
R-1	01/05/12	5877.544	Transducer	1031.12	1057.42	Regional
R-1	01/04/12	5877.621	Transducer	1031.12	1057.42	Regional
R-1	01/03/12	5877.447	Transducer	1031.12	1057.42	Regional
R-1	01/02/12	5877.354	Transducer	1031.12	1057.42	Regional
R-1	01/01/12	5877.483	Transducer	1031.12	1057.42	Regional
R-1	12/31/11	5877.81	Transducer	1031.12	1057.42	Regional
R-1	12/30/11	5877.729	Transducer	1031.12	1057.42	Regional
R-1	12/29/11	5877.687	Transducer	1031.12	1057.42	Regional
R-1	12/28/11	5877.74	Transducer	1031.12	1057.42	Regional
R-1	12/27/11	5877.621	Transducer	1031.12	1057.42	Regional
R-1	12/26/11	5877.702	Transducer	1031.12	1057.42	Regional
R-1	12/25/11	5877.498	Transducer	1031.12	1057.42	Regional
R-1	12/24/11	5877.602	Transducer	1031.12	1057.42	Regional
R-1	12/23/11	5877.748	Transducer	1031.12	1057.42	Regional
R-1	12/22/11	5878.029	Transducer	1031.12	1057.42	Regional
R-1	12/21/11	5877.991	Transducer	1031.12	1057.42	Regional
R-1	12/20/11	5877.938	Transducer	1031.12	1057.42	Regional
R-1	12/19/11	5878.026	Transducer	1031.12	1057.42	Regional
R-1	12/18/11	5877.566	Transducer	1031.12	1057.42	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-1	12/17/11	5877.465	Transducer	1031.12	1057.42	Regional
R-1	12/16/11	5877.668	Transducer	1031.12	1057.42	Regional
R-1	12/15/11	5877.761	Transducer	1031.12	1057.42	Regional
R-1	12/14/11	5877.976	Transducer	1031.12	1057.42	Regional
R-1	12/13/11	5877.869	Transducer	1031.12	1057.42	Regional
R-1	12/12/11	5877.81	Transducer	1031.12	1057.42	Regional
R-1	12/11/11	5877.672	Transducer	1031.12	1057.42	Regional
R-1	12/10/11	5877.526	Transducer	1031.12	1057.42	Regional
R-1	12/09/11	5877.682	Transducer	1031.12	1057.42	Regional
R-1	12/08/11	5877.724	Transducer	1031.12	1057.42	Regional
R-1	12/07/11	5877.639	Transducer	1031.12	1057.42	Regional
R-1	12/06/11	5877.693	Transducer	1031.12	1057.42	Regional
R-1	12/05/11	5877.857	Transducer	1031.12	1057.42	Regional
R-1	12/04/11	5877.77	Transducer	1031.12	1057.42	Regional
R-1	12/03/11	5877.99	Transducer	1031.12	1057.42	Regional
R-1	12/02/11	5877.653	Transducer	1031.12	1057.42	Regional
R-1	12/01/11	5877.903	Transducer	1031.12	1057.42	Regional
R-1	11/30/11	5877.903	Transducer	1031.12	1057.42	Regional
R-1	11/30/11	5877.571	Transducer	1031.12	1057.42	Regional
R-1	11/29/11	5877.546	Transducer	1031.12	1057.42	Regional
R-1	11/28/11	5877.453	Transducer	1031.12	1057.42	Regional
R-1	11/27/11	5877.302	Transducer	1031.12	1057.42	Regional
R-1	11/26/11	5877.748	Transducer	1031.12	1057.42	Regional
R-1	11/25/11	5877.748	Transducer	1031.12	1057.42	Regional
R-1	11/24/11	5877.592	Transducer	1031.12	1057.42	Regional
R-1	11/23/11	5877.45	Transducer	1031.12	1057.42	Regional
R-1	11/22/11	5877.612	Transducer	1031.12	1057.42	Regional
R-1	11/21/11	5877.702	Transducer	1031.12	1057.42	Regional
R-1	11/20/11	5877.836	Transducer	1031.12	1057.42	Regional
R-1	11/19/11	5877.992	Transducer	1031.12	1057.42	Regional
R-1	11/18/11	5877.806	Transducer	1031.12	1057.42	Regional
R-1	11/17/11	5877.524	Transducer	1031.12	1057.42	Regional
R-1	11/16/11	5877.817	Transducer	1031.12	1057.42	Regional
R-1	11/15/11	5877.884	Transducer	1031.12	1057.42	Regional
R-1	11/14/11	5877.914	Transducer	1031.12	1057.42	Regional
R-1	11/13/11	5877.931	Transducer	1031.12	1057.42	Regional
R-1	11/12/11	5877.833	Transducer	1031.12	1057.42	Regional
R-1	11/11/11	5877.566	Transducer	1031.12	1057.42	Regional
R-1	11/10/11	5877.429	Transducer	1031.12	1057.42	Regional
R-1	11/09/11	5877.571	Transducer	1031.12	1057.42	Regional
R-1	11/08/11	5877.938	Transducer	1031.12	1057.42	Regional
R-1	11/07/11	5877.896	Transducer	1031.12	1057.42	Regional
R-1	11/06/11	5877.96	Transducer	1031.12	1057.42	Regional
R-1	11/05/11	5878.063	Transducer	1031.12	1057.42	Regional
R-1	11/04/11	5877.746	Transducer	1031.12	1057.42	Regional
R-1	11/03/11	5877.529	Transducer	1031.12	1057.42	Regional
R-1	11/02/11	5877.989	Transducer	1031.12	1057.42	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-1	11/01/11	5877.77	Transducer	1031.12	1057.42	Regional
R-1	10/31/11	5877.587	Transducer	1031.12	1057.42	Regional
R-1	10/30/11	5877.752	Transducer	1031.12	1057.42	Regional
R-1	10/29/11	5877.641	Transducer	1031.12	1057.42	Regional
R-1	10/28/11	5877.741	Transducer	1031.12	1057.42	Regional
R-1	10/27/11	5877.876	Transducer	1031.12	1057.42	Regional
R-1	10/26/11	5877.778	Transducer	1031.12	1057.42	Regional
R-1	10/25/11	5877.677	Transducer	1031.12	1057.42	Regional
R-1	10/24/11	5877.552	Transducer	1031.12	1057.42	Regional
R-1	10/23/11	5877.611	Transducer	1031.12	1057.42	Regional
R-1	10/22/11	5877.592	Transducer	1031.12	1057.42	Regional
R-1	10/21/11	5877.628	Transducer	1031.12	1057.42	Regional
R-1	10/20/11	5877.71	Transducer	1031.12	1057.42	Regional
R-1	10/19/11	5877.542	Transducer	1031.12	1057.42	Regional
R-1	10/18/11	5877.61	Transducer	1031.12	1057.42	Regional
R-1	10/17/11	5877.679	Transducer	1031.12	1057.42	Regional
R-1	10/16/11	5877.555	Transducer	1031.12	1057.42	Regional
R-1	10/15/11	5877.56	Transducer	1031.12	1057.42	Regional
R-1	10/14/11	5877.618	Transducer	1031.12	1057.42	Regional
R-1	10/13/11	5877.543	Transducer	1031.12	1057.42	Regional
R-1	10/12/11	5877.62	Transducer	1031.12	1057.42	Regional
R-1	10/11/11	5877.693	Transducer	1031.12	1057.42	Regional
R-1	10/10/11	5877.617	Transducer	1031.12	1057.42	Regional
R-1	10/09/11	5877.583	Transducer	1031.12	1057.42	Regional
R-1	10/08/11	5877.758	Transducer	1031.12	1057.42	Regional
R-1	10/07/11	5877.663	Transducer	1031.12	1057.42	Regional
R-1	10/06/11	5877.72	Transducer	1031.12	1057.42	Regional
R-1	10/05/11	5877.552	Transducer	1031.12	1057.42	Regional
R-1	10/04/11	5877.401	Transducer	1031.12	1057.42	Regional
R-1	10/03/11	5877.356	Transducer	1031.12	1057.42	Regional
R-1	10/02/11	5877.339	Transducer	1031.12	1057.42	Regional
R-1	10/01/11	5877.328	Transducer	1031.12	1057.42	Regional
R-1	09/30/11	5877.262	Transducer	1031.12	1057.42	Regional
R-1	09/29/11	5877.417	Transducer	1031.12	1057.42	Regional
R-1	09/28/11	5877.329	Transducer	1031.12	1057.42	Regional
R-1	09/27/11	5877.4	Transducer	1031.12	1057.42	Regional
R-1	09/26/11	5877.53	Transducer	1031.12	1057.42	Regional
R-1	09/25/11	5877.427	Transducer	1031.12	1057.42	Regional
R-1	09/24/11	5877.324	Transducer	1031.12	1057.42	Regional
R-1	09/23/11	5877.245	Transducer	1031.12	1057.42	Regional
R-1	09/22/11	5877.356	Transducer	1031.12	1057.42	Regional
R-1	09/21/11	5877.393	Transducer	1031.12	1057.42	Regional
R-1	09/20/11	5877.411	Transducer	1031.12	1057.42	Regional
R-1	09/19/11	5877.312	Transducer	1031.12	1057.42	Regional
R-1	09/18/11	5877.39	Transducer	1031.12	1057.42	Regional
R-1	09/17/11	5877.498	Transducer	1031.12	1057.42	Regional
R-1	09/16/11	5877.47	Transducer	1031.12	1057.42	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-1	09/15/11	5877.446	Transducer	1031.12	1057.42	Regional
R-1	09/14/11	5877.435	Transducer	1031.12	1057.42	Regional
R-1	09/13/11	5877.458	Transducer	1031.12	1057.42	Regional
R-1	09/12/11	5877.2	Transducer	1031.12	1057.42	Regional
R-1	09/12/11	5877.28	Transducer	1031.12	1057.42	Regional
R-1	09/11/11	5877.19	Transducer	1031.12	1057.42	Regional
R-1	09/10/11	5877.26	Transducer	1031.12	1057.42	Regional
R-1	09/09/11	5877.22	Transducer	1031.12	1057.42	Regional
R-1	09/08/11	5877.15	Transducer	1031.12	1057.42	Regional
R-1	09/07/11	5877.33	Transducer	1031.12	1057.42	Regional
R-1	09/06/11	5877.34	Transducer	1031.12	1057.42	Regional
R-1	09/05/11	5877.24	Transducer	1031.12	1057.42	Regional
R-1	09/04/11	5877.34	Transducer	1031.12	1057.42	Regional
R-1	09/03/11	5877.44	Transducer	1031.12	1057.42	Regional
R-1	09/02/11	5877.36	Transducer	1031.12	1057.42	Regional
R-1	09/01/11	5877.36	Transducer	1031.12	1057.42	Regional
R-1	08/31/11	5877.43	Transducer	1031.12	1057.42	Regional
R-1	08/30/11	5877.45	Transducer	1031.12	1057.42	Regional
R-1	08/29/11	5877.38	Transducer	1031.12	1057.42	Regional
R-1	08/28/11	5877.28	Transducer	1031.12	1057.42	Regional
R-1	08/27/11	5877.17	Transducer	1031.12	1057.42	Regional
R-1	08/26/11	5877.14	Transducer	1031.12	1057.42	Regional
R-1	08/25/11	5877.2	Transducer	1031.12	1057.42	Regional
R-1	08/24/11	5877.29	Transducer	1031.12	1057.42	Regional
R-1	08/23/11	5877.3	Transducer	1031.12	1057.42	Regional
R-1	08/22/11	5877.23	Transducer	1031.12	1057.42	Regional
R-1	08/21/11	5877.32	Transducer	1031.12	1057.42	Regional
R-1	08/20/11	5877.36	Transducer	1031.12	1057.42	Regional
R-1	08/19/11	5877.34	Transducer	1031.12	1057.42	Regional
R-1	08/18/11	5877.2	Transducer	1031.12	1057.42	Regional
R-1	08/17/11	5877.24	Transducer	1031.12	1057.42	Regional
R-1	08/16/11	5877.38	Transducer	1031.12	1057.42	Regional
R-1	08/15/11	5877.34	Transducer	1031.12	1057.42	Regional
R-1	08/14/11	5877.16	Transducer	1031.12	1057.42	Regional
R-1	08/13/11	5877.29	Transducer	1031.12	1057.42	Regional
R-1	08/12/11	5877.35	Transducer	1031.12	1057.42	Regional
R-1	08/11/11	5877.35	Transducer	1031.12	1057.42	Regional
R-1	08/10/11	5877.41	Transducer	1031.12	1057.42	Regional
R-1	08/09/11	5877.39	Transducer	1031.12	1057.42	Regional
R-1	08/08/11	5877.43	Transducer	1031.12	1057.42	Regional
R-1	08/07/11	5877.39	Transducer	1031.12	1057.42	Regional
R-1	08/06/11	5877.33	Transducer	1031.12	1057.42	Regional
R-1	08/05/11	5877.31	Transducer	1031.12	1057.42	Regional
R-1	08/04/11	5877.31	Transducer	1031.12	1057.42	Regional
R-1	08/03/11	5877.28	Transducer	1031.12	1057.42	Regional
R-1	08/02/11	5877.27	Transducer	1031.12	1057.42	Regional
R-1	08/01/11	5877.17	Transducer	1031.12	1057.42	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-1	07/31/11	5877.13	Transducer	1031.12	1057.42	Regional
R-1	07/30/11	5877.12	Transducer	1031.12	1057.42	Regional
R-1	07/29/11	5877.19	Transducer	1031.12	1057.42	Regional
R-1	07/28/11	5877.24	Transducer	1031.12	1057.42	Regional
R-1	07/27/11	5877.21	Transducer	1031.12	1057.42	Regional
R-1	07/26/11	5877.15	Transducer	1031.12	1057.42	Regional
R-1	07/25/11	5877.05	Transducer	1031.12	1057.42	Regional
R-1	07/24/11	5877.13	Transducer	1031.12	1057.42	Regional
R-1	07/23/11	5877.23	Transducer	1031.12	1057.42	Regional
R-1	07/22/11	5877.27	Transducer	1031.12	1057.42	Regional
R-1	07/21/11	5877.25	Transducer	1031.12	1057.42	Regional
R-1	07/20/11	5877.21	Transducer	1031.12	1057.42	Regional
R-1	07/19/11	5877.13	Transducer	1031.12	1057.42	Regional
R-1	07/18/11	5877.06	Transducer	1031.12	1057.42	Regional
R-1	07/17/11	5877.16	Transducer	1031.12	1057.42	Regional
R-1	07/16/11	5877.3	Transducer	1031.12	1057.42	Regional
R-1	07/15/11	5877.34	Transducer	1031.12	1057.42	Regional
R-1	07/14/11	5877.32	Transducer	1031.12	1057.42	Regional
R-1	07/13/11	5877.3	Transducer	1031.12	1057.42	Regional
R-1	07/12/11	5877.25	Transducer	1031.12	1057.42	Regional
R-1	07/11/11	5877.23	Transducer	1031.12	1057.42	Regional
R-1	07/10/11	5877.28	Transducer	1031.12	1057.42	Regional
R-1	07/09/11	5877.33	Transducer	1031.12	1057.42	Regional
R-1	07/08/11	5877.31	Transducer	1031.12	1057.42	Regional
R-1	07/07/11	5877.24	Transducer	1031.12	1057.42	Regional
R-1	07/06/11	5877.22	Transducer	1031.12	1057.42	Regional
R-1	07/05/11	5877.24	Transducer	1031.12	1057.42	Regional
R-1	07/04/11	5877.34	Transducer	1031.12	1057.42	Regional
R-1	07/03/11	5877.3	Transducer	1031.12	1057.42	Regional
R-1	07/02/11	5877.35	Transducer	1031.12	1057.42	Regional
R-1	07/01/11	5877.39	Transducer	1031.12	1057.42	Regional
R-1	06/30/11	5877.35	Transducer	1031.12	1057.42	Regional
R-1	06/29/11	5877.24	Transducer	1031.12	1057.42	Regional
R-1	06/28/11	5877.2	Transducer	1031.12	1057.42	Regional
R-1	06/27/11	5877.4	Transducer	1031.12	1057.42	Regional
R-1	06/26/11	5877.41	Transducer	1031.12	1057.42	Regional
R-1	06/25/11	5877.48	Transducer	1031.12	1057.42	Regional
R-1	06/24/11	5877.47	Transducer	1031.12	1057.42	Regional
R-1	06/23/11	5877.39	Transducer	1031.12	1057.42	Regional
R-1	06/22/11	5877.41	Transducer	1031.12	1057.42	Regional
R-1	06/21/11	5877.53	Transducer	1031.12	1057.42	Regional
R-1	06/20/11	5877.71	Transducer	1031.12	1057.42	Regional
R-1	06/19/11	5877.63	Transducer	1031.12	1057.42	Regional
R-1	06/18/11	5877.54	Transducer	1031.12	1057.42	Regional
R-1	06/17/11	5877.68	Transducer	1031.12	1057.42	Regional
R-1	06/16/11	5877.65	Transducer	1031.12	1057.42	Regional
R-1	06/15/11	5877.52	Transducer	1031.12	1057.42	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-1	06/14/11	5877.57	Transducer	1031.12	1057.42	Regional
R-1	06/13/11	5877.6	Transducer	1031.12	1057.42	Regional
R-1	06/12/11	5877.64	Transducer	1031.12	1057.42	Regional
R-1	06/11/11	5877.58	Transducer	1031.12	1057.42	Regional
R-1	06/10/11	5877.64	Transducer	1031.12	1057.42	Regional
R-1	06/09/11	5877.7	Transducer	1031.12	1057.42	Regional
R-1	06/08/11	5877.72	Transducer	1031.12	1057.42	Regional
R-1	06/07/11	5877.72	Transducer	1031.12	1057.42	Regional
R-1	06/06/11	5877.54	Transducer	1031.12	1057.42	Regional
R-1	06/05/11	5877.44	Transducer	1031.12	1057.42	Regional
R-1	06/04/11	5877.61	Transducer	1031.12	1057.42	Regional
R-1	06/03/11	5877.7	Transducer	1031.12	1057.42	Regional
R-1	06/02/11	5877.63	Transducer	1031.12	1057.42	Regional
R-1	06/01/11	5877.42	Transducer	1031.12	1057.42	Regional
R-1	05/31/11	5877.52	Transducer	1031.12	1057.42	Regional
R-1	05/30/11	5877.98	Transducer	1031.12	1057.42	Regional
R-1	05/29/11	5877.94	Transducer	1031.12	1057.42	Regional
R-1	05/28/11	5877.82	Transducer	1031.12	1057.42	Regional
R-1	05/27/11	5877.77	Transducer	1031.12	1057.42	Regional
R-1	05/26/11	5877.6	Transducer	1031.12	1057.42	Regional
R-1	05/25/11	5877.7	Transducer	1031.12	1057.42	Regional
R-1	05/24/11	5877.88	Transducer	1031.12	1057.42	Regional
R-1	05/23/11	5877.76	Transducer	1031.12	1057.42	Regional
R-1	05/22/11	5877.71	Transducer	1031.12	1057.42	Regional
R-1	05/21/11	5877.76	Transducer	1031.12	1057.42	Regional
R-1	05/20/11	5877.86	Transducer	1031.12	1057.42	Regional
R-1	05/19/11	5878.01	Transducer	1031.12	1057.42	Regional
R-1	05/18/11	5877.94	Transducer	1031.12	1057.42	Regional
R-1	05/17/11	5877.86	Transducer	1031.12	1057.42	Regional
R-1	05/16/11	5877.7	Transducer	1031.12	1057.42	Regional
R-1	05/15/11	5877.7	Transducer	1031.12	1057.42	Regional
R-1	05/14/11	5877.56	Transducer	1031.12	1057.42	Regional
R-1	05/13/11	5877.54	Transducer	1031.12	1057.42	Regional
R-1	05/12/11	5877.74	Transducer	1031.12	1057.42	Regional
R-1	05/11/11	5877.97	Transducer	1031.12	1057.42	Regional
R-1	05/10/11	5877.93	Transducer	1031.12	1057.42	Regional
R-1	05/09/11	5877.92	Transducer	1031.12	1057.42	Regional
R-1	05/08/11	5877.78	Transducer	1031.12	1057.42	Regional
R-1	05/07/11	5877.7	Transducer	1031.12	1057.42	Regional
R-1	05/06/11	5877.54	Transducer	1031.12	1057.42	Regional
R-1	05/05/11	5877.49	Transducer	1031.12	1057.42	Regional
R-1	05/04/11	5877.44	Transducer	1031.12	1057.42	Regional
R-1	05/03/11	5877.33	Transducer	1031.12	1057.42	Regional
R-1	05/02/11	5877.46	Transducer	1031.12	1057.42	Regional
R-1	05/01/11	5877.72	Transducer	1031.12	1057.42	Regional
R-1	04/30/11	5877.82	Transducer	1031.12	1057.42	Regional
R-1	04/29/11	5877.69	Transducer	1031.12	1057.42	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-1	04/28/11	5877.43	Transducer	1031.12	1057.42	Regional
R-1	04/27/11	5877.82	Transducer	1031.12	1057.42	Regional
R-1	04/26/11	5877.83	Transducer	1031.12	1057.42	Regional
R-1	04/25/11	5877.72	Transducer	1031.12	1057.42	Regional
R-1	04/24/11	5877.68	Transducer	1031.12	1057.42	Regional
R-1	04/23/11	5877.74	Transducer	1031.12	1057.42	Regional
R-1	04/22/11	5877.74	Transducer	1031.12	1057.42	Regional
R-1	04/21/11	5877.64	Transducer	1031.12	1057.42	Regional
R-1	04/20/11	5877.63	Transducer	1031.12	1057.42	Regional
R-1	04/19/11	5877.85	Transducer	1031.12	1057.42	Regional
R-1	04/18/11	5877.71	Transducer	1031.12	1057.42	Regional
R-1	04/17/11	5877.64	Transducer	1031.12	1057.42	Regional
R-1	04/16/11	5877.56	Transducer	1031.12	1057.42	Regional
R-1	04/15/11	5877.62	Transducer	1031.12	1057.42	Regional
R-1	04/14/11	5877.76	Transducer	1031.12	1057.42	Regional
R-1	04/13/11	5877.65	Transducer	1031.12	1057.42	Regional
R-1	04/12/11	5877.47	Transducer	1031.12	1057.42	Regional
R-1	04/11/11	5877.48	Transducer	1031.12	1057.42	Regional
R-1	04/10/11	5877.73	Transducer	1031.12	1057.42	Regional
R-1	04/09/11	5877.8	Transducer	1031.12	1057.42	Regional
R-1	04/08/11	5877.83	Transducer	1031.12	1057.42	Regional
R-1	04/07/11	5877.72	Transducer	1031.12	1057.42	Regional
R-1	04/06/11	5877.73	Transducer	1031.12	1057.42	Regional
R-1	04/05/11	5877.48	Transducer	1031.12	1057.42	Regional
R-1	04/04/11	5877.66	Transducer	1031.12	1057.42	Regional
R-1	04/03/11	5877.72	Transducer	1031.12	1057.42	Regional
R-1	04/02/11	5877.55	Transducer	1031.12	1057.42	Regional
R-1	04/01/11	5877.68	Transducer	1031.12	1057.42	Regional
R-1	03/31/11	5877.67	Transducer	1031.12	1057.42	Regional
R-1	03/30/11	5877.6	Transducer	1031.12	1057.42	Regional
R-1	03/29/11	5877.76	Transducer	1031.12	1057.42	Regional
R-1	03/28/11	5877.78	Transducer	1031.12	1057.42	Regional
R-1	03/27/11	5877.86	Transducer	1031.12	1057.42	Regional
R-1	03/26/11	5877.82	Transducer	1031.12	1057.42	Regional
R-1	03/25/11	5877.74	Transducer	1031.12	1057.42	Regional
R-1	03/24/11	5877.72	Transducer	1031.12	1057.42	Regional
R-1	03/23/11	5877.7	Transducer	1031.12	1057.42	Regional
R-1	03/22/11	5877.9	Transducer	1031.12	1057.42	Regional
R-1	03/21/11	5877.65	Transducer	1031.12	1057.42	Regional
R-1	03/20/11	5877.61	Transducer	1031.12	1057.42	Regional
R-1	03/19/11	5877.49	Transducer	1031.12	1057.42	Regional
R-1	03/18/11	5877.57	Transducer	1031.12	1057.42	Regional
R-1	03/17/11	5877.64	Transducer	1031.12	1057.42	Regional
R-1	03/16/11	5877.55	Transducer	1031.12	1057.42	Regional
R-1	03/15/11	5877.56	Transducer	1031.12	1057.42	Regional
R-1	03/14/11	5877.4	Transducer	1031.12	1057.42	Regional
R-1	03/13/11	5877.62	Transducer	1031.12	1057.42	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-1	03/12/11	5877.6	Transducer	1031.12	1057.42	Regional
R-1	03/11/11	5877.53	Transducer	1031.12	1057.42	Regional
R-1	03/10/11	5877.33	Transducer	1031.12	1057.42	Regional
R-1	03/09/11	5877.57	Transducer	1031.12	1057.42	Regional
R-1	03/08/11	5878.02	Transducer	1031.12	1057.42	Regional
R-1	03/07/11	5877.88	Transducer	1031.12	1057.42	Regional
R-1	03/06/11	5877.53	Transducer	1031.12	1057.42	Regional
R-1	03/05/11	5877.36	Transducer	1031.12	1057.42	Regional
R-1	03/04/11	5877.73	Transducer	1031.12	1057.42	Regional
R-1	03/03/11	5877.58	Transducer	1031.12	1057.42	Regional
R-1	03/02/11	5877.53	Transducer	1031.12	1057.42	Regional
R-1	03/01/11	5877.42	Transducer	1031.12	1057.42	Regional
R-1	02/28/11	5877.66	Transducer	1031.12	1057.42	Regional
R-1	02/27/11	5877.98	Transducer	1031.12	1057.42	Regional
R-1	02/26/11	5877.85	Transducer	1031.12	1057.42	Regional
R-1	02/25/11	5877.73	Transducer	1031.12	1057.42	Regional
R-1	02/24/11	5877.89	Transducer	1031.12	1057.42	Regional
R-1	02/23/11	5877.77	Transducer	1031.12	1057.42	Regional
R-1	02/22/11	5877.76	Transducer	1031.12	1057.42	Regional
R-1	02/21/11	5877.87	Transducer	1031.12	1057.42	Regional
R-1	02/20/11	5877.93	Transducer	1031.12	1057.42	Regional
R-1	02/19/11	5877.56	Transducer	1031.12	1057.42	Regional
R-1	02/18/11	5877.64	Transducer	1031.12	1057.42	Regional
R-1	02/17/11	5877.85	Transducer	1031.12	1057.42	Regional
R-1	02/16/11	5877.65	Transducer	1031.12	1057.42	Regional
R-1	02/15/11	5877.59	Transducer	1031.12	1057.42	Regional
R-1	02/14/11	5877.46	Transducer	1031.12	1057.42	Regional
R-1	02/13/11	5877.37	Transducer	1031.12	1057.42	Regional
R-1	02/12/11	5877.38	Transducer	1031.12	1057.42	Regional
R-1	02/11/11	5877.67	Transducer	1031.12	1057.42	Regional
R-1	02/10/11	5877.71	Transducer	1031.12	1057.42	Regional
R-1	02/09/11	5877.8	Transducer	1031.12	1057.42	Regional
R-1	02/08/11	5877.97	Transducer	1031.12	1057.42	Regional
R-1	02/07/11	5877.56	Transducer	1031.12	1057.42	Regional
R-1	02/06/11	5877.9	Transducer	1031.12	1057.42	Regional
R-1	02/05/11	5877.8	Transducer	1031.12	1057.42	Regional
R-1	02/04/11	5877.72	Transducer	1031.12	1057.42	Regional
R-1	02/03/11	5877.6	Transducer	1031.12	1057.42	Regional
R-1	02/02/11	5877.82	Transducer	1031.12	1057.42	Regional
R-1	02/01/11	5877.98	Transducer	1031.12	1057.42	Regional
R-1	01/31/11	5877.85	Transducer	1031.12	1057.42	Regional
R-1	01/30/11	5877.73	Transducer	1031.12	1057.42	Regional
R-1	01/29/11	5877.75	Transducer	1031.12	1057.42	Regional
R-1	01/28/11	5877.59	Transducer	1031.12	1057.42	Regional
R-1	01/27/11	5877.55	Transducer	1031.12	1057.42	Regional
R-1	01/26/11	5877.74	Transducer	1031.12	1057.42	Regional
R-1	01/25/11	5877.64	Transducer	1031.12	1057.42	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-1	01/24/11	5877.8	Transducer	1031.12	1057.42	Regional
R-1	01/23/11	5877.86	Transducer	1031.12	1057.42	Regional
R-1	01/22/11	5877.76	Transducer	1031.12	1057.42	Regional
R-1	01/21/11	5877.75	Transducer	1031.12	1057.42	Regional
R-1	01/20/11	5877.89	Transducer	1031.12	1057.42	Regional
R-1	01/19/11	5877.83	Transducer	1031.12	1057.42	Regional
R-1	01/18/11	5877.88	Transducer	1031.12	1057.42	Regional
R-1	01/17/11	5877.74	Transducer	1031.12	1057.42	Regional
R-1	01/16/11	5877.67	Transducer	1031.12	1057.42	Regional
R-1	01/15/11	5877.51	Transducer	1031.12	1057.42	Regional
R-1	01/14/11	5877.62	Transducer	1031.12	1057.42	Regional
R-1	01/13/11	5877.49	Transducer	1031.12	1057.42	Regional
R-1	01/12/11	5877.52	Transducer	1031.12	1057.42	Regional
R-1	01/11/11	5877.6	Transducer	1031.12	1057.42	Regional
R-1	01/10/11	5878.04	Transducer	1031.12	1057.42	Regional
R-1	01/09/11	5878.07	Transducer	1031.12	1057.42	Regional
R-1	01/08/11	5877.87	Transducer	1031.12	1057.42	Regional
R-1	01/07/11	5877.7	Transducer	1031.12	1057.42	Regional
R-1	01/06/11	5877.59	Transducer	1031.12	1057.42	Regional
R-1	01/05/11	5877.67	Transducer	1031.12	1057.42	Regional
R-1	01/04/11	5877.76	Transducer	1031.12	1057.42	Regional
R-1	01/03/11	5877.74	Transducer	1031.12	1057.42	Regional
R-1	01/02/11	5877.62	Transducer	1031.12	1057.42	Regional
R-1	01/01/11	5877.94	Transducer	1031.12	1057.42	Regional
R-1	12/31/10	5878.46	Transducer	1031.12	1057.42	Regional
R-1	12/30/10	5878.4	Transducer	1031.12	1057.42	Regional
R-1	12/29/10	5877.94	Transducer	1031.12	1057.42	Regional
R-1	12/28/10	5877.76	Transducer	1031.12	1057.42	Regional
R-1	12/27/10	5877.76	Transducer	1031.12	1057.42	Regional
R-1	12/26/10	5877.56	Transducer	1031.12	1057.42	Regional
R-1	12/25/10	5877.53	Transducer	1031.12	1057.42	Regional
R-1	12/24/10	5877.73	Transducer	1031.12	1057.42	Regional
R-1	12/23/10	5877.75	Transducer	1031.12	1057.42	Regional
R-1	12/22/10	5877.69	Transducer	1031.12	1057.42	Regional
R-1	12/21/10	5877.86	Transducer	1031.12	1057.42	Regional
R-1	12/20/10	5877.96	Transducer	1031.12	1057.42	Regional
R-1	12/19/10	5877.92	Transducer	1031.12	1057.42	Regional
R-1	12/18/10	5877.89	Transducer	1031.12	1057.42	Regional
R-1	12/17/10	5878.04	Transducer	1031.12	1057.42	Regional
R-1	12/16/10	5878.05	Transducer	1031.12	1057.42	Regional
R-1	12/15/10	5878.06	Transducer	1031.12	1057.42	Regional
R-1	12/14/10	5877.79	Transducer	1031.12	1057.42	Regional
R-1	12/13/10	5877.63	Transducer	1031.12	1057.42	Regional
R-1	12/12/10	5877.65	Transducer	1031.12	1057.42	Regional
R-1	12/11/10	5877.88	Transducer	1031.12	1057.42	Regional
R-1	12/10/10	5877.88	Transducer	1031.12	1057.42	Regional
R-1	12/09/10	5877.78	Transducer	1031.12	1057.42	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-1	12/08/10	5877.63	Transducer	1031.12	1057.42	Regional
R-1	12/07/10	5877.81	Transducer	1031.12	1057.42	Regional
R-1	12/06/10	5877.64	Transducer	1031.12	1057.42	Regional
R-1	12/05/10	5877.72	Transducer	1031.12	1057.42	Regional
R-1	12/04/10	5877.78	Transducer	1031.12	1057.42	Regional
R-1	12/03/10	5877.78	Transducer	1031.12	1057.42	Regional
R-1	12/02/10	5877.8	Transducer	1031.12	1057.42	Regional
R-1	12/01/10	5877.73	Transducer	1031.12	1057.42	Regional
R-1	11/30/10	5877.87	Transducer	1031.12	1057.42	Regional
R-1	11/29/10	5878.38	Transducer	1031.12	1057.42	Regional
R-1	11/28/10	5878.24	Transducer	1031.12	1057.42	Regional
R-1	11/27/10	5877.88	Transducer	1031.12	1057.42	Regional
R-1	11/26/10	5877.91	Transducer	1031.12	1057.42	Regional
R-1	11/25/10	5878.28	Transducer	1031.12	1057.42	Regional
R-1	11/24/10	5878.31	Transducer	1031.12	1057.42	Regional
R-1	11/23/10	5877.99	Transducer	1031.12	1057.42	Regional
R-1	11/22/10	5878.27	Transducer	1031.12	1057.42	Regional
R-1	11/21/10	5878.17	Transducer	1031.12	1057.42	Regional
R-1	11/20/10	5878.07	Transducer	1031.12	1057.42	Regional
R-1	11/19/10	5877.98	Transducer	1031.12	1057.42	Regional
R-1	11/18/10	5877.81	Transducer	1031.12	1057.42	Regional
R-1	11/17/10	5878.33	Transducer	1031.12	1057.42	Regional
R-1	11/16/10	5878.19	Transducer	1031.12	1057.42	Regional
R-1	11/15/10	5878.37	Transducer	1031.12	1057.42	Regional
R-1	11/14/10	5878.16	Transducer	1031.12	1057.42	Regional
R-1	11/13/10	5877.95	Transducer	1031.12	1057.42	Regional
R-1	11/12/10	5878.08	Transducer	1031.12	1057.42	Regional
R-1	11/11/10	5878.34	Transducer	1031.12	1057.42	Regional
R-1	11/10/10	5878.35	Transducer	1031.12	1057.42	Regional
R-1	11/09/10	5878.48	Transducer	1031.12	1057.42	Regional
R-1	11/08/10	5878.17	Transducer	1031.12	1057.42	Regional
R-1	11/07/10	5878.05	Transducer	1031.12	1057.42	Regional
R-1	11/06/10	5878.03	Transducer	1031.12	1057.42	Regional
R-1	11/05/10	5877.97	Transducer	1031.12	1057.42	Regional
R-1	11/04/10	5877.78	Transducer	1031.12	1057.42	Regional
R-1	11/03/10	5877.85	Transducer	1031.12	1057.42	Regional
R-1	11/02/10	5877.84	Transducer	1031.12	1057.42	Regional
R-1	11/01/10	5878.06	Transducer	1031.12	1057.42	Regional
R-1	10/31/10	5878.15	Transducer	1031.12	1057.42	Regional
R-1	10/30/10	5878.03	Transducer	1031.12	1057.42	Regional
R-11	11/15/12	5834.97	Transducer	855	877.9	Regional
R-11	11/14/12	5834.88	Transducer	855	877.9	Regional
R-11	11/13/12	5834.86	Transducer	855	877.9	Regional
R-11	11/12/12	5834.87	Transducer	855	877.9	Regional
R-11	11/11/12	5835.36	Transducer	855	877.9	Regional
R-11	11/10/12	5835.4	Transducer	855	877.9	Regional
R-11	11/09/12	5835.23	Transducer	855	877.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-11	11/08/12	5835.11	Transducer	855	877.9	Regional
R-11	11/07/12	5834.92	Transducer	855	877.9	Regional
R-11	11/06/12	5834.94	Transducer	855	877.9	Regional
R-11	11/05/12	5834.9	Transducer	855	877.9	Regional
R-11	11/04/12	5834.96	Transducer	855	877.9	Regional
R-11	11/03/12	5835.05	Transducer	855	877.9	Regional
R-11	11/02/12	5835.11	Transducer	855	877.9	Regional
R-11	11/01/12	5834.99	Transducer	855	877.9	Regional
R-11	10/31/12	5835	Transducer	855	877.9	Regional
R-11	10/30/12	5834.96	Transducer	855	877.9	Regional
R-11	10/29/12	5834.97	Transducer	855	877.9	Regional
R-11	10/28/12	5835	Transducer	855	877.9	Regional
R-11	10/27/12	5834.9	Transducer	855	877.9	Regional
R-11	10/26/12	5834.97	Transducer	855	877.9	Regional
R-11	10/25/12	5835.19	Transducer	855	877.9	Regional
R-11	10/24/12	5835.15	Transducer	855	877.9	Regional
R-11	10/23/12	5835.15	Transducer	855	877.9	Regional
R-11	10/22/12	5835.19	Transducer	855	877.9	Regional
R-11	10/21/12	5835.23	Transducer	855	877.9	Regional
R-11	10/20/12	5835.14	Transducer	855	877.9	Regional
R-11	10/19/12	5835.05	Transducer	855	877.9	Regional
R-11	10/18/12	5835.15	Transducer	855	877.9	Regional
R-11	10/17/12	5835.31	Transducer	855	877.9	Regional
R-11	10/16/12	5835.16	Transducer	855	877.9	Regional
R-11	10/15/12	5834.94	Transducer	855	877.9	Regional
R-11	10/14/12	5834.98	Transducer	855	877.9	Regional
R-11	10/13/12	5835.14	Transducer	855	877.9	Regional
R-11	10/12/12	5835.06	Transducer	855	877.9	Regional
R-11	10/11/12	5835.09	Transducer	855	877.9	Regional
R-11	10/10/12	5835.08	Transducer	855	877.9	Regional
R-11	10/09/12	5835.16	Transducer	855	877.9	Regional
R-11	10/08/12	5835.15	Transducer	855	877.9	Regional
R-11	10/07/12	5835.13	Transducer	855	877.9	Regional
R-11	10/06/12	5835.19	Transducer	855	877.9	Regional
R-11	10/05/12	5835.11	Transducer	855	877.9	Regional
R-11	10/04/12	5835.11	Transducer	855	877.9	Regional
R-11	10/03/12	5835.23	Transducer	855	877.9	Regional
R-11	10/02/12	5835.07	Transducer	855	877.9	Regional
R-11	10/01/12	5835.06	Transducer	855	877.9	Regional
R-11	09/30/12	5835.08	Transducer	855	877.9	Regional
R-11	09/29/12	5835.1	Transducer	855	877.9	Regional
R-11	09/28/12	5835.11	Transducer	855	877.9	Regional
R-11	09/27/12	5835.14	Transducer	855	877.9	Regional
R-11	09/26/12	5835.22	Transducer	855	877.9	Regional
R-11	09/25/12	5835.17	Transducer	855	877.9	Regional
R-11	09/24/12	5835.1	Transducer	855	877.9	Regional
R-11	09/23/12	5835.05	Transducer	855	877.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-11	09/22/12	5835.1	Transducer	855	877.9	Regional
R-11	09/21/12	5835.13	Transducer	855	877.9	Regional
R-11	09/20/12	5835.11	Transducer	855	877.9	Regional
R-11	09/19/12	5835.1	Transducer	855	877.9	Regional
R-11	09/18/12	5835.1	Transducer	855	877.9	Regional
R-11	09/17/12	5835.23	Transducer	855	877.9	Regional
R-11	09/16/12	5835.13	Transducer	855	877.9	Regional
R-11	09/15/12	5834.96	Transducer	855	877.9	Regional
R-11	09/14/12	5834.87	Transducer	855	877.9	Regional
R-11	09/13/12	5835.058	Transducer	855	877.9	Regional
R-11	09/13/12	5834.92	Transducer	855	877.9	Regional
R-11	09/12/12	5835.21	Transducer	855	877.9	Regional
R-11	09/11/12	5835.17	Transducer	855	877.9	Regional
R-11	09/10/12	5835.055	Transducer	855	877.9	Regional
R-11	09/09/12	5834.982	Transducer	855	877.9	Regional
R-11	09/08/12	5835.003	Transducer	855	877.9	Regional
R-11	09/07/12	5835.197	Transducer	855	877.9	Regional
R-11	09/06/12	5835.171	Transducer	855	877.9	Regional
R-11	09/05/12	5835.185	Transducer	855	877.9	Regional
R-11	09/04/12	5835.143	Transducer	855	877.9	Regional
R-11	09/03/12	5835.156	Transducer	855	877.9	Regional
R-11	09/02/12	5835.139	Transducer	855	877.9	Regional
R-11	09/01/12	5835.139	Transducer	855	877.9	Regional
R-11	08/31/12	5835.185	Transducer	855	877.9	Regional
R-11	08/30/12	5835.176	Transducer	855	877.9	Regional
R-11	08/29/12	5835.063	Transducer	855	877.9	Regional
R-11	08/28/12	5835.001	Transducer	855	877.9	Regional
R-11	08/27/12	5835.038	Transducer	855	877.9	Regional
R-11	08/26/12	5835.195	Transducer	855	877.9	Regional
R-11	08/25/12	5835.336	Transducer	855	877.9	Regional
R-11	08/24/12	5835.296	Transducer	855	877.9	Regional
R-11	08/23/12	5835.2	Transducer	855	877.9	Regional
R-11	08/22/12	5835.157	Transducer	855	877.9	Regional
R-11	08/21/12	5835.196	Transducer	855	877.9	Regional
R-11	08/20/12	5835.202	Transducer	855	877.9	Regional
R-11	08/19/12	5835.244	Transducer	855	877.9	Regional
R-11	08/18/12	5835.204	Transducer	855	877.9	Regional
R-11	08/17/12	5835.13	Transducer	855	877.9	Regional
R-11	08/16/12	5835.27	Transducer	855	877.9	Regional
R-11	08/15/12	5835.311	Transducer	855	877.9	Regional
R-11	08/14/12	5835.224	Transducer	855	877.9	Regional
R-11	08/13/12	5835.12	Transducer	855	877.9	Regional
R-11	08/12/12	5835.244	Transducer	855	877.9	Regional
R-11	08/11/12	5835.241	Transducer	855	877.9	Regional
R-11	08/10/12	5835.156	Transducer	855	877.9	Regional
R-11	08/09/12	5835.127	Transducer	855	877.9	Regional
R-11	08/08/12	5835.149	Transducer	855	877.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-11	08/07/12	5835.153	Transducer	855	877.9	Regional
R-11	08/06/12	5834.972	Transducer	855	877.9	Regional
R-11	08/05/12	5835.09	Transducer	855	877.9	Regional
R-11	08/04/12	5835.299	Transducer	855	877.9	Regional
R-11	08/03/12	5835.222	Transducer	855	877.9	Regional
R-11	08/02/12	5835.247	Transducer	855	877.9	Regional
R-11	08/01/12	5835.152	Transducer	855	877.9	Regional
R-11	07/31/12	5835.208	Transducer	855	877.9	Regional
R-11	07/30/12	5835.227	Transducer	855	877.9	Regional
R-11	07/29/12	5835.153	Transducer	855	877.9	Regional
R-11	07/28/12	5835.138	Transducer	855	877.9	Regional
R-11	07/27/12	5835.196	Transducer	855	877.9	Regional
R-11	07/26/12	5835.332	Transducer	855	877.9	Regional
R-11	07/25/12	5835.348	Transducer	855	877.9	Regional
R-11	07/24/12	5835.154	Transducer	855	877.9	Regional
R-11	07/24/12	5835.27	Manual	855	877.9	Regional
R-11	07/23/12	5835.137	Transducer	855	877.9	Regional
R-11	07/22/12	5835.114	Transducer	855	877.9	Regional
R-11	07/21/12	5835.078	Transducer	855	877.9	Regional
R-11	07/20/12	5835.044	Transducer	855	877.9	Regional
R-11	07/19/12	5835.111	Transducer	855	877.9	Regional
R-11	07/18/12	5835.238	Transducer	855	877.9	Regional
R-11	07/17/12	5835.297	Transducer	855	877.9	Regional
R-11	07/16/12	5835.248	Transducer	855	877.9	Regional
R-11	07/15/12	5835.217	Transducer	855	877.9	Regional
R-11	07/14/12	5835.185	Transducer	855	877.9	Regional
R-11	07/13/12	5835.186	Transducer	855	877.9	Regional
R-11	07/12/12	5835.167	Transducer	855	877.9	Regional
R-11	07/11/12	5835.11	Transducer	855	877.9	Regional
R-11	07/10/12	5835.095	Transducer	855	877.9	Regional
R-11	07/09/12	5835.11	Transducer	855	877.9	Regional
R-11	07/08/12	5835.066	Transducer	855	877.9	Regional
R-11	07/07/12	5835.115	Transducer	855	877.9	Regional
R-11	07/06/12	5835.179	Transducer	855	877.9	Regional
R-11	07/05/12	5835.261	Transducer	855	877.9	Regional
R-11	07/04/12	5835.275	Transducer	855	877.9	Regional
R-11	07/03/12	5835.275	Transducer	855	877.9	Regional
R-11	07/02/12	5835.268	Transducer	855	877.9	Regional
R-11	07/01/12	5835.317	Transducer	855	877.9	Regional
R-11	06/30/12	5835.295	Transducer	855	877.9	Regional
R-11	06/29/12	5835.154	Transducer	855	877.9	Regional
R-11	06/28/12	5835.197	Transducer	855	877.9	Regional
R-11	06/27/12	5835.297	Transducer	855	877.9	Regional
R-11	06/26/12	5835.239	Transducer	855	877.9	Regional
R-11	06/25/12	5835.154	Transducer	855	877.9	Regional
R-11	06/24/12	5835.23	Transducer	855	877.9	Regional
R-11	06/23/12	5835.338	Transducer	855	877.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-11	06/22/12	5835.207	Transducer	855	877.9	Regional
R-11	06/21/12	5835.292	Transducer	855	877.9	Regional
R-11	06/20/12	5835.52	Transducer	855	877.9	Regional
R-11	06/19/12	5835.516	Transducer	855	877.9	Regional
R-11	06/18/12	5835.436	Transducer	855	877.9	Regional
R-11	06/17/12	5835.16	Transducer	855	877.9	Regional
R-11	06/16/12	5835.316	Transducer	855	877.9	Regional
R-11	06/15/12	5835.457	Transducer	855	877.9	Regional
R-11	06/14/12	5835.456	Transducer	855	877.9	Regional
R-11	06/13/12	5835.355	Transducer	855	877.9	Regional
R-11	06/12/12	5835.25	Transducer	855	877.9	Regional
R-11	06/11/12	5835.375	Transducer	855	877.9	Regional
R-11	06/10/12	5835.463	Transducer	855	877.9	Regional
R-11	06/09/12	5835.533	Transducer	855	877.9	Regional
R-11	06/08/12	5835.389	Transducer	855	877.9	Regional
R-11	06/07/12	5835.508	Transducer	855	877.9	Regional
R-11	06/06/12	5835.458	Transducer	855	877.9	Regional
R-11	06/06/12	5835.479	Transducer	855	877.9	Regional
R-11	06/05/12	5835.39	Transducer	855	877.9	Regional
R-11	06/04/12	5835.353	Transducer	855	877.9	Regional
R-11	06/03/12	5835.438	Transducer	855	877.9	Regional
R-11	06/02/12	5835.488	Transducer	855	877.9	Regional
R-11	06/01/12	5835.406	Transducer	855	877.9	Regional
R-11	05/31/12	5835.472	Transducer	855	877.9	Regional
R-11	05/30/12	5835.43	Transducer	855	877.9	Regional
R-11	05/29/12	5835.394	Transducer	855	877.9	Regional
R-11	05/28/12	5835.412	Transducer	855	877.9	Regional
R-11	05/27/12	5835.563	Transducer	855	877.9	Regional
R-11	05/26/12	5835.604	Transducer	855	877.9	Regional
R-11	05/25/12	5835.739	Transducer	855	877.9	Regional
R-11	05/24/12	5835.901	Transducer	855	877.9	Regional
R-11	05/23/12	5835.722	Transducer	855	877.9	Regional
R-11	05/22/12	5835.401	Transducer	855	877.9	Regional
R-11	05/21/12	5835.302	Transducer	855	877.9	Regional
R-11	05/20/12	5835.465	Transducer	855	877.9	Regional
R-11	05/19/12	5835.712	Transducer	855	877.9	Regional
R-11	05/18/12	5835.724	Transducer	855	877.9	Regional
R-11	05/17/12	5835.563	Transducer	855	877.9	Regional
R-11	05/16/12	5835.376	Transducer	855	877.9	Regional
R-11	05/15/12	5835.363	Transducer	855	877.9	Regional
R-11	05/14/12	5835.358	Transducer	855	877.9	Regional
R-11	05/13/12	5835.292	Transducer	855	877.9	Regional
R-11	05/12/12	5835.368	Transducer	855	877.9	Regional
R-11	05/11/12	5835.659	Transducer	855	877.9	Regional
R-11	05/10/12	5835.539	Transducer	855	877.9	Regional
R-11	05/09/12	5835.411	Transducer	855	877.9	Regional
R-11	05/08/12	5835.419	Transducer	855	877.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-11	05/07/12	5835.531	Transducer	855	877.9	Regional
R-11	05/06/12	5835.612	Transducer	855	877.9	Regional
R-11	05/05/12	5835.578	Transducer	855	877.9	Regional
R-11	05/04/12	5835.551	Transducer	855	877.9	Regional
R-11	05/03/12	5835.645	Transducer	855	877.9	Regional
R-11	05/02/12	5835.704	Transducer	855	877.9	Regional
R-11	05/01/12	5835.716	Transducer	855	877.9	Regional
R-11	04/30/12	5835.601	Transducer	855	877.9	Regional
R-11	04/29/12	5835.721	Transducer	855	877.9	Regional
R-11	04/28/12	5835.723	Transducer	855	877.9	Regional
R-11	04/27/12	5835.775	Transducer	855	877.9	Regional
R-11	04/26/12	5835.607	Transducer	855	877.9	Regional
R-11	04/25/12	5835.673	Transducer	855	877.9	Regional
R-11	04/24/12	5835.585	Transducer	855	877.9	Regional
R-11	04/23/12	5835.425	Transducer	855	877.9	Regional
R-11	04/22/12	5835.487	Transducer	855	877.9	Regional
R-11	04/21/12	5835.539	Transducer	855	877.9	Regional
R-11	04/20/12	5835.592	Transducer	855	877.9	Regional
R-11	04/19/12	5835.685	Transducer	855	877.9	Regional
R-11	04/18/12	5835.517	Transducer	855	877.9	Regional
R-11	04/17/12	5835.424	Transducer	855	877.9	Regional
R-11	04/16/12	5835.59	Transducer	855	877.9	Regional
R-11	04/15/12	5835.957	Transducer	855	877.9	Regional
R-11	04/14/12	5835.99	Transducer	855	877.9	Regional
R-11	04/13/12	5835.774	Transducer	855	877.9	Regional
R-11	04/12/12	5835.784	Transducer	855	877.9	Regional
R-11	04/11/12	5835.577	Transducer	855	877.9	Regional
R-11	04/10/12	5835.528	Transducer	855	877.9	Regional
R-11	04/09/12	5835.437	Transducer	855	877.9	Regional
R-11	04/08/12	5835.292	Transducer	855	877.9	Regional
R-11	04/07/12	5835.545	Transducer	855	877.9	Regional
R-11	04/06/12	5835.704	Transducer	855	877.9	Regional
R-11	04/05/12	5835.659	Transducer	855	877.9	Regional
R-11	04/04/12	5835.626	Transducer	855	877.9	Regional
R-11	04/03/12	5835.817	Transducer	855	877.9	Regional
R-11	04/02/12	5835.97	Transducer	855	877.9	Regional
R-11	04/01/12	5835.764	Transducer	855	877.9	Regional
R-11	03/31/12	5835.651	Transducer	855	877.9	Regional
R-11	03/30/12	5835.674	Transducer	855	877.9	Regional
R-11	03/29/12	5835.685	Transducer	855	877.9	Regional
R-11	03/28/12	5835.613	Transducer	855	877.9	Regional
R-11	03/27/12	5835.63	Transducer	855	877.9	Regional
R-11	03/26/12	5835.652	Transducer	855	877.9	Regional
R-11	03/25/12	5835.522	Transducer	855	877.9	Regional
R-11	03/24/12	5835.542	Transducer	855	877.9	Regional
R-11	03/23/12	5835.619	Transducer	855	877.9	Regional
R-11	03/22/12	5835.671	Transducer	855	877.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-11	03/21/12	5835.689	Transducer	855	877.9	Regional
R-11	03/20/12	5836.002	Transducer	855	877.9	Regional
R-11	03/19/12	5836.012	Transducer	855	877.9	Regional
R-11	03/18/12	5835.903	Transducer	855	877.9	Regional
R-11	03/17/12	5835.755	Transducer	855	877.9	Regional
R-11	03/16/12	5835.596	Transducer	855	877.9	Regional
R-11	03/15/12	5835.558	Transducer	855	877.9	Regional
R-11	03/14/12	5835.61	Transducer	855	877.9	Regional
R-11	03/13/12	5835.566	Transducer	855	877.9	Regional
R-11	03/12/12	5835.719	Transducer	855	877.9	Regional
R-11	03/11/12	5835.792	Transducer	855	877.9	Regional
R-11	03/10/12	5835.458	Transducer	855	877.9	Regional
R-11	03/09/12	5835.244	Transducer	855	877.9	Regional
R-11	03/08/12	5835.761	Transducer	855	877.9	Regional
R-11	03/07/12	5835.966	Transducer	855	877.9	Regional
R-11	03/06/12	5835.727	Transducer	855	877.9	Regional
R-11	03/06/12	5835.597	Transducer	855	877.9	Regional
R-11	03/05/12	5835.414	Transducer	855	877.9	Regional
R-11	03/04/12	5835.401	Transducer	855	877.9	Regional
R-11	03/03/12	5835.577	Transducer	855	877.9	Regional
R-11	03/02/12	5835.842	Transducer	855	877.9	Regional
R-11	03/01/12	5835.707	Transducer	855	877.9	Regional
R-11	02/29/12	5835.579	Transducer	855	877.9	Regional
R-11	02/28/12	5835.733	Transducer	855	877.9	Regional
R-11	02/27/12	5835.567	Transducer	855	877.9	Regional
R-11	02/26/12	5835.669	Transducer	855	877.9	Regional
R-11	02/25/12	5835.387	Transducer	855	877.9	Regional
R-11	02/24/12	5835.572	Transducer	855	877.9	Regional
R-11	02/23/12	5835.817	Transducer	855	877.9	Regional
R-11	02/22/12	5835.536	Transducer	855	877.9	Regional
R-11	02/21/12	5835.518	Transducer	855	877.9	Regional
R-11	02/20/12	5835.847	Transducer	855	877.9	Regional
R-11	02/19/12	5835.677	Transducer	855	877.9	Regional
R-11	02/18/12	5835.662	Transducer	855	877.9	Regional
R-11	02/17/12	5835.59	Transducer	855	877.9	Regional
R-11	02/16/12	5835.616	Transducer	855	877.9	Regional
R-11	02/15/12	5835.957	Transducer	855	877.9	Regional
R-11	02/14/12	5835.879	Transducer	855	877.9	Regional
R-11	02/13/12	5835.949	Transducer	855	877.9	Regional
R-11	02/12/12	5835.606	Transducer	855	877.9	Regional
R-11	02/11/12	5835.601	Transducer	855	877.9	Regional
R-11	02/10/12	5835.592	Transducer	855	877.9	Regional
R-11	02/09/12	5835.583	Transducer	855	877.9	Regional
R-11	02/08/12	5835.479	Transducer	855	877.9	Regional
R-11	02/07/12	5835.678	Transducer	855	877.9	Regional
R-11	02/06/12	5835.564	Transducer	855	877.9	Regional
R-11	02/05/12	5835.421	Transducer	855	877.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-11	02/04/12	5835.542	Transducer	855	877.9	Regional
R-11	02/03/12	5835.876	Transducer	855	877.9	Regional
R-11	02/02/12	5835.665	Transducer	855	877.9	Regional
R-11	02/01/12	5835.59	Transducer	855	877.9	Regional
R-11	01/31/12	5835.729	Transducer	855	877.9	Regional
R-11	01/30/12	5835.543	Transducer	855	877.9	Regional
R-11	01/29/12	5835.37	Transducer	855	877.9	Regional
R-11	01/28/12	5835.446	Transducer	855	877.9	Regional
R-11	01/27/12	5835.743	Transducer	855	877.9	Regional
R-11	01/26/12	5835.552	Transducer	855	877.9	Regional
R-11	01/25/12	5835.561	Transducer	855	877.9	Regional
R-11	01/24/12	5835.808	Transducer	855	877.9	Regional
R-11	01/23/12	5835.664	Transducer	855	877.9	Regional
R-11	01/22/12	5836.096	Transducer	855	877.9	Regional
R-11	01/21/12	5835.657	Transducer	855	877.9	Regional
R-11	01/20/12	5835.807	Transducer	855	877.9	Regional
R-11	01/19/12	5835.649	Transducer	855	877.9	Regional
R-11	01/18/12	5835.548	Transducer	855	877.9	Regional
R-11	01/17/12	5835.754	Transducer	855	877.9	Regional
R-11	01/16/12	5835.784	Transducer	855	877.9	Regional
R-11	01/15/12	5835.563	Transducer	855	877.9	Regional
R-11	01/14/12	5835.473	Transducer	855	877.9	Regional
R-11	01/13/12	5835.649	Transducer	855	877.9	Regional
R-11	01/12/12	5835.667	Transducer	855	877.9	Regional
R-11	01/11/12	5835.803	Transducer	855	877.9	Regional
R-11	01/10/12	5835.593	Transducer	855	877.9	Regional
R-11	01/09/12	5835.612	Transducer	855	877.9	Regional
R-11	01/08/12	5835.871	Transducer	855	877.9	Regional
R-11	01/07/12	5835.742	Transducer	855	877.9	Regional
R-11	01/06/12	5835.743	Transducer	855	877.9	Regional
R-11	01/05/12	5835.397	Transducer	855	877.9	Regional
R-11	01/04/12	5835.477	Transducer	855	877.9	Regional
R-11	01/03/12	5835.328	Transducer	855	877.9	Regional
R-11	01/02/12	5835.234	Transducer	855	877.9	Regional
R-11	01/01/12	5835.391	Transducer	855	877.9	Regional
R-11	12/31/11	5835.68	Transducer	855	877.9	Regional
R-11	12/30/11	5835.619	Transducer	855	877.9	Regional
R-11	12/29/11	5835.528	Transducer	855	877.9	Regional
R-11	12/28/11	5835.566	Transducer	855	877.9	Regional
R-11	12/27/11	5835.499	Transducer	855	877.9	Regional
R-11	12/26/11	5835.521	Transducer	855	877.9	Regional
R-11	12/25/11	5835.353	Transducer	855	877.9	Regional
R-11	12/24/11	5835.399	Transducer	855	877.9	Regional
R-11	12/23/11	5835.517	Transducer	855	877.9	Regional
R-11	12/22/11	5835.811	Transducer	855	877.9	Regional
R-11	12/21/11	5835.811	Transducer	855	877.9	Regional
R-11	12/20/11	5835.771	Transducer	855	877.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-11	12/19/11	5835.869	Transducer	855	877.9	Regional
R-11	12/18/11	5835.432	Transducer	855	877.9	Regional
R-11	12/17/11	5835.296	Transducer	855	877.9	Regional
R-11	12/16/11	5835.47	Transducer	855	877.9	Regional
R-11	12/15/11	5835.577	Transducer	855	877.9	Regional
R-11	12/14/11	5835.813	Transducer	855	877.9	Regional
R-11	12/13/11	5835.703	Transducer	855	877.9	Regional
R-11	12/12/11	5835.692	Transducer	855	877.9	Regional
R-11	12/11/11	5835.541	Transducer	855	877.9	Regional
R-11	12/10/11	5835.389	Transducer	855	877.9	Regional
R-11	12/09/11	5835.556	Transducer	855	877.9	Regional
R-11	12/08/11	5835.609	Transducer	855	877.9	Regional
R-11	12/07/11	5835.456	Transducer	855	877.9	Regional
R-11	12/06/11	5835.53	Transducer	855	877.9	Regional
R-11	12/05/11	5835.716	Transducer	855	877.9	Regional
R-11	12/04/11	5835.667	Transducer	855	877.9	Regional
R-11	12/03/11	5835.903	Transducer	855	877.9	Regional
R-11	12/02/11	5835.547	Transducer	855	877.9	Regional
R-11	12/01/11	5835.843	Transducer	855	877.9	Regional
R-11	11/30/11	5835.479	Transducer	855	877.9	Regional
R-11	11/29/11	5835.455	Transducer	855	877.9	Regional
R-11	11/28/11	5835.316	Transducer	855	877.9	Regional
R-11	11/27/11	5835.221	Transducer	855	877.9	Regional
R-11	11/26/11	5835.66	Transducer	855	877.9	Regional
R-11	11/25/11	5835.619	Transducer	855	877.9	Regional
R-11	11/24/11	5835.435	Transducer	855	877.9	Regional
R-11	11/23/11	5835.313	Transducer	855	877.9	Regional
R-11	11/22/11	5835.463	Transducer	855	877.9	Regional
R-11	11/21/11	5835.561	Transducer	855	877.9	Regional
R-11	11/20/11	5835.637	Transducer	855	877.9	Regional
R-11	11/19/11	5835.825	Transducer	855	877.9	Regional
R-11	11/18/11	5835.619	Transducer	855	877.9	Regional
R-11	11/17/11	5835.359	Transducer	855	877.9	Regional
R-11	11/16/11	5835.634	Transducer	855	877.9	Regional
R-11	11/15/11	5835.694	Transducer	855	877.9	Regional
R-11	11/14/11	5835.762	Transducer	855	877.9	Regional
R-11	11/13/11	5835.765	Transducer	855	877.9	Regional
R-11	11/12/11	5835.719	Transducer	855	877.9	Regional
R-11	11/11/11	5835.406	Transducer	855	877.9	Regional
R-11	11/10/11	5835.197	Transducer	855	877.9	Regional
R-11	11/09/11	5835.378	Transducer	855	877.9	Regional
R-11	11/08/11	5835.745	Transducer	855	877.9	Regional
R-11	11/07/11	5835.664	Transducer	855	877.9	Regional
R-11	11/06/11	5835.735	Transducer	855	877.9	Regional
R-11	11/05/11	5835.899	Transducer	855	877.9	Regional
R-11	11/04/11	5835.541	Transducer	855	877.9	Regional
R-11	11/03/11	5835.327	Transducer	855	877.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-11	11/02/11	5835.788	Transducer	855	877.9	Regional
R-11	11/01/11	5835.547	Transducer	855	877.9	Regional
R-11	10/31/11	5835.406	Transducer	855	877.9	Regional
R-11	10/30/11	5835.505	Transducer	855	877.9	Regional
R-11	10/29/11	5835.41	Transducer	855	877.9	Regional
R-11	10/28/11	5835.519	Transducer	855	877.9	Regional
R-11	10/27/11	5835.662	Transducer	855	877.9	Regional
R-11	10/26/11	5835.594	Transducer	855	877.9	Regional
R-11	10/25/11	5835.522	Transducer	855	877.9	Regional
R-11	10/24/11	5835.42	Transducer	855	877.9	Regional
R-11	10/23/11	5835.449	Transducer	855	877.9	Regional
R-11	10/22/11	5835.443	Transducer	855	877.9	Regional
R-11	10/21/11	5835.456	Transducer	855	877.9	Regional
R-11	10/20/11	5835.57	Transducer	855	877.9	Regional
R-11	10/19/11	5835.383	Transducer	855	877.9	Regional
R-11	10/18/11	5835.458	Transducer	855	877.9	Regional
R-11	10/17/11	5835.546	Transducer	855	877.9	Regional
R-11	10/16/11	5835.416	Transducer	855	877.9	Regional
R-11	10/15/11	5835.447	Transducer	855	877.9	Regional
R-11	10/14/11	5835.524	Transducer	855	877.9	Regional
R-11	10/13/11	5835.426	Transducer	855	877.9	Regional
R-11	10/12/11	5835.562	Transducer	855	877.9	Regional
R-11	10/11/11	5835.605	Transducer	855	877.9	Regional
R-11	10/10/11	5835.505	Transducer	855	877.9	Regional
R-11	10/09/11	5835.538	Transducer	855	877.9	Regional
R-11	10/08/11	5835.722	Transducer	855	877.9	Regional
R-11	10/07/11	5835.732	Transducer	855	877.9	Regional
R-11	10/06/11	5835.79	Transducer	855	877.9	Regional
R-11	10/05/11	5835.609	Transducer	855	877.9	Regional
R-11	10/04/11	5835.488	Transducer	855	877.9	Regional
R-11	10/03/11	5835.449	Transducer	855	877.9	Regional
R-11	10/02/11	5835.417	Transducer	855	877.9	Regional
R-11	10/01/11	5835.407	Transducer	855	877.9	Regional
R-11	09/30/11	5835.306	Transducer	855	877.9	Regional
R-11	09/29/11	5835.494	Transducer	855	877.9	Regional
R-11	09/28/11	5835.43	Transducer	855	877.9	Regional
R-11	09/27/11	5835.502	Transducer	855	877.9	Regional
R-11	09/26/11	5835.621	Transducer	855	877.9	Regional
R-11	09/25/11	5835.602	Transducer	855	877.9	Regional
R-11	09/24/11	5835.457	Transducer	855	877.9	Regional
R-11	09/23/11	5835.412	Transducer	855	877.9	Regional
R-11	09/22/11	5835.521	Transducer	855	877.9	Regional
R-11	09/21/11	5835.525	Transducer	855	877.9	Regional
R-11	09/20/11	5835.508	Transducer	855	877.9	Regional
R-11	09/19/11	5835.407	Transducer	855	877.9	Regional
R-11	09/18/11	5835.475	Transducer	855	877.9	Regional
R-11	09/17/11	5835.561	Transducer	855	877.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-11	09/16/11	5835.57	Transducer	855	877.9	Regional
R-11	09/15/11	5835.543	Transducer	855	877.9	Regional
R-11	09/14/11	5835.513	Transducer	855	877.9	Regional
R-11	09/13/11	5835.418	Transducer	855	877.9	Regional
R-11	09/12/11	5835.349	Transducer	855	877.9	Regional
R-11	09/11/11	5835.392	Transducer	855	877.9	Regional
R-11	09/10/11	5835.411	Transducer	855	877.9	Regional
R-11	09/09/11	5835.376	Transducer	855	877.9	Regional
R-11	09/08/11	5835.283	Transducer	855	877.9	Regional
R-11	09/07/11	5835.418	Transducer	855	877.9	Regional
R-11	09/06/11	5835.417	Transducer	855	877.9	Regional
R-11	09/05/11	5835.34	Transducer	855	877.9	Regional
R-11	09/04/11	5835.427	Transducer	855	877.9	Regional
R-11	09/03/11	5835.542	Transducer	855	877.9	Regional
R-11	09/02/11	5835.459	Transducer	855	877.9	Regional
R-11	09/01/11	5835.49	Transducer	855	877.9	Regional
R-11	08/31/11	5835.58	Transducer	855	877.9	Regional
R-11	08/30/11	5835.554	Transducer	855	877.9	Regional
R-11	08/29/11	5835.542	Transducer	855	877.9	Regional
R-11	08/28/11	5835.46	Transducer	855	877.9	Regional
R-11	08/27/11	5835.367	Transducer	855	877.9	Regional
R-11	08/26/11	5835.386	Transducer	855	877.9	Regional
R-11	08/25/11	5835.414	Transducer	855	877.9	Regional
R-11	08/24/11	5835.478	Transducer	855	877.9	Regional
R-11	08/24/11	5835.47	Transducer	855	877.9	Regional
R-11	08/23/11	5835.47	Transducer	855	877.9	Regional
R-11	08/22/11	5835.38	Transducer	855	877.9	Regional
R-11	08/21/11	5835.45	Transducer	855	877.9	Regional
R-11	08/20/11	5835.53	Transducer	855	877.9	Regional
R-11	08/19/11	5835.51	Transducer	855	877.9	Regional
R-11	08/18/11	5835.34	Transducer	855	877.9	Regional
R-11	08/17/11	5835.4	Transducer	855	877.9	Regional
R-11	08/16/11	5835.54	Transducer	855	877.9	Regional
R-11	08/15/11	5835.5	Transducer	855	877.9	Regional
R-11	08/14/11	5835.35	Transducer	855	877.9	Regional
R-11	08/13/11	5835.49	Transducer	855	877.9	Regional
R-11	08/12/11	5835.52	Transducer	855	877.9	Regional
R-11	08/11/11	5835.54	Transducer	855	877.9	Regional
R-11	08/10/11	5835.6	Transducer	855	877.9	Regional
R-11	08/09/11	5835.57	Transducer	855	877.9	Regional
R-11	08/08/11	5835.6	Transducer	855	877.9	Regional
R-11	08/07/11	5835.54	Transducer	855	877.9	Regional
R-11	08/06/11	5835.52	Transducer	855	877.9	Regional
R-11	08/05/11	5835.53	Transducer	855	877.9	Regional
R-11	08/04/11	5835.51	Transducer	855	877.9	Regional
R-11	08/03/11	5835.5	Transducer	855	877.9	Regional
R-11	08/02/11	5835.47	Transducer	855	877.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-11	08/01/11	5835.38	Transducer	855	877.9	Regional
R-11	07/31/11	5835.34	Transducer	855	877.9	Regional
R-11	07/30/11	5835.35	Transducer	855	877.9	Regional
R-11	07/29/11	5835.47	Transducer	855	877.9	Regional
R-11	07/28/11	5835.56	Transducer	855	877.9	Regional
R-11	07/27/11	5835.6	Transducer	855	877.9	Regional
R-11	07/26/11	5835.51	Transducer	855	877.9	Regional
R-11	07/25/11	5835.39	Transducer	855	877.9	Regional
R-11	07/24/11	5835.46	Transducer	855	877.9	Regional
R-11	07/23/11	5835.57	Transducer	855	877.9	Regional
R-11	07/22/11	5835.59	Transducer	855	877.9	Regional
R-11	07/21/11	5835.56	Transducer	855	877.9	Regional
R-11	07/20/11	5835.51	Transducer	855	877.9	Regional
R-11	07/19/11	5835.41	Transducer	855	877.9	Regional
R-11	07/18/11	5835.38	Transducer	855	877.9	Regional
R-11	07/17/11	5835.47	Transducer	855	877.9	Regional
R-11	07/16/11	5835.6	Transducer	855	877.9	Regional
R-11	07/15/11	5835.64	Transducer	855	877.9	Regional
R-11	07/14/11	5835.61	Transducer	855	877.9	Regional
R-11	07/13/11	5835.58	Transducer	855	877.9	Regional
R-11	07/12/11	5835.56	Transducer	855	877.9	Regional
R-11	07/11/11	5835.57	Transducer	855	877.9	Regional
R-11	07/10/11	5835.58	Transducer	855	877.9	Regional
R-11	07/09/11	5835.64	Transducer	855	877.9	Regional
R-11	07/08/11	5835.61	Transducer	855	877.9	Regional
R-11	07/07/11	5835.53	Transducer	855	877.9	Regional
R-11	07/06/11	5835.52	Transducer	855	877.9	Regional
R-11	07/05/11	5835.52	Transducer	855	877.9	Regional
R-11	07/04/11	5835.52	Transducer	855	877.9	Regional
R-11	07/03/11	5835.48	Transducer	855	877.9	Regional
R-11	07/02/11	5835.53	Transducer	855	877.9	Regional
R-11	07/01/11	5835.61	Transducer	855	877.9	Regional
R-11	06/30/11	5835.6	Transducer	855	877.9	Regional
R-11	06/29/11	5835.5	Transducer	855	877.9	Regional
R-11	06/28/11	5835.48	Transducer	855	877.9	Regional
R-11	06/27/11	5835.65	Transducer	855	877.9	Regional
R-11	06/26/11	5835.65	Transducer	855	877.9	Regional
R-11	06/25/11	5835.69	Transducer	855	877.9	Regional
R-11	06/24/11	5835.69	Transducer	855	877.9	Regional
R-11	06/23/11	5835.6	Transducer	855	877.9	Regional
R-11	06/22/11	5835.61	Transducer	855	877.9	Regional
R-11	06/21/11	5835.74	Transducer	855	877.9	Regional
R-11	06/20/11	5835.9	Transducer	855	877.9	Regional
R-11	06/19/11	5835.81	Transducer	855	877.9	Regional
R-11	06/18/11	5835.73	Transducer	855	877.9	Regional
R-11	06/17/11	5835.89	Transducer	855	877.9	Regional
R-11	06/16/11	5835.85	Transducer	855	877.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-11	06/15/11	5835.66	Transducer	855	877.9	Regional
R-11	06/14/11	5835.72	Transducer	855	877.9	Regional
R-11	06/13/11	5835.75	Transducer	855	877.9	Regional
R-11	06/12/11	5835.82	Transducer	855	877.9	Regional
R-11	06/11/11	5835.75	Transducer	855	877.9	Regional
R-11	06/10/11	5835.78	Transducer	855	877.9	Regional
R-11	06/09/11	5835.84	Transducer	855	877.9	Regional
R-11	06/08/11	5835.83	Transducer	855	877.9	Regional
R-11	06/07/11	5835.82	Transducer	855	877.9	Regional
R-11	06/06/11	5835.62	Transducer	855	877.9	Regional
R-11	06/05/11	5835.51	Transducer	855	877.9	Regional
R-11	06/04/11	5835.69	Transducer	855	877.9	Regional
R-11	06/03/11	5835.79	Transducer	855	877.9	Regional
R-11	06/02/11	5835.69	Transducer	855	877.9	Regional
R-11	06/01/11	5835.48	Transducer	855	877.9	Regional
R-11	05/31/11	5835.6	Transducer	855	877.9	Regional
R-11	05/30/11	5836.08	Transducer	855	877.9	Regional
R-11	05/29/11	5836.07	Transducer	855	877.9	Regional
R-11	05/28/11	5835.97	Transducer	855	877.9	Regional
R-11	05/27/11	5835.88	Transducer	855	877.9	Regional
R-11	05/26/11	5835.72	Transducer	855	877.9	Regional
R-11	05/25/11	5835.83	Transducer	855	877.9	Regional
R-11	05/24/11	5836.01	Transducer	855	877.9	Regional
R-11	05/23/11	5835.9	Transducer	855	877.9	Regional
R-11	05/22/11	5835.87	Transducer	855	877.9	Regional
R-11	05/21/11	5835.9	Transducer	855	877.9	Regional
R-11	05/20/11	5835.98	Transducer	855	877.9	Regional
R-11	05/19/11	5836.18	Transducer	855	877.9	Regional
R-11	05/18/11	5836.17	Transducer	855	877.9	Regional
R-11	05/17/11	5836.08	Transducer	855	877.9	Regional
R-11	05/16/11	5835.92	Transducer	855	877.9	Regional
R-11	05/15/11	5835.93	Transducer	855	877.9	Regional
R-11	05/14/11	5835.8	Transducer	855	877.9	Regional
R-11	05/13/11	5835.78	Transducer	855	877.9	Regional
R-11	05/12/11	5836.01	Transducer	855	877.9	Regional
R-11	05/11/11	5836.28	Transducer	855	877.9	Regional
R-11	05/10/11	5836.27	Transducer	855	877.9	Regional
R-11	05/09/11	5836.27	Transducer	855	877.9	Regional
R-11	05/08/11	5836.15	Transducer	855	877.9	Regional
R-11	05/07/11	5836.12	Transducer	855	877.9	Regional
R-11	05/06/11	5835.97	Transducer	855	877.9	Regional
R-11	05/05/11	5835.93	Transducer	855	877.9	Regional
R-11	05/04/11	5835.88	Transducer	855	877.9	Regional
R-11	05/03/11	5835.74	Transducer	855	877.9	Regional
R-11	05/02/11	5835.9	Transducer	855	877.9	Regional
R-11	05/01/11	5836.19	Transducer	855	877.9	Regional
R-11	04/30/11	5836.28	Transducer	855	877.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-11	04/29/11	5836.17	Transducer	855	877.9	Regional
R-11	04/28/11	5835.92	Transducer	855	877.9	Regional
R-11	04/27/11	5836.31	Transducer	855	877.9	Regional
R-11	04/26/11	5836.37	Transducer	855	877.9	Regional
R-11	04/25/11	5836.28	Transducer	855	877.9	Regional
R-11	04/24/11	5836.25	Transducer	855	877.9	Regional
R-11	04/23/11	5836.31	Transducer	855	877.9	Regional
R-11	04/22/11	5836.31	Transducer	855	877.9	Regional
R-11	04/21/11	5836.22	Transducer	855	877.9	Regional
R-11	04/20/11	5836.22	Transducer	855	877.9	Regional
R-11	04/19/11	5836.44	Transducer	855	877.9	Regional
R-11	04/18/11	5836.33	Transducer	855	877.9	Regional
R-11	04/17/11	5836.26	Transducer	855	877.9	Regional
R-11	04/16/11	5836.16	Transducer	855	877.9	Regional
R-11	04/15/11	5836.22	Transducer	855	877.9	Regional
R-11	04/14/11	5836.37	Transducer	855	877.9	Regional
R-11	04/13/11	5836.25	Transducer	855	877.9	Regional
R-11	04/12/11	5836.08	Transducer	855	877.9	Regional
R-11	04/11/11	5836.09	Transducer	855	877.9	Regional
R-11	04/10/11	5836.35	Transducer	855	877.9	Regional
R-11	04/09/11	5836.44	Transducer	855	877.9	Regional
R-11	04/08/11	5836.43	Transducer	855	877.9	Regional
R-11	04/07/11	5836.32	Transducer	855	877.9	Regional
R-11	04/06/11	5836.35	Transducer	855	877.9	Regional
R-11	04/05/11	5836.09	Transducer	855	877.9	Regional
R-11	04/04/11	5836.28	Transducer	855	877.9	Regional
R-11	04/03/11	5836.37	Transducer	855	877.9	Regional
R-11	04/02/11	5836.19	Transducer	855	877.9	Regional
R-11	04/01/11	5836.26	Transducer	855	877.9	Regional
R-11	03/31/11	5836.25	Transducer	855	877.9	Regional
R-11	03/30/11	5836.19	Transducer	855	877.9	Regional
R-11	03/29/11	5836.36	Transducer	855	877.9	Regional
R-11	03/28/11	5836.4	Transducer	855	877.9	Regional
R-11	03/27/11	5836.5	Transducer	855	877.9	Regional
R-11	03/26/11	5836.45	Transducer	855	877.9	Regional
R-11	03/25/11	5836.34	Transducer	855	877.9	Regional
R-11	03/24/11	5836.34	Transducer	855	877.9	Regional
R-11	03/23/11	5836.33	Transducer	855	877.9	Regional
R-11	03/22/11	5836.55	Transducer	855	877.9	Regional
R-11	03/21/11	5836.33	Transducer	855	877.9	Regional
R-11	03/20/11	5836.3	Transducer	855	877.9	Regional
R-11	03/19/11	5836.18	Transducer	855	877.9	Regional
R-11	03/18/11	5836.22	Transducer	855	877.9	Regional
R-11	03/17/11	5836.28	Transducer	855	877.9	Regional
R-11	03/16/11	5836.2	Transducer	855	877.9	Regional
R-11	03/15/11	5836.2	Transducer	855	877.9	Regional
R-11	03/14/11	5836.05	Transducer	855	877.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-11	03/13/11	5836.27	Transducer	855	877.9	Regional
R-11	03/12/11	5836.25	Transducer	855	877.9	Regional
R-11	03/11/11	5836.11	Transducer	855	877.9	Regional
R-11	03/10/11	5835.9	Transducer	855	877.9	Regional
R-11	03/09/11	5836.15	Transducer	855	877.9	Regional
R-11	03/08/11	5836.63	Transducer	855	877.9	Regional
R-11	03/07/11	5836.51	Transducer	855	877.9	Regional
R-11	03/06/11	5836.15	Transducer	855	877.9	Regional
R-11	03/05/11	5835.97	Transducer	855	877.9	Regional
R-11	03/04/11	5836.29	Transducer	855	877.9	Regional
R-11	03/03/11	5836.14	Transducer	855	877.9	Regional
R-11	03/02/11	5836.07	Transducer	855	877.9	Regional
R-11	03/01/11	5835.94	Transducer	855	877.9	Regional
R-11	02/28/11	5836.2	Transducer	855	877.9	Regional
R-11	02/27/11	5836.54	Transducer	855	877.9	Regional
R-11	02/26/11	5836.41	Transducer	855	877.9	Regional
R-11	02/25/11	5836.26	Transducer	855	877.9	Regional
R-11	02/24/11	5836.43	Transducer	855	877.9	Regional
R-11	02/23/11	5836.32	Transducer	855	877.9	Regional
R-11	02/22/11	5836.32	Transducer	855	877.9	Regional
R-11	02/21/11	5836.45	Transducer	855	877.9	Regional
R-11	02/20/11	5836.53	Transducer	855	877.9	Regional
R-11	02/19/11	5836.16	Transducer	855	877.9	Regional
R-11	02/18/11	5836.22	Transducer	855	877.9	Regional
R-11	02/17/11	5836.44	Transducer	855	877.9	Regional
R-11	02/16/11	5836.25	Transducer	855	877.9	Regional
R-11	02/15/11	5836.18	Transducer	855	877.9	Regional
R-11	02/14/11	5836.05	Transducer	855	877.9	Regional
R-11	02/13/11	5835.94	Transducer	855	877.9	Regional
R-11	02/12/11	5835.92	Transducer	855	877.9	Regional
R-11	02/11/11	5836.15	Transducer	855	877.9	Regional
R-11	02/10/11	5836.18	Transducer	855	877.9	Regional
R-11	02/09/11	5836.27	Transducer	855	877.9	Regional
R-11	02/08/11	5836.46	Transducer	855	877.9	Regional
R-11	02/07/11	5836.06	Transducer	855	877.9	Regional
R-11	02/06/11	5836.41	Transducer	855	877.9	Regional
R-11	02/05/11	5836.28	Transducer	855	877.9	Regional
R-11	02/04/11	5836.19	Transducer	855	877.9	Regional
R-11	02/03/11	5836.06	Transducer	855	877.9	Regional
R-11	02/02/11	5836.28	Transducer	855	877.9	Regional
R-11	02/01/11	5836.47	Transducer	855	877.9	Regional
R-11	01/31/11	5836.36	Transducer	855	877.9	Regional
R-11	01/30/11	5836.25	Transducer	855	877.9	Regional
R-11	01/29/11	5836.25	Transducer	855	877.9	Regional
R-11	01/28/11	5836.08	Transducer	855	877.9	Regional
R-11	01/27/11	5836.02	Transducer	855	877.9	Regional
R-11	01/26/11	5836.2	Transducer	855	877.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-11	01/25/11	5836.09	Transducer	855	877.9	Regional
R-11	01/24/11	5836.25	Transducer	855	877.9	Regional
R-11	01/23/11	5836.31	Transducer	855	877.9	Regional
R-11	01/22/11	5836.19	Transducer	855	877.9	Regional
R-11	01/21/11	5836.18	Transducer	855	877.9	Regional
R-11	01/20/11	5836.33	Transducer	855	877.9	Regional
R-11	01/19/11	5836.29	Transducer	855	877.9	Regional
R-11	01/18/11	5836.34	Transducer	855	877.9	Regional
R-11	01/17/11	5836.24	Transducer	855	877.9	Regional
R-11	01/16/11	5836.17	Transducer	855	877.9	Regional
R-11	01/15/11	5835.99	Transducer	855	877.9	Regional
R-11	01/14/11	5836.07	Transducer	855	877.9	Regional
R-11	01/13/11	5835.92	Transducer	855	877.9	Regional
R-11	01/12/11	5835.92	Transducer	855	877.9	Regional
R-11	01/11/11	5835.99	Transducer	855	877.9	Regional
R-11	01/10/11	5836.47	Transducer	855	877.9	Regional
R-11	01/09/11	5836.51	Transducer	855	877.9	Regional
R-11	01/08/11	5836.3	Transducer	855	877.9	Regional
R-11	01/07/11	5836.11	Transducer	855	877.9	Regional
R-11	01/06/11	5835.98	Transducer	855	877.9	Regional
R-11	01/05/11	5836.05	Transducer	855	877.9	Regional
R-11	01/04/11	5836.12	Transducer	855	877.9	Regional
R-11	01/03/11	5836.09	Transducer	855	877.9	Regional
R-11	01/02/11	5835.95	Transducer	855	877.9	Regional
R-11	01/01/11	5836.28	Transducer	855	877.9	Regional
R-11	12/31/10	5836.83	Transducer	855	877.9	Regional
R-11	12/30/10	5836.81	Transducer	855	877.9	Regional
R-11	12/29/10	5836.37	Transducer	855	877.9	Regional
R-11	12/28/10	5836.2	Transducer	855	877.9	Regional
R-11	12/27/10	5836.21	Transducer	855	877.9	Regional
R-11	12/26/10	5835.99	Transducer	855	877.9	Regional
R-11	12/25/10	5835.94	Transducer	855	877.9	Regional
R-11	12/24/10	5836.14	Transducer	855	877.9	Regional
R-11	12/23/10	5836.13	Transducer	855	877.9	Regional
R-11	12/22/10	5836.03	Transducer	855	877.9	Regional
R-11	12/21/10	5836.19	Transducer	855	877.9	Regional
R-11	12/20/10	5836.31	Transducer	855	877.9	Regional
R-11	12/19/10	5836.27	Transducer	855	877.9	Regional
R-11	12/18/10	5836.24	Transducer	855	877.9	Regional
R-11	12/17/10	5836.36	Transducer	855	877.9	Regional
R-11	12/16/10	5836.39	Transducer	855	877.9	Regional
R-11	12/15/10	5836.42	Transducer	855	877.9	Regional
R-11	12/14/10	5836.15	Transducer	855	877.9	Regional
R-11	12/13/10	5835.98	Transducer	855	877.9	Regional
R-11	12/12/10	5836	Transducer	855	877.9	Regional
R-11	12/11/10	5836.24	Transducer	855	877.9	Regional
R-11	12/10/10	5836.19	Transducer	855	877.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-11	12/09/10	5836.08	Transducer	855	877.9	Regional
R-11	12/08/10	5835.92	Transducer	855	877.9	Regional
R-11	12/07/10	5836.09	Transducer	855	877.9	Regional
R-11	12/06/10	5835.9	Transducer	855	877.9	Regional
R-11	12/05/10	5835.97	Transducer	855	877.9	Regional
R-11	12/04/10	5836.01	Transducer	855	877.9	Regional
R-11	12/03/10	5835.94	Transducer	855	877.9	Regional
R-11	12/02/10	5835.93	Transducer	855	877.9	Regional
R-11	12/01/10	5835.82	Transducer	855	877.9	Regional
R-11	11/30/10	5835.96	Transducer	855	877.9	Regional
R-11	11/29/10	5836.49	Transducer	855	877.9	Regional
R-11	11/28/10	5836.35	Transducer	855	877.9	Regional
R-11	11/27/10	5835.95	Transducer	855	877.9	Regional
R-11	11/26/10	5835.96	Transducer	855	877.9	Regional
R-11	11/25/10	5836.33	Transducer	855	877.9	Regional
R-11	11/24/10	5836.37	Transducer	855	877.9	Regional
R-11	11/23/10	5836.05	Transducer	855	877.9	Regional
R-11	11/22/10	5836.34	Transducer	855	877.9	Regional
R-11	11/21/10	5836.25	Transducer	855	877.9	Regional
R-11	11/20/10	5836.13	Transducer	855	877.9	Regional
R-11	11/19/10	5835.98	Transducer	855	877.9	Regional
R-11	11/18/10	5835.79	Transducer	855	877.9	Regional
R-11	11/17/10	5836.29	Transducer	855	877.9	Regional
R-11	11/16/10	5836.16	Transducer	855	877.9	Regional
R-11	11/15/10	5836.35	Transducer	855	877.9	Regional
R-11	11/14/10	5836.14	Transducer	855	877.9	Regional
R-11	11/13/10	5835.9	Transducer	855	877.9	Regional
R-11	11/12/10	5835.98	Transducer	855	877.9	Regional
R-11	11/11/10	5836.23	Transducer	855	877.9	Regional
R-11	11/10/10	5836.25	Transducer	855	877.9	Regional
R-11	11/09/10	5836.39	Transducer	855	877.9	Regional
R-11	11/08/10	5836.1	Transducer	855	877.9	Regional
R-11	11/07/10	5835.99	Transducer	855	877.9	Regional
R-11	11/06/10	5835.97	Transducer	855	877.9	Regional
R-11	11/05/10	5835.9	Transducer	855	877.9	Regional
R-11	11/04/10	5835.71	Transducer	855	877.9	Regional
R-11	11/03/10	5835.74	Transducer	855	877.9	Regional
R-11	11/02/10	5835.7	Transducer	855	877.9	Regional
R-11	11/01/10	5835.93	Transducer	855	877.9	Regional
R-11	10/31/10	5836.02	Transducer	855	877.9	Regional
R-11	10/30/10	5835.87	Transducer	855	877.9	Regional
R-13	11/15/12	5833.31	Transducer	958.33	1018.72	Regional
R-13	11/14/12	5833.24	Transducer	958.33	1018.72	Regional
R-13	11/13/12	5833.23	Transducer	958.33	1018.72	Regional
R-13	11/12/12	5833.25	Transducer	958.33	1018.72	Regional
R-13	11/11/12	5833.67	Transducer	958.33	1018.72	Regional
R-13	11/10/12	5833.68	Transducer	958.33	1018.72	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-13	11/09/12	5833.55	Transducer	958.33	1018.72	Regional
R-13	11/08/12	5833.42	Transducer	958.33	1018.72	Regional
R-13	11/07/12	5833.27	Transducer	958.33	1018.72	Regional
R-13	11/06/12	5833.28	Transducer	958.33	1018.72	Regional
R-13	11/05/12	5833.24	Transducer	958.33	1018.72	Regional
R-13	11/04/12	5833.27	Transducer	958.33	1018.72	Regional
R-13	11/03/12	5833.37	Transducer	958.33	1018.72	Regional
R-13	11/02/12	5833.4	Transducer	958.33	1018.72	Regional
R-13	11/01/12	5833.31	Transducer	958.33	1018.72	Regional
R-13	10/31/12	5833.31	Transducer	958.33	1018.72	Regional
R-13	10/30/12	5833.28	Transducer	958.33	1018.72	Regional
R-13	10/29/12	5833.27	Transducer	958.33	1018.72	Regional
R-13	10/28/12	5833.32	Transducer	958.33	1018.72	Regional
R-13	10/27/12	5833.24	Transducer	958.33	1018.72	Regional
R-13	10/26/12	5833.3	Transducer	958.33	1018.72	Regional
R-13	10/25/12	5833.5	Transducer	958.33	1018.72	Regional
R-13	10/24/12	5833.47	Transducer	958.33	1018.72	Regional
R-13	10/23/12	5833.45	Transducer	958.33	1018.72	Regional
R-13	10/22/12	5833.49	Transducer	958.33	1018.72	Regional
R-13	10/21/12	5833.53	Transducer	958.33	1018.72	Regional
R-13	10/20/12	5833.44	Transducer	958.33	1018.72	Regional
R-13	10/19/12	5833.35	Transducer	958.33	1018.72	Regional
R-13	10/18/12	5833.43	Transducer	958.33	1018.72	Regional
R-13	10/17/12	5833.59	Transducer	958.33	1018.72	Regional
R-13	10/16/12	5833.43	Transducer	958.33	1018.72	Regional
R-13	10/15/12	5833.25	Transducer	958.33	1018.72	Regional
R-13	10/14/12	5833.29	Transducer	958.33	1018.72	Regional
R-13	10/13/12	5833.44	Transducer	958.33	1018.72	Regional
R-13	10/12/12	5833.36	Transducer	958.33	1018.72	Regional
R-13	10/11/12	5833.4	Transducer	958.33	1018.72	Regional
R-13	10/10/12	5833.38	Transducer	958.33	1018.72	Regional
R-13	10/09/12	5833.45	Transducer	958.33	1018.72	Regional
R-13	10/08/12	5833.43	Transducer	958.33	1018.72	Regional
R-13	10/07/12	5833.41	Transducer	958.33	1018.72	Regional
R-13	10/06/12	5833.45	Transducer	958.33	1018.72	Regional
R-13	10/05/12	5833.4	Transducer	958.33	1018.72	Regional
R-13	10/04/12	5833.39	Transducer	958.33	1018.72	Regional
R-13	10/03/12	5833.49	Transducer	958.33	1018.72	Regional
R-13	10/02/12	5833.34	Transducer	958.33	1018.72	Regional
R-13	10/01/12	5833.36	Transducer	958.33	1018.72	Regional
R-13	09/30/12	5833.36	Transducer	958.33	1018.72	Regional
R-13	09/29/12	5833.37	Transducer	958.33	1018.72	Regional
R-13	09/28/12	5833.38	Transducer	958.33	1018.72	Regional
R-13	09/27/12	5833.42	Transducer	958.33	1018.72	Regional
R-13	09/26/12	5833.5	Transducer	958.33	1018.72	Regional
R-13	09/25/12	5833.44	Transducer	958.33	1018.72	Regional
R-13	09/24/12	5833.36	Transducer	958.33	1018.72	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-13	09/23/12	5833.34	Transducer	958.33	1018.72	Regional
R-13	09/22/12	5833.37	Transducer	958.33	1018.72	Regional
R-13	09/21/12	5833.41	Transducer	958.33	1018.72	Regional
R-13	09/20/12	5833.39	Transducer	958.33	1018.72	Regional
R-13	09/19/12	5833.37	Transducer	958.33	1018.72	Regional
R-13	09/18/12	5833.38	Transducer	958.33	1018.72	Regional
R-13	09/17/12	5833.49	Transducer	958.33	1018.72	Regional
R-13	09/16/12	5833.42	Transducer	958.33	1018.72	Regional
R-13	09/15/12	5833.24	Transducer	958.33	1018.72	Regional
R-13	09/14/12	5833.17	Transducer	958.33	1018.72	Regional
R-13	09/13/12	5833.33	Transducer	958.33	1018.72	Regional
R-13	09/12/12	5833.46	Transducer	958.33	1018.72	Regional
R-13	09/11/12	5833.45	Transducer	958.33	1018.72	Regional
R-13	09/10/12	5833.35	Transducer	958.33	1018.72	Regional
R-13	09/09/12	5833.28	Transducer	958.33	1018.72	Regional
R-13	09/08/12	5833.29	Transducer	958.33	1018.72	Regional
R-13	09/07/12	5833.46	Transducer	958.33	1018.72	Regional
R-13	09/06/12	5833.43	Transducer	958.33	1018.72	Regional
R-13	09/05/12	5833.46	Transducer	958.33	1018.72	Regional
R-13	09/04/12	5833.4	Transducer	958.33	1018.72	Regional
R-13	09/03/12	5833.42	Transducer	958.33	1018.72	Regional
R-13	09/02/12	5833.4	Transducer	958.33	1018.72	Regional
R-13	09/01/12	5833.4	Transducer	958.33	1018.72	Regional
R-13	08/31/12	5833.46	Transducer	958.33	1018.72	Regional
R-13	08/30/12	5833.45	Transducer	958.33	1018.72	Regional
R-13	08/29/12	5833.38	Transducer	958.33	1018.72	Regional
R-13	08/28/12	5833.32	Transducer	958.33	1018.72	Regional
R-13	08/27/12	5833.36	Transducer	958.33	1018.72	Regional
R-13	08/26/12	5833.48	Transducer	958.33	1018.72	Regional
R-13	08/25/12	5833.6	Transducer	958.33	1018.72	Regional
R-13	08/24/12	5833.56	Transducer	958.33	1018.72	Regional
R-13	08/23/12	5833.48	Transducer	958.33	1018.72	Regional
R-13	08/22/12	5833.44	Transducer	958.33	1018.72	Regional
R-13	08/21/12	5833.48	Transducer	958.33	1018.72	Regional
R-13	08/20/12	5833.46	Transducer	958.33	1018.72	Regional
R-13	08/19/12	5833.5	Transducer	958.33	1018.72	Regional
R-13	08/18/12	5833.47	Transducer	958.33	1018.72	Regional
R-13	08/17/12	5833.42	Transducer	958.33	1018.72	Regional
R-13	08/16/12	5833.56	Transducer	958.33	1018.72	Regional
R-13	08/15/12	5833.58	Transducer	958.33	1018.72	Regional
R-13	08/14/12	5833.49	Transducer	958.33	1018.72	Regional
R-13	08/13/12	5833.4	Transducer	958.33	1018.72	Regional
R-13	08/12/12	5833.53	Transducer	958.33	1018.72	Regional
R-13	08/11/12	5833.51	Transducer	958.33	1018.72	Regional
R-13	08/10/12	5833.45	Transducer	958.33	1018.72	Regional
R-13	08/09/12	5833.4	Transducer	958.33	1018.72	Regional
R-13	08/08/12	5833.43	Transducer	958.33	1018.72	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-13	08/07/12	5833.42	Transducer	958.33	1018.72	Regional
R-13	08/06/12	5833.24	Transducer	958.33	1018.72	Regional
R-13	08/05/12	5833.33	Transducer	958.33	1018.72	Regional
R-13	08/04/12	5833.52	Transducer	958.33	1018.72	Regional
R-13	08/03/12	5833.43	Transducer	958.33	1018.72	Regional
R-13	08/02/12	5833.47	Transducer	958.33	1018.72	Regional
R-13	08/01/12	5833.4	Transducer	958.33	1018.72	Regional
R-13	07/31/12	5833.45	Transducer	958.33	1018.72	Regional
R-13	07/30/12	5833.46	Transducer	958.33	1018.72	Regional
R-13	07/29/12	5833.4	Transducer	958.33	1018.72	Regional
R-13	07/28/12	5833.4	Transducer	958.33	1018.72	Regional
R-13	07/27/12	5833.46	Transducer	958.33	1018.72	Regional
R-13	07/26/12	5833.57	Transducer	958.33	1018.72	Regional
R-13	07/25/12	5833.57	Transducer	958.33	1018.72	Regional
R-13	07/24/12	5833.46	Transducer	958.33	1018.72	Regional
R-13	07/23/12	5833.43	Transducer	958.33	1018.72	Regional
R-13	07/22/12	5833.4	Transducer	958.33	1018.72	Regional
R-13	07/21/12	5833.38	Transducer	958.33	1018.72	Regional
R-13	07/20/12	5833.36	Transducer	958.33	1018.72	Regional
R-13	07/19/12	5833.43	Transducer	958.33	1018.72	Regional
R-13	07/18/12	5833.54	Transducer	958.33	1018.72	Regional
R-13	07/17/12	5833.6	Transducer	958.33	1018.72	Regional
R-13	07/16/12	5833.55	Transducer	958.33	1018.72	Regional
R-13	07/15/12	5833.51	Transducer	958.33	1018.72	Regional
R-13	07/14/12	5833.48	Transducer	958.33	1018.72	Regional
R-13	07/13/12	5833.48	Transducer	958.33	1018.72	Regional
R-13	07/12/12	5833.47	Transducer	958.33	1018.72	Regional
R-13	07/11/12	5833.41	Transducer	958.33	1018.72	Regional
R-13	07/10/12	5833.41	Transducer	958.33	1018.72	Regional
R-13	07/09/12	5833.41	Transducer	958.33	1018.72	Regional
R-13	07/08/12	5833.39	Transducer	958.33	1018.72	Regional
R-13	07/07/12	5833.44	Transducer	958.33	1018.72	Regional
R-13	07/06/12	5833.5	Transducer	958.33	1018.72	Regional
R-13	07/05/12	5833.55	Transducer	958.33	1018.72	Regional
R-13	07/04/12	5833.57	Transducer	958.33	1018.72	Regional
R-13	07/03/12	5833.55	Transducer	958.33	1018.72	Regional
R-13	07/02/12	5833.56	Transducer	958.33	1018.72	Regional
R-13	07/01/12	5833.59	Transducer	958.33	1018.72	Regional
R-13	06/30/12	5833.59	Transducer	958.33	1018.72	Regional
R-13	06/29/12	5833.47	Transducer	958.33	1018.72	Regional
R-13	06/28/12	5833.51	Transducer	958.33	1018.72	Regional
R-13	06/27/12	5833.62	Transducer	958.33	1018.72	Regional
R-13	06/26/12	5833.57	Transducer	958.33	1018.72	Regional
R-13	06/25/12	5833.54	Manual	958.33	1018.72	Regional
R-13	06/25/12	5833.29	Transducer	958.33	1018.72	Regional
R-13	06/24/12	5833.35	Transducer	958.33	1018.72	Regional
R-13	06/23/12	5833.46	Transducer	958.33	1018.72	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-13	06/22/12	5833.32	Transducer	958.33	1018.72	Regional
R-13	06/21/12	5833.4	Transducer	958.33	1018.72	Regional
R-13	06/20/12	5833.62	Transducer	958.33	1018.72	Regional
R-13	06/19/12	5833.61	Transducer	958.33	1018.72	Regional
R-13	06/18/12	5833.55	Transducer	958.33	1018.72	Regional
R-13	06/17/12	5833.3	Transducer	958.33	1018.72	Regional
R-13	06/16/12	5833.44	Transducer	958.33	1018.72	Regional
R-13	06/15/12	5833.57	Transducer	958.33	1018.72	Regional
R-13	06/14/12	5833.58	Transducer	958.33	1018.72	Regional
R-13	06/13/12	5833.5	Transducer	958.33	1018.72	Regional
R-13	06/12/12	5833.39	Transducer	958.33	1018.72	Regional
R-13	06/11/12	5833.51	Transducer	958.33	1018.72	Regional
R-13	06/10/12	5833.69	Transducer	958.33	1018.72	Regional
R-13	06/09/12	5833.66	Transducer	958.33	1018.72	Regional
R-13	06/08/12	5833.54	Transducer	958.33	1018.72	Regional
R-13	06/08/12	5833.556	Transducer	958.33	1018.72	Regional
R-13	06/07/12	5833.65	Transducer	958.33	1018.72	Regional
R-13	06/06/12	5833.624	Transducer	958.33	1018.72	Regional
R-13	06/05/12	5833.539	Transducer	958.33	1018.72	Regional
R-13	06/04/12	5833.524	Transducer	958.33	1018.72	Regional
R-13	06/03/12	5833.61	Transducer	958.33	1018.72	Regional
R-13	06/02/12	5833.65	Transducer	958.33	1018.72	Regional
R-13	06/01/12	5833.604	Transducer	958.33	1018.72	Regional
R-13	05/31/12	5833.657	Transducer	958.33	1018.72	Regional
R-13	05/30/12	5833.644	Transducer	958.33	1018.72	Regional
R-13	05/29/12	5833.604	Transducer	958.33	1018.72	Regional
R-13	05/28/12	5833.64	Transducer	958.33	1018.72	Regional
R-13	05/27/12	5833.755	Transducer	958.33	1018.72	Regional
R-13	05/26/12	5833.795	Transducer	958.33	1018.72	Regional
R-13	05/25/12	5833.923	Transducer	958.33	1018.72	Regional
R-13	05/24/12	5834.06	Transducer	958.33	1018.72	Regional
R-13	05/23/12	5833.892	Transducer	958.33	1018.72	Regional
R-13	05/22/12	5833.618	Transducer	958.33	1018.72	Regional
R-13	05/21/12	5833.521	Transducer	958.33	1018.72	Regional
R-13	05/20/12	5833.686	Transducer	958.33	1018.72	Regional
R-13	05/19/12	5833.914	Transducer	958.33	1018.72	Regional
R-13	05/18/12	5833.917	Transducer	958.33	1018.72	Regional
R-13	05/17/12	5833.753	Transducer	958.33	1018.72	Regional
R-13	05/16/12	5833.604	Transducer	958.33	1018.72	Regional
R-13	05/15/12	5833.59	Transducer	958.33	1018.72	Regional
R-13	05/14/12	5833.604	Transducer	958.33	1018.72	Regional
R-13	05/13/12	5833.534	Transducer	958.33	1018.72	Regional
R-13	05/12/12	5833.602	Transducer	958.33	1018.72	Regional
R-13	05/11/12	5833.862	Transducer	958.33	1018.72	Regional
R-13	05/10/12	5833.757	Transducer	958.33	1018.72	Regional
R-13	05/09/12	5833.626	Transducer	958.33	1018.72	Regional
R-13	05/08/12	5833.645	Transducer	958.33	1018.72	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-13	05/07/12	5833.751	Transducer	958.33	1018.72	Regional
R-13	05/06/12	5833.816	Transducer	958.33	1018.72	Regional
R-13	05/05/12	5833.813	Transducer	958.33	1018.72	Regional
R-13	05/04/12	5833.798	Transducer	958.33	1018.72	Regional
R-13	05/03/12	5833.875	Transducer	958.33	1018.72	Regional
R-13	05/02/12	5833.937	Transducer	958.33	1018.72	Regional
R-13	05/01/12	5833.925	Transducer	958.33	1018.72	Regional
R-13	04/30/12	5833.838	Transducer	958.33	1018.72	Regional
R-13	04/29/12	5833.928	Transducer	958.33	1018.72	Regional
R-13	04/28/12	5833.963	Transducer	958.33	1018.72	Regional
R-13	04/27/12	5834.007	Transducer	958.33	1018.72	Regional
R-13	04/26/12	5833.847	Transducer	958.33	1018.72	Regional
R-13	04/25/12	5833.902	Transducer	958.33	1018.72	Regional
R-13	04/24/12	5833.82	Transducer	958.33	1018.72	Regional
R-13	04/23/12	5833.701	Transducer	958.33	1018.72	Regional
R-13	04/22/12	5833.751	Transducer	958.33	1018.72	Regional
R-13	04/21/12	5833.801	Transducer	958.33	1018.72	Regional
R-13	04/20/12	5833.879	Transducer	958.33	1018.72	Regional
R-13	04/19/12	5833.943	Transducer	958.33	1018.72	Regional
R-13	04/18/12	5833.813	Transducer	958.33	1018.72	Regional
R-13	04/17/12	5833.729	Transducer	958.33	1018.72	Regional
R-13	04/16/12	5833.87	Transducer	958.33	1018.72	Regional
R-13	04/15/12	5834.201	Transducer	958.33	1018.72	Regional
R-13	04/14/12	5834.223	Transducer	958.33	1018.72	Regional
R-13	04/13/12	5834.017	Transducer	958.33	1018.72	Regional
R-13	04/12/12	5834.041	Transducer	958.33	1018.72	Regional
R-13	04/11/12	5833.848	Transducer	958.33	1018.72	Regional
R-13	04/10/12	5833.805	Transducer	958.33	1018.72	Regional
R-13	04/09/12	5833.734	Transducer	958.33	1018.72	Regional
R-13	04/08/12	5833.6	Transducer	958.33	1018.72	Regional
R-13	04/07/12	5833.829	Transducer	958.33	1018.72	Regional
R-13	04/06/12	5833.97	Transducer	958.33	1018.72	Regional
R-13	04/05/12	5833.946	Transducer	958.33	1018.72	Regional
R-13	04/04/12	5833.919	Transducer	958.33	1018.72	Regional
R-13	04/03/12	5834.086	Transducer	958.33	1018.72	Regional
R-13	04/02/12	5834.196	Transducer	958.33	1018.72	Regional
R-13	04/01/12	5834.012	Transducer	958.33	1018.72	Regional
R-13	03/31/12	5833.917	Transducer	958.33	1018.72	Regional
R-13	03/30/12	5833.937	Transducer	958.33	1018.72	Regional
R-13	03/29/12	5833.942	Transducer	958.33	1018.72	Regional
R-13	03/28/12	5833.88	Transducer	958.33	1018.72	Regional
R-13	03/27/12	5833.909	Transducer	958.33	1018.72	Regional
R-13	03/26/12	5833.928	Transducer	958.33	1018.72	Regional
R-13	03/25/12	5833.821	Transducer	958.33	1018.72	Regional
R-13	03/24/12	5833.832	Transducer	958.33	1018.72	Regional
R-13	03/23/12	5833.909	Transducer	958.33	1018.72	Regional
R-13	03/22/12	5833.971	Transducer	958.33	1018.72	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-13	03/21/12	5833.975	Transducer	958.33	1018.72	Regional
R-13	03/20/12	5834.257	Transducer	958.33	1018.72	Regional
R-13	03/19/12	5834.267	Transducer	958.33	1018.72	Regional
R-13	03/18/12	5834.168	Transducer	958.33	1018.72	Regional
R-13	03/17/12	5834.021	Transducer	958.33	1018.72	Regional
R-13	03/16/12	5833.895	Transducer	958.33	1018.72	Regional
R-13	03/15/12	5833.854	Transducer	958.33	1018.72	Regional
R-13	03/14/12	5833.913	Transducer	958.33	1018.72	Regional
R-13	03/13/12	5833.871	Transducer	958.33	1018.72	Regional
R-13	03/12/12	5834.008	Transducer	958.33	1018.72	Regional
R-13	03/11/12	5834.067	Transducer	958.33	1018.72	Regional
R-13	03/10/12	5833.751	Transducer	958.33	1018.72	Regional
R-13	03/09/12	5833.578	Transducer	958.33	1018.72	Regional
R-13	03/08/12	5834.029	Transducer	958.33	1018.72	Regional
R-13	03/07/12	5834.188	Transducer	958.33	1018.72	Regional
R-13	03/07/12	5834.218	Transducer	958.33	1018.72	Regional
R-13	03/06/12	5833.895	Transducer	958.33	1018.72	Regional
R-13	03/05/12	5833.716	Transducer	958.33	1018.72	Regional
R-13	03/04/12	5833.729	Transducer	958.33	1018.72	Regional
R-13	03/03/12	5833.889	Transducer	958.33	1018.72	Regional
R-13	03/02/12	5834.119	Transducer	958.33	1018.72	Regional
R-13	03/01/12	5833.992	Transducer	958.33	1018.72	Regional
R-13	02/29/12	5833.877	Transducer	958.33	1018.72	Regional
R-13	02/28/12	5834	Transducer	958.33	1018.72	Regional
R-13	02/27/12	5833.854	Transducer	958.33	1018.72	Regional
R-13	02/26/12	5833.958	Transducer	958.33	1018.72	Regional
R-13	02/25/12	5833.698	Transducer	958.33	1018.72	Regional
R-13	02/24/12	5833.853	Transducer	958.33	1018.72	Regional
R-13	02/23/12	5834.065	Transducer	958.33	1018.72	Regional
R-13	02/22/12	5833.806	Transducer	958.33	1018.72	Regional
R-13	02/21/12	5833.811	Transducer	958.33	1018.72	Regional
R-13	02/20/12	5834.111	Transducer	958.33	1018.72	Regional
R-13	02/19/12	5833.934	Transducer	958.33	1018.72	Regional
R-13	02/18/12	5833.939	Transducer	958.33	1018.72	Regional
R-13	02/17/12	5833.872	Transducer	958.33	1018.72	Regional
R-13	02/16/12	5833.883	Transducer	958.33	1018.72	Regional
R-13	02/15/12	5834.188	Transducer	958.33	1018.72	Regional
R-13	02/14/12	5834.121	Transducer	958.33	1018.72	Regional
R-13	02/13/12	5834.177	Transducer	958.33	1018.72	Regional
R-13	02/12/12	5833.851	Transducer	958.33	1018.72	Regional
R-13	02/11/12	5833.836	Transducer	958.33	1018.72	Regional
R-13	02/10/12	5833.839	Transducer	958.33	1018.72	Regional
R-13	02/09/12	5833.84	Transducer	958.33	1018.72	Regional
R-13	02/08/12	5833.732	Transducer	958.33	1018.72	Regional
R-13	02/07/12	5833.907	Transducer	958.33	1018.72	Regional
R-13	02/06/12	5833.825	Transducer	958.33	1018.72	Regional
R-13	02/05/12	5833.707	Transducer	958.33	1018.72	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-13	02/04/12	5833.818	Transducer	958.33	1018.72	Regional
R-13	02/03/12	5834.111	Transducer	958.33	1018.72	Regional
R-13	02/02/12	5833.927	Transducer	958.33	1018.72	Regional
R-13	02/01/12	5833.85	Transducer	958.33	1018.72	Regional
R-13	01/31/12	5833.978	Transducer	958.33	1018.72	Regional
R-13	01/30/12	5833.799	Transducer	958.33	1018.72	Regional
R-13	01/29/12	5833.671	Transducer	958.33	1018.72	Regional
R-13	01/28/12	5833.741	Transducer	958.33	1018.72	Regional
R-13	01/27/12	5833.993	Transducer	958.33	1018.72	Regional
R-13	01/26/12	5833.835	Transducer	958.33	1018.72	Regional
R-13	01/25/12	5833.839	Transducer	958.33	1018.72	Regional
R-13	01/24/12	5834.059	Transducer	958.33	1018.72	Regional
R-13	01/23/12	5833.919	Transducer	958.33	1018.72	Regional
R-13	01/22/12	5834.318	Transducer	958.33	1018.72	Regional
R-13	01/21/12	5833.933	Transducer	958.33	1018.72	Regional
R-13	01/20/12	5834.072	Transducer	958.33	1018.72	Regional
R-13	01/19/12	5833.921	Transducer	958.33	1018.72	Regional
R-13	01/18/12	5833.842	Transducer	958.33	1018.72	Regional
R-13	01/17/12	5834.027	Transducer	958.33	1018.72	Regional
R-13	01/16/12	5834.032	Transducer	958.33	1018.72	Regional
R-13	01/15/12	5833.837	Transducer	958.33	1018.72	Regional
R-13	01/14/12	5833.774	Transducer	958.33	1018.72	Regional
R-13	01/13/12	5833.936	Transducer	958.33	1018.72	Regional
R-13	01/12/12	5833.943	Transducer	958.33	1018.72	Regional
R-13	01/11/12	5834.04	Transducer	958.33	1018.72	Regional
R-13	01/10/12	5833.864	Transducer	958.33	1018.72	Regional
R-13	01/09/12	5833.863	Transducer	958.33	1018.72	Regional
R-13	01/08/12	5834.094	Transducer	958.33	1018.72	Regional
R-13	01/07/12	5833.979	Transducer	958.33	1018.72	Regional
R-13	01/06/12	5833.987	Transducer	958.33	1018.72	Regional
R-13	01/05/12	5833.666	Transducer	958.33	1018.72	Regional
R-13	01/04/12	5833.746	Transducer	958.33	1018.72	Regional
R-13	01/03/12	5833.616	Transducer	958.33	1018.72	Regional
R-13	01/02/12	5833.545	Transducer	958.33	1018.72	Regional
R-13	01/01/12	5833.695	Transducer	958.33	1018.72	Regional
R-13	12/31/11	5833.941	Transducer	958.33	1018.72	Regional
R-13	12/30/11	5833.893	Transducer	958.33	1018.72	Regional
R-13	12/29/11	5833.811	Transducer	958.33	1018.72	Regional
R-13	12/28/11	5833.852	Transducer	958.33	1018.72	Regional
R-13	12/27/11	5833.771	Transducer	958.33	1018.72	Regional
R-13	12/26/11	5833.809	Transducer	958.33	1018.72	Regional
R-13	12/25/11	5833.653	Transducer	958.33	1018.72	Regional
R-13	12/24/11	5833.719	Transducer	958.33	1018.72	Regional
R-13	12/23/11	5833.813	Transducer	958.33	1018.72	Regional
R-13	12/22/11	5834.08	Transducer	958.33	1018.72	Regional
R-13	12/21/11	5834.078	Transducer	958.33	1018.72	Regional
R-13	12/20/11	5834.029	Transducer	958.33	1018.72	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-13	12/19/11	5834.129	Transducer	958.33	1018.72	Regional
R-13	12/18/11	5833.721	Transducer	958.33	1018.72	Regional
R-13	12/17/11	5833.621	Transducer	958.33	1018.72	Regional
R-13	12/16/11	5833.761	Transducer	958.33	1018.72	Regional
R-13	12/15/11	5833.868	Transducer	958.33	1018.72	Regional
R-13	12/14/11	5834.066	Transducer	958.33	1018.72	Regional
R-13	12/13/11	5833.957	Transducer	958.33	1018.72	Regional
R-13	12/12/11	5833.943	Transducer	958.33	1018.72	Regional
R-13	12/11/11	5833.8	Transducer	958.33	1018.72	Regional
R-13	12/10/11	5833.669	Transducer	958.33	1018.72	Regional
R-13	12/09/11	5833.849	Transducer	958.33	1018.72	Regional
R-13	12/08/11	5833.872	Transducer	958.33	1018.72	Regional
R-13	12/07/11	5833.76	Transducer	958.33	1018.72	Regional
R-13	12/06/11	5833.823	Transducer	958.33	1018.72	Regional
R-13	12/05/11	5833.978	Transducer	958.33	1018.72	Regional
R-13	12/04/11	5833.941	Transducer	958.33	1018.72	Regional
R-13	12/03/11	5834.134	Transducer	958.33	1018.72	Regional
R-13	12/02/11	5833.801	Transducer	958.33	1018.72	Regional
R-13	12/01/11	5834.066	Transducer	958.33	1018.72	Regional
R-13	11/30/11	5833.738	Transducer	958.33	1018.72	Regional
R-13	11/29/11	5833.711	Transducer	958.33	1018.72	Regional
R-13	11/28/11	5833.6	Transducer	958.33	1018.72	Regional
R-13	11/27/11	5833.495	Transducer	958.33	1018.72	Regional
R-13	11/26/11	5833.897	Transducer	958.33	1018.72	Regional
R-13	11/25/11	5833.854	Transducer	958.33	1018.72	Regional
R-13	11/24/11	5833.703	Transducer	958.33	1018.72	Regional
R-13	11/23/11	5833.608	Transducer	958.33	1018.72	Regional
R-13	11/22/11	5833.732	Transducer	958.33	1018.72	Regional
R-13	11/21/11	5833.821	Transducer	958.33	1018.72	Regional
R-13	11/20/11	5833.906	Transducer	958.33	1018.72	Regional
R-13	11/19/11	5834.059	Transducer	958.33	1018.72	Regional
R-13	11/18/11	5833.87	Transducer	958.33	1018.72	Regional
R-13	11/17/11	5833.631	Transducer	958.33	1018.72	Regional
R-13	11/16/11	5833.897	Transducer	958.33	1018.72	Regional
R-13	11/15/11	5833.92	Transducer	958.33	1018.72	Regional
R-13	11/14/11	5833.982	Transducer	958.33	1018.72	Regional
R-13	11/13/11	5833.989	Transducer	958.33	1018.72	Regional
R-13	11/12/11	5833.932	Transducer	958.33	1018.72	Regional
R-13	11/11/11	5833.665	Transducer	958.33	1018.72	Regional
R-13	11/10/11	5833.489	Transducer	958.33	1018.72	Regional
R-13	11/09/11	5833.639	Transducer	958.33	1018.72	Regional
R-13	11/08/11	5833.875	Transducer	958.33	1018.72	Regional
R-13	11/07/11	5833.91	Transducer	958.33	1018.72	Regional
R-13	11/06/11	5833.971	Transducer	958.33	1018.72	Regional
R-13	11/05/11	5834.098	Transducer	958.33	1018.72	Regional
R-13	11/04/11	5833.788	Transducer	958.33	1018.72	Regional
R-13	11/03/11	5833.572	Transducer	958.33	1018.72	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-13	11/02/11	5833.99	Transducer	958.33	1018.72	Regional
R-13	11/01/11	5833.778	Transducer	958.33	1018.72	Regional
R-13	10/31/11	5833.63	Transducer	958.33	1018.72	Regional
R-13	10/30/11	5833.728	Transducer	958.33	1018.72	Regional
R-13	10/29/11	5833.641	Transducer	958.33	1018.72	Regional
R-13	10/28/11	5833.733	Transducer	958.33	1018.72	Regional
R-13	10/27/11	5833.877	Transducer	958.33	1018.72	Regional
R-13	10/26/11	5833.807	Transducer	958.33	1018.72	Regional
R-13	10/25/11	5833.726	Transducer	958.33	1018.72	Regional
R-13	10/24/11	5833.638	Transducer	958.33	1018.72	Regional
R-13	10/23/11	5833.67	Transducer	958.33	1018.72	Regional
R-13	10/22/11	5833.662	Transducer	958.33	1018.72	Regional
R-13	10/21/11	5833.666	Transducer	958.33	1018.72	Regional
R-13	10/20/11	5833.772	Transducer	958.33	1018.72	Regional
R-13	10/19/11	5833.611	Transducer	958.33	1018.72	Regional
R-13	10/18/11	5833.66	Transducer	958.33	1018.72	Regional
R-13	10/17/11	5833.732	Transducer	958.33	1018.72	Regional
R-13	10/16/11	5833.635	Transducer	958.33	1018.72	Regional
R-13	10/15/11	5833.651	Transducer	958.33	1018.72	Regional
R-13	10/14/11	5833.718	Transducer	958.33	1018.72	Regional
R-13	10/13/11	5833.645	Transducer	958.33	1018.72	Regional
R-13	10/12/11	5833.77	Transducer	958.33	1018.72	Regional
R-13	10/11/11	5833.785	Transducer	958.33	1018.72	Regional
R-13	10/10/11	5833.716	Transducer	958.33	1018.72	Regional
R-13	10/09/11	5833.75	Transducer	958.33	1018.72	Regional
R-13	10/08/11	5833.912	Transducer	958.33	1018.72	Regional
R-13	10/07/11	5833.908	Transducer	958.33	1018.72	Regional
R-13	10/06/11	5833.948	Transducer	958.33	1018.72	Regional
R-13	10/05/11	5833.779	Transducer	958.33	1018.72	Regional
R-13	10/04/11	5833.645	Transducer	958.33	1018.72	Regional
R-13	10/03/11	5833.616	Transducer	958.33	1018.72	Regional
R-13	10/02/11	5833.597	Transducer	958.33	1018.72	Regional
R-13	10/01/11	5833.592	Transducer	958.33	1018.72	Regional
R-13	09/30/11	5833.479	Transducer	958.33	1018.72	Regional
R-13	09/29/11	5833.653	Transducer	958.33	1018.72	Regional
R-13	09/28/11	5833.591	Transducer	958.33	1018.72	Regional
R-13	09/27/11	5833.669	Transducer	958.33	1018.72	Regional
R-13	09/26/11	5833.779	Transducer	958.33	1018.72	Regional
R-13	09/25/11	5833.75	Transducer	958.33	1018.72	Regional
R-13	09/24/11	5833.625	Transducer	958.33	1018.72	Regional
R-13	09/23/11	5833.587	Transducer	958.33	1018.72	Regional
R-13	09/22/11	5833.687	Transducer	958.33	1018.72	Regional
R-13	09/21/11	5833.69	Transducer	958.33	1018.72	Regional
R-13	09/20/11	5833.67	Transducer	958.33	1018.72	Regional
R-13	09/19/11	5833.586	Transducer	958.33	1018.72	Regional
R-13	09/18/11	5833.644	Transducer	958.33	1018.72	Regional
R-13	09/17/11	5833.692	Transducer	958.33	1018.72	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-13	09/16/11	5833.704	Transducer	958.33	1018.72	Regional
R-13	09/15/11	5833.665	Transducer	958.33	1018.72	Regional
R-13	09/14/11	5833.636	Transducer	958.33	1018.72	Regional
R-13	09/13/11	5833.541	Transducer	958.33	1018.72	Regional
R-13	09/12/11	5833.489	Transducer	958.33	1018.72	Regional
R-13	09/11/11	5833.519	Transducer	958.33	1018.72	Regional
R-13	09/10/11	5833.555	Transducer	958.33	1018.72	Regional
R-13	09/09/11	5833.52	Transducer	958.33	1018.72	Regional
R-13	09/08/11	5833.42	Transducer	958.33	1018.72	Regional
R-13	09/07/11	5833.55	Transducer	958.33	1018.72	Regional
R-13	09/06/11	5833.54	Transducer	958.33	1018.72	Regional
R-13	09/05/11	5833.475	Transducer	958.33	1018.72	Regional
R-13	09/04/11	5833.55	Transducer	958.33	1018.72	Regional
R-13	09/03/11	5833.655	Transducer	958.33	1018.72	Regional
R-13	09/02/11	5833.578	Transducer	958.33	1018.72	Regional
R-13	09/01/11	5833.598	Transducer	958.33	1018.72	Regional
R-13	08/31/11	5833.666	Transducer	958.33	1018.72	Regional
R-13	08/30/11	5833.653	Transducer	958.33	1018.72	Regional
R-13	08/29/11	5833.62	Transducer	958.33	1018.72	Regional
R-13	08/28/11	5833.558	Transducer	958.33	1018.72	Regional
R-13	08/27/11	5833.481	Transducer	958.33	1018.72	Regional
R-13	08/26/11	5833.496	Transducer	958.33	1018.72	Regional
R-13	08/25/11	5833.526	Transducer	958.33	1018.72	Regional
R-13	08/24/11	5833.584	Transducer	958.33	1018.72	Regional
R-13	08/23/11	5833.554	Transducer	958.33	1018.72	Regional
R-13	08/22/11	5833.479	Transducer	958.33	1018.72	Regional
R-13	08/21/11	5833.541	Transducer	958.33	1018.72	Regional
R-13	08/20/11	5833.6	Transducer	958.33	1018.72	Regional
R-13	08/19/11	5833.631	Transducer	958.33	1018.72	Regional
R-13	08/19/11	5833.58	Transducer	958.33	1018.72	Regional
R-13	08/18/11	5833.45	Transducer	958.33	1018.72	Regional
R-13	08/17/11	5833.49	Transducer	958.33	1018.72	Regional
R-13	08/16/11	5833.61	Transducer	958.33	1018.72	Regional
R-13	08/15/11	5833.57	Transducer	958.33	1018.72	Regional
R-13	08/14/11	5833.44	Transducer	958.33	1018.72	Regional
R-13	08/13/11	5833.56	Transducer	958.33	1018.72	Regional
R-13	08/12/11	5833.61	Transducer	958.33	1018.72	Regional
R-13	08/11/11	5833.62	Transducer	958.33	1018.72	Regional
R-13	08/10/11	5833.68	Transducer	958.33	1018.72	Regional
R-13	08/09/11	5833.64	Transducer	958.33	1018.72	Regional
R-13	08/08/11	5833.65	Transducer	958.33	1018.72	Regional
R-13	08/07/11	5833.61	Transducer	958.33	1018.72	Regional
R-13	08/06/11	5833.57	Transducer	958.33	1018.72	Regional
R-13	08/05/11	5833.58	Transducer	958.33	1018.72	Regional
R-13	08/04/11	5833.57	Transducer	958.33	1018.72	Regional
R-13	08/03/11	5833.55	Transducer	958.33	1018.72	Regional
R-13	08/02/11	5833.52	Transducer	958.33	1018.72	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-13	08/01/11	5833.42	Transducer	958.33	1018.72	Regional
R-13	07/31/11	5833.39	Transducer	958.33	1018.72	Regional
R-13	07/30/11	5833.39	Transducer	958.33	1018.72	Regional
R-13	07/29/11	5833.48	Transducer	958.33	1018.72	Regional
R-13	07/28/11	5833.57	Transducer	958.33	1018.72	Regional
R-13	07/27/11	5833.58	Transducer	958.33	1018.72	Regional
R-13	07/26/11	5833.5	Transducer	958.33	1018.72	Regional
R-13	07/25/11	5833.38	Transducer	958.33	1018.72	Regional
R-13	07/24/11	5833.41	Transducer	958.33	1018.72	Regional
R-13	07/23/11	5833.5	Transducer	958.33	1018.72	Regional
R-13	07/22/11	5833.53	Transducer	958.33	1018.72	Regional
R-13	07/21/11	5833.51	Transducer	958.33	1018.72	Regional
R-13	07/20/11	5833.45	Transducer	958.33	1018.72	Regional
R-13	07/19/11	5833.36	Transducer	958.33	1018.72	Regional
R-13	07/18/11	5833.31	Transducer	958.33	1018.72	Regional
R-13	07/17/11	5833.4	Transducer	958.33	1018.72	Regional
R-13	07/16/11	5833.53	Transducer	958.33	1018.72	Regional
R-13	07/15/11	5833.57	Transducer	958.33	1018.72	Regional
R-13	07/14/11	5833.55	Transducer	958.33	1018.72	Regional
R-13	07/13/11	5833.5	Transducer	958.33	1018.72	Regional
R-13	07/12/11	5833.48	Transducer	958.33	1018.72	Regional
R-13	07/11/11	5833.49	Transducer	958.33	1018.72	Regional
R-13	07/10/11	5833.52	Transducer	958.33	1018.72	Regional
R-13	07/09/11	5833.57	Transducer	958.33	1018.72	Regional
R-13	07/08/11	5833.54	Transducer	958.33	1018.72	Regional
R-13	07/07/11	5833.48	Transducer	958.33	1018.72	Regional
R-13	07/06/11	5833.47	Transducer	958.33	1018.72	Regional
R-13	07/05/11	5833.47	Transducer	958.33	1018.72	Regional
R-13	07/04/11	5833.47	Transducer	958.33	1018.72	Regional
R-13	07/03/11	5833.42	Transducer	958.33	1018.72	Regional
R-13	07/02/11	5833.48	Transducer	958.33	1018.72	Regional
R-13	07/01/11	5833.52	Transducer	958.33	1018.72	Regional
R-13	06/30/11	5833.52	Transducer	958.33	1018.72	Regional
R-13	06/29/11	5833.44	Transducer	958.33	1018.72	Regional
R-13	06/28/11	5833.41	Transducer	958.33	1018.72	Regional
R-13	06/27/11	5833.56	Transducer	958.33	1018.72	Regional
R-13	06/26/11	5833.59	Transducer	958.33	1018.72	Regional
R-13	06/25/11	5833.63	Transducer	958.33	1018.72	Regional
R-13	06/24/11	5833.63	Transducer	958.33	1018.72	Regional
R-13	06/23/11	5833.56	Transducer	958.33	1018.72	Regional
R-13	06/22/11	5833.57	Transducer	958.33	1018.72	Regional
R-13	06/21/11	5833.69	Transducer	958.33	1018.72	Regional
R-13	06/20/11	5833.84	Transducer	958.33	1018.72	Regional
R-13	06/19/11	5833.73	Transducer	958.33	1018.72	Regional
R-13	06/18/11	5833.68	Transducer	958.33	1018.72	Regional
R-13	06/17/11	5833.81	Transducer	958.33	1018.72	Regional
R-13	06/16/11	5833.77	Transducer	958.33	1018.72	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-13	06/15/11	5833.62	Transducer	958.33	1018.72	Regional
R-13	06/14/11	5833.66	Transducer	958.33	1018.72	Regional
R-13	06/13/11	5833.7	Transducer	958.33	1018.72	Regional
R-13	06/12/11	5833.76	Transducer	958.33	1018.72	Regional
R-13	06/11/11	5833.71	Transducer	958.33	1018.72	Regional
R-13	06/10/11	5833.74	Transducer	958.33	1018.72	Regional
R-13	06/09/11	5833.79	Transducer	958.33	1018.72	Regional
R-13	06/08/11	5833.77	Transducer	958.33	1018.72	Regional
R-13	06/07/11	5833.78	Transducer	958.33	1018.72	Regional
R-13	06/06/11	5833.6	Transducer	958.33	1018.72	Regional
R-13	06/05/11	5833.49	Transducer	958.33	1018.72	Regional
R-13	06/04/11	5833.65	Transducer	958.33	1018.72	Regional
R-13	06/03/11	5833.76	Transducer	958.33	1018.72	Regional
R-13	06/02/11	5833.68	Transducer	958.33	1018.72	Regional
R-13	06/01/11	5833.5	Transducer	958.33	1018.72	Regional
R-13	05/31/11	5833.6	Transducer	958.33	1018.72	Regional
R-13	05/30/11	5834.04	Transducer	958.33	1018.72	Regional
R-13	05/29/11	5834.03	Transducer	958.33	1018.72	Regional
R-13	05/28/11	5833.96	Transducer	958.33	1018.72	Regional
R-13	05/27/11	5833.9	Transducer	958.33	1018.72	Regional
R-13	05/26/11	5833.77	Transducer	958.33	1018.72	Regional
R-13	05/25/11	5833.87	Transducer	958.33	1018.72	Regional
R-13	05/24/11	5834.01	Transducer	958.33	1018.72	Regional
R-13	05/23/11	5833.93	Transducer	958.33	1018.72	Regional
R-13	05/22/11	5833.91	Transducer	958.33	1018.72	Regional
R-13	05/21/11	5833.95	Transducer	958.33	1018.72	Regional
R-13	05/20/11	5834.04	Transducer	958.33	1018.72	Regional
R-13	05/19/11	5834.22	Transducer	958.33	1018.72	Regional
R-13	05/18/11	5834.19	Transducer	958.33	1018.72	Regional
R-13	05/17/11	5834.11	Transducer	958.33	1018.72	Regional
R-13	05/16/11	5833.96	Transducer	958.33	1018.72	Regional
R-13	05/15/11	5833.98	Transducer	958.33	1018.72	Regional
R-13	05/14/11	5833.87	Transducer	958.33	1018.72	Regional
R-13	05/13/11	5833.9	Transducer	958.33	1018.72	Regional
R-13	05/12/11	5834.11	Transducer	958.33	1018.72	Regional
R-13	05/11/11	5834.35	Transducer	958.33	1018.72	Regional
R-13	05/10/11	5834.34	Transducer	958.33	1018.72	Regional
R-13	05/09/11	5834.33	Transducer	958.33	1018.72	Regional
R-13	05/08/11	5834.23	Transducer	958.33	1018.72	Regional
R-13	05/07/11	5834.2	Transducer	958.33	1018.72	Regional
R-13	05/06/11	5834.07	Transducer	958.33	1018.72	Regional
R-13	05/05/11	5834.04	Transducer	958.33	1018.72	Regional
R-13	05/04/11	5834.01	Transducer	958.33	1018.72	Regional
R-13	05/03/11	5833.91	Transducer	958.33	1018.72	Regional
R-13	05/02/11	5834.05	Transducer	958.33	1018.72	Regional
R-13	05/01/11	5834.31	Transducer	958.33	1018.72	Regional
R-13	04/30/11	5834.42	Transducer	958.33	1018.72	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-13	04/29/11	5834.32	Transducer	958.33	1018.72	Regional
R-13	04/28/11	5834.11	Transducer	958.33	1018.72	Regional
R-13	04/27/11	5834.47	Transducer	958.33	1018.72	Regional
R-13	04/26/11	5834.54	Transducer	958.33	1018.72	Regional
R-13	04/25/11	5834.48	Transducer	958.33	1018.72	Regional
R-13	04/24/11	5834.47	Transducer	958.33	1018.72	Regional
R-13	04/23/11	5834.54	Transducer	958.33	1018.72	Regional
R-13	04/22/11	5834.57	Transducer	958.33	1018.72	Regional
R-13	04/21/11	5834.52	Transducer	958.33	1018.72	Regional
R-13	04/20/11	5834.53	Transducer	958.33	1018.72	Regional
R-13	04/19/11	5834.72	Transducer	958.33	1018.72	Regional
R-13	04/18/11	5834.62	Transducer	958.33	1018.72	Regional
R-13	04/17/11	5834.56	Transducer	958.33	1018.72	Regional
R-13	04/16/11	5834.47	Transducer	958.33	1018.72	Regional
R-13	04/15/11	5834.52	Transducer	958.33	1018.72	Regional
R-13	04/14/11	5834.66	Transducer	958.33	1018.72	Regional
R-13	04/13/11	5834.56	Transducer	958.33	1018.72	Regional
R-13	04/12/11	5834.4	Transducer	958.33	1018.72	Regional
R-13	04/11/11	5834.42	Transducer	958.33	1018.72	Regional
R-13	04/10/11	5834.66	Transducer	958.33	1018.72	Regional
R-13	04/09/11	5834.73	Transducer	958.33	1018.72	Regional
R-13	04/08/11	5834.73	Transducer	958.33	1018.72	Regional
R-13	04/07/11	5834.62	Transducer	958.33	1018.72	Regional
R-13	04/06/11	5834.65	Transducer	958.33	1018.72	Regional
R-13	04/05/11	5834.42	Transducer	958.33	1018.72	Regional
R-13	04/04/11	5834.58	Transducer	958.33	1018.72	Regional
R-13	04/03/11	5834.66	Transducer	958.33	1018.72	Regional
R-13	04/02/11	5834.51	Transducer	958.33	1018.72	Regional
R-13	04/01/11	5834.58	Transducer	958.33	1018.72	Regional
R-13	03/31/11	5834.56	Transducer	958.33	1018.72	Regional
R-13	03/30/11	5834.51	Transducer	958.33	1018.72	Regional
R-13	03/29/11	5834.66	Transducer	958.33	1018.72	Regional
R-13	03/28/11	5834.7	Transducer	958.33	1018.72	Regional
R-13	03/27/11	5834.8	Transducer	958.33	1018.72	Regional
R-13	03/26/11	5834.76	Transducer	958.33	1018.72	Regional
R-13	03/25/11	5834.65	Transducer	958.33	1018.72	Regional
R-13	03/24/11	5834.63	Transducer	958.33	1018.72	Regional
R-13	03/23/11	5834.63	Transducer	958.33	1018.72	Regional
R-13	03/22/11	5834.81	Transducer	958.33	1018.72	Regional
R-13	03/21/11	5834.61	Transducer	958.33	1018.72	Regional
R-13	03/20/11	5834.59	Transducer	958.33	1018.72	Regional
R-13	03/19/11	5834.47	Transducer	958.33	1018.72	Regional
R-13	03/18/11	5834.51	Transducer	958.33	1018.72	Regional
R-13	03/17/11	5834.57	Transducer	958.33	1018.72	Regional
R-13	03/16/11	5834.5	Transducer	958.33	1018.72	Regional
R-13	03/15/11	5834.5	Transducer	958.33	1018.72	Regional
R-13	03/14/11	5834.36	Transducer	958.33	1018.72	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-13	03/13/11	5834.57	Transducer	958.33	1018.72	Regional
R-13	03/12/11	5834.55	Transducer	958.33	1018.72	Regional
R-13	03/11/11	5834.41	Transducer	958.33	1018.72	Regional
R-13	03/10/11	5834.24	Transducer	958.33	1018.72	Regional
R-13	03/09/11	5834.47	Transducer	958.33	1018.72	Regional
R-13	03/08/11	5834.9	Transducer	958.33	1018.72	Regional
R-13	03/07/11	5834.78	Transducer	958.33	1018.72	Regional
R-13	03/06/11	5834.45	Transducer	958.33	1018.72	Regional
R-13	03/05/11	5834.3	Transducer	958.33	1018.72	Regional
R-13	03/04/11	5834.58	Transducer	958.33	1018.72	Regional
R-13	03/03/11	5834.46	Transducer	958.33	1018.72	Regional
R-13	03/02/11	5834.39	Transducer	958.33	1018.72	Regional
R-13	03/01/11	5834.29	Transducer	958.33	1018.72	Regional
R-13	02/28/11	5834.53	Transducer	958.33	1018.72	Regional
R-13	02/27/11	5834.83	Transducer	958.33	1018.72	Regional
R-13	02/26/11	5834.71	Transducer	958.33	1018.72	Regional
R-13	02/25/11	5834.57	Transducer	958.33	1018.72	Regional
R-13	02/24/11	5834.72	Transducer	958.33	1018.72	Regional
R-13	02/23/11	5834.63	Transducer	958.33	1018.72	Regional
R-13	02/22/11	5834.62	Transducer	958.33	1018.72	Regional
R-13	02/21/11	5834.73	Transducer	958.33	1018.72	Regional
R-13	02/20/11	5834.79	Transducer	958.33	1018.72	Regional
R-13	02/19/11	5834.48	Transducer	958.33	1018.72	Regional
R-13	02/18/11	5834.49	Transducer	958.33	1018.72	Regional
R-13	02/17/11	5834.68	Transducer	958.33	1018.72	Regional
R-13	02/16/11	5834.5	Transducer	958.33	1018.72	Regional
R-13	02/15/11	5834.44	Transducer	958.33	1018.72	Regional
R-13	02/14/11	5834.33	Transducer	958.33	1018.72	Regional
R-13	02/13/11	5834.24	Transducer	958.33	1018.72	Regional
R-13	02/12/11	5834.23	Transducer	958.33	1018.72	Regional
R-13	02/11/11	5834.45	Transducer	958.33	1018.72	Regional
R-13	02/10/11	5834.47	Transducer	958.33	1018.72	Regional
R-13	02/09/11	5834.55	Transducer	958.33	1018.72	Regional
R-13	02/08/11	5834.72	Transducer	958.33	1018.72	Regional
R-13	02/07/11	5834.36	Transducer	958.33	1018.72	Regional
R-13	02/06/11	5834.68	Transducer	958.33	1018.72	Regional
R-13	02/05/11	5834.56	Transducer	958.33	1018.72	Regional
R-13	02/04/11	5834.47	Transducer	958.33	1018.72	Regional
R-13	02/03/11	5834.35	Transducer	958.33	1018.72	Regional
R-13	02/02/11	5834.56	Transducer	958.33	1018.72	Regional
R-13	02/01/11	5834.73	Transducer	958.33	1018.72	Regional
R-13	01/31/11	5834.62	Transducer	958.33	1018.72	Regional
R-13	01/30/11	5834.53	Transducer	958.33	1018.72	Regional
R-13	01/29/11	5834.52	Transducer	958.33	1018.72	Regional
R-13	01/28/11	5834.38	Transducer	958.33	1018.72	Regional
R-13	01/27/11	5834.33	Transducer	958.33	1018.72	Regional
R-13	01/26/11	5834.48	Transducer	958.33	1018.72	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-13	01/25/11	5834.38	Transducer	958.33	1018.72	Regional
R-13	01/24/11	5834.53	Transducer	958.33	1018.72	Regional
R-13	01/23/11	5834.58	Transducer	958.33	1018.72	Regional
R-13	01/22/11	5834.47	Transducer	958.33	1018.72	Regional
R-13	01/21/11	5834.45	Transducer	958.33	1018.72	Regional
R-13	01/20/11	5834.59	Transducer	958.33	1018.72	Regional
R-13	01/19/11	5834.53	Transducer	958.33	1018.72	Regional
R-13	01/18/11	5834.58	Transducer	958.33	1018.72	Regional
R-13	01/17/11	5834.49	Transducer	958.33	1018.72	Regional
R-13	01/16/11	5834.43	Transducer	958.33	1018.72	Regional
R-13	01/15/11	5834.26	Transducer	958.33	1018.72	Regional
R-13	01/14/11	5834.34	Transducer	958.33	1018.72	Regional
R-13	01/13/11	5834.22	Transducer	958.33	1018.72	Regional
R-13	01/12/11	5834.22	Transducer	958.33	1018.72	Regional
R-13	01/11/11	5834.29	Transducer	958.33	1018.72	Regional
R-13	01/10/11	5834.71	Transducer	958.33	1018.72	Regional
R-13	01/09/11	5834.74	Transducer	958.33	1018.72	Regional
R-13	01/08/11	5834.55	Transducer	958.33	1018.72	Regional
R-13	01/07/11	5834.38	Transducer	958.33	1018.72	Regional
R-13	01/06/11	5834.27	Transducer	958.33	1018.72	Regional
R-13	01/05/11	5834.33	Transducer	958.33	1018.72	Regional
R-13	01/04/11	5834.4	Transducer	958.33	1018.72	Regional
R-13	01/03/11	5834.37	Transducer	958.33	1018.72	Regional
R-13	01/02/11	5834.26	Transducer	958.33	1018.72	Regional
R-13	01/01/11	5834.56	Transducer	958.33	1018.72	Regional
R-13	12/31/10	5835.04	Transducer	958.33	1018.72	Regional
R-13	12/30/10	5835.01	Transducer	958.33	1018.72	Regional
R-13	12/29/10	5834.61	Transducer	958.33	1018.72	Regional
R-13	12/28/10	5834.44	Transducer	958.33	1018.72	Regional
R-13	12/27/10	5834.45	Transducer	958.33	1018.72	Regional
R-13	12/26/10	5834.26	Transducer	958.33	1018.72	Regional
R-13	12/25/10	5834.21	Transducer	958.33	1018.72	Regional
R-13	12/24/10	5834.4	Transducer	958.33	1018.72	Regional
R-13	12/23/10	5834.39	Transducer	958.33	1018.72	Regional
R-13	12/22/10	5834.3	Transducer	958.33	1018.72	Regional
R-13	12/21/10	5834.45	Transducer	958.33	1018.72	Regional
R-13	12/20/10	5834.56	Transducer	958.33	1018.72	Regional
R-13	12/19/10	5834.52	Transducer	958.33	1018.72	Regional
R-13	12/18/10	5834.5	Transducer	958.33	1018.72	Regional
R-13	12/17/10	5834.61	Transducer	958.33	1018.72	Regional
R-13	12/16/10	5834.63	Transducer	958.33	1018.72	Regional
R-13	12/15/10	5834.64	Transducer	958.33	1018.72	Regional
R-13	12/14/10	5834.4	Transducer	958.33	1018.72	Regional
R-13	12/13/10	5834.25	Transducer	958.33	1018.72	Regional
R-13	12/12/10	5834.26	Transducer	958.33	1018.72	Regional
R-13	12/11/10	5834.47	Transducer	958.33	1018.72	Regional
R-13	12/10/10	5834.42	Transducer	958.33	1018.72	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-13	12/09/10	5834.32	Transducer	958.33	1018.72	Regional
R-13	12/08/10	5834.17	Transducer	958.33	1018.72	Regional
R-13	12/07/10	5834.32	Transducer	958.33	1018.72	Regional
R-13	12/06/10	5834.16	Transducer	958.33	1018.72	Regional
R-13	12/05/10	5834.22	Transducer	958.33	1018.72	Regional
R-13	12/04/10	5834.27	Transducer	958.33	1018.72	Regional
R-13	12/03/10	5834.22	Transducer	958.33	1018.72	Regional
R-13	12/02/10	5834.21	Transducer	958.33	1018.72	Regional
R-13	12/01/10	5834.12	Transducer	958.33	1018.72	Regional
R-13	11/30/10	5834.25	Transducer	958.33	1018.72	Regional
R-13	11/29/10	5834.72	Transducer	958.33	1018.72	Regional
R-13	11/28/10	5834.58	Transducer	958.33	1018.72	Regional
R-13	11/27/10	5834.23	Transducer	958.33	1018.72	Regional
R-13	11/26/10	5834.23	Transducer	958.33	1018.72	Regional
R-13	11/25/10	5834.57	Transducer	958.33	1018.72	Regional
R-13	11/24/10	5834.59	Transducer	958.33	1018.72	Regional
R-13	11/23/10	5834.3	Transducer	958.33	1018.72	Regional
R-13	11/22/10	5834.55	Transducer	958.33	1018.72	Regional
R-13	11/21/10	5834.47	Transducer	958.33	1018.72	Regional
R-13	11/20/10	5834.37	Transducer	958.33	1018.72	Regional
R-13	11/19/10	5834.23	Transducer	958.33	1018.72	Regional
R-13	11/18/10	5834.07	Transducer	958.33	1018.72	Regional
R-13	11/17/10	5834.52	Transducer	958.33	1018.72	Regional
R-13	11/16/10	5834.4	Transducer	958.33	1018.72	Regional
R-13	11/15/10	5834.56	Transducer	958.33	1018.72	Regional
R-13	11/14/10	5834.37	Transducer	958.33	1018.72	Regional
R-13	11/13/10	5834.15	Transducer	958.33	1018.72	Regional
R-13	11/12/10	5834.22	Transducer	958.33	1018.72	Regional
R-13	11/11/10	5834.45	Transducer	958.33	1018.72	Regional
R-13	11/10/10	5834.47	Transducer	958.33	1018.72	Regional
R-13	11/09/10	5834.56	Transducer	958.33	1018.72	Regional
R-13	11/08/10	5834.3	Transducer	958.33	1018.72	Regional
R-13	11/07/10	5834.19	Transducer	958.33	1018.72	Regional
R-13	11/06/10	5834.18	Transducer	958.33	1018.72	Regional
R-13	11/05/10	5834.12	Transducer	958.33	1018.72	Regional
R-13	11/04/10	5833.95	Transducer	958.33	1018.72	Regional
R-13	11/03/10	5833.98	Transducer	958.33	1018.72	Regional
R-13	11/02/10	5833.94	Transducer	958.33	1018.72	Regional
R-13	11/01/10	5834.15	Transducer	958.33	1018.72	Regional
R-13	10/31/10	5834.23	Transducer	958.33	1018.72	Regional
R-13	10/30/10	5834.09	Transducer	958.33	1018.72	Regional
R-15	11/15/12	5848.11	Transducer	958.6	1020.3	Regional
R-15	11/14/12	5848.07	Transducer	958.6	1020.3	Regional
R-15	11/13/12	5848.05	Transducer	958.6	1020.3	Regional
R-15	11/12/12	5848.09	Transducer	958.6	1020.3	Regional
R-15	11/11/12	5848.52	Transducer	958.6	1020.3	Regional
R-15	11/10/12	5848.54	Transducer	958.6	1020.3	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-15	11/09/12	5848.33	Transducer	958.6	1020.3	Regional
R-15	11/08/12	5848.2	Transducer	958.6	1020.3	Regional
R-15	11/07/12	5848.09	Transducer	958.6	1020.3	Regional
R-15	11/06/12	5848.13	Transducer	958.6	1020.3	Regional
R-15	11/05/12	5848.08	Transducer	958.6	1020.3	Regional
R-15	11/04/12	5848.08	Transducer	958.6	1020.3	Regional
R-15	11/03/12	5848.19	Transducer	958.6	1020.3	Regional
R-15	11/02/12	5848.3	Transducer	958.6	1020.3	Regional
R-15	11/01/12	5848.18	Transducer	958.6	1020.3	Regional
R-15	10/31/12	5848.19	Transducer	958.6	1020.3	Regional
R-15	10/30/12	5848.16	Transducer	958.6	1020.3	Regional
R-15	10/29/12	5848.15	Transducer	958.6	1020.3	Regional
R-15	10/28/12	5848.26	Transducer	958.6	1020.3	Regional
R-15	10/27/12	5848.18	Transducer	958.6	1020.3	Regional
R-15	10/26/12	5848.2	Transducer	958.6	1020.3	Regional
R-15	10/25/12	5848.24	Manual	958.6	1020.3	Regional
R-15	10/25/12	5848.44	Transducer	958.6	1020.3	Regional
R-15	10/24/12	5848.4	Transducer	958.6	1020.3	Regional
R-15	10/23/12	5848.37	Transducer	958.6	1020.3	Regional
R-15	10/22/12	5848.41	Transducer	958.6	1020.3	Regional
R-15	10/21/12	5848.4	Transducer	958.6	1020.3	Regional
R-15	10/20/12	5848.31	Transducer	958.6	1020.3	Regional
R-15	10/19/12	5848.21	Transducer	958.6	1020.3	Regional
R-15	10/18/12	5848.33	Transducer	958.6	1020.3	Regional
R-15	10/17/12	5848.5	Transducer	958.6	1020.3	Regional
R-15	10/16/12	5848.39	Transducer	958.6	1020.3	Regional
R-15	10/15/12	5848.19	Transducer	958.6	1020.3	Regional
R-15	10/14/12	5848.24	Transducer	958.6	1020.3	Regional
R-15	10/13/12	5848.4	Transducer	958.6	1020.3	Regional
R-15	10/12/12	5848.25	Transducer	958.6	1020.3	Regional
R-15	10/11/12	5848.29	Transducer	958.6	1020.3	Regional
R-15	10/10/12	5848.26	Transducer	958.6	1020.3	Regional
R-15	10/09/12	5848.4	Transducer	958.6	1020.3	Regional
R-15	10/08/12	5848.32	Transducer	958.6	1020.3	Regional
R-15	10/07/12	5848.3	Transducer	958.6	1020.3	Regional
R-15	10/06/12	5848.4	Transducer	958.6	1020.3	Regional
R-15	10/05/12	5848.34	Transducer	958.6	1020.3	Regional
R-15	10/04/12	5848.27	Transducer	958.6	1020.3	Regional
R-15	10/03/12	5848.37	Transducer	958.6	1020.3	Regional
R-15	10/02/12	5848.27	Transducer	958.6	1020.3	Regional
R-15	10/01/12	5848.23	Transducer	958.6	1020.3	Regional
R-15	09/30/12	5848.29	Transducer	958.6	1020.3	Regional
R-15	09/29/12	5848.29	Transducer	958.6	1020.3	Regional
R-15	09/28/12	5848.28	Transducer	958.6	1020.3	Regional
R-15	09/27/12	5848.36	Transducer	958.6	1020.3	Regional
R-15	09/26/12	5848.44	Transducer	958.6	1020.3	Regional
R-15	09/25/12	5848.38	Transducer	958.6	1020.3	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-15	09/24/12	5848.29	Transducer	958.6	1020.3	Regional
R-15	09/23/12	5848.27	Transducer	958.6	1020.3	Regional
R-15	09/22/12	5848.25	Transducer	958.6	1020.3	Regional
R-15	09/21/12	5848.29	Transducer	958.6	1020.3	Regional
R-15	09/20/12	5848.26	Transducer	958.6	1020.3	Regional
R-15	09/19/12	5848.3	Transducer	958.6	1020.3	Regional
R-15	09/18/12	5848.3	Transducer	958.6	1020.3	Regional
R-15	09/17/12	5848.36	Transducer	958.6	1020.3	Regional
R-15	09/16/12	5848.25	Transducer	958.6	1020.3	Regional
R-15	09/15/12	5848.1	Transducer	958.6	1020.3	Regional
R-15	09/14/12	5848.04	Transducer	958.6	1020.3	Regional
R-15	09/13/12	5848.26	Transducer	958.6	1020.3	Regional
R-15	09/12/12	5848.34	Transducer	958.6	1020.3	Regional
R-15	09/11/12	5848.37	Transducer	958.6	1020.3	Regional
R-15	09/10/12	5848.23	Transducer	958.6	1020.3	Regional
R-15	09/09/12	5848.17	Transducer	958.6	1020.3	Regional
R-15	09/08/12	5848.23	Transducer	958.6	1020.3	Regional
R-15	09/07/12	5848.34	Transducer	958.6	1020.3	Regional
R-15	09/06/12	5848.34	Transducer	958.6	1020.3	Regional
R-15	09/05/12	5848.4	Transducer	958.6	1020.3	Regional
R-15	09/04/12	5848.34	Transducer	958.6	1020.3	Regional
R-15	09/03/12	5848.32	Transducer	958.6	1020.3	Regional
R-15	09/02/12	5848.31	Transducer	958.6	1020.3	Regional
R-15	09/01/12	5848.37	Transducer	958.6	1020.3	Regional
R-15	08/31/12	5848.35	Transducer	958.6	1020.3	Regional
R-15	08/30/12	5848.32	Transducer	958.6	1020.3	Regional
R-15	08/29/12	5848.3	Transducer	958.6	1020.3	Regional
R-15	08/28/12	5848.2	Transducer	958.6	1020.3	Regional
R-15	08/27/12	5848.26	Transducer	958.6	1020.3	Regional
R-15	08/26/12	5848.41	Transducer	958.6	1020.3	Regional
R-15	08/25/12	5848.61	Transducer	958.6	1020.3	Regional
R-15	08/24/12	5848.56	Transducer	958.6	1020.3	Regional
R-15	08/23/12	5848.47	Transducer	958.6	1020.3	Regional
R-15	08/22/12	5848.36	Transducer	958.6	1020.3	Regional
R-15	08/21/12	5848.38	Transducer	958.6	1020.3	Regional
R-15	08/20/12	5848.41	Transducer	958.6	1020.3	Regional
R-15	08/19/12	5848.5	Transducer	958.6	1020.3	Regional
R-15	08/18/12	5848.47	Transducer	958.6	1020.3	Regional
R-15	08/17/12	5848.36	Transducer	958.6	1020.3	Regional
R-15	08/16/12	5848.47	Transducer	958.6	1020.3	Regional
R-15	08/15/12	5848.45	Transducer	958.6	1020.3	Regional
R-15	08/14/12	5848.42	Transducer	958.6	1020.3	Regional
R-15	08/13/12	5848.28	Transducer	958.6	1020.3	Regional
R-15	08/12/12	5848.47	Transducer	958.6	1020.3	Regional
R-15	08/11/12	5848.46	Transducer	958.6	1020.3	Regional
R-15	08/10/12	5848.41	Transducer	958.6	1020.3	Regional
R-15	08/09/12	5848.38	Transducer	958.6	1020.3	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-15	08/08/12	5848.36	Transducer	958.6	1020.3	Regional
R-15	08/07/12	5848.4	Transducer	958.6	1020.3	Regional
R-15	08/06/12	5848.21	Transducer	958.6	1020.3	Regional
R-15	08/05/12	5848.27	Transducer	958.6	1020.3	Regional
R-15	08/04/12	5848.52	Transducer	958.6	1020.3	Regional
R-15	08/03/12	5848.45	Transducer	958.6	1020.3	Regional
R-15	08/02/12	5848.49	Transducer	958.6	1020.3	Regional
R-15	08/01/12	5848.37	Transducer	958.6	1020.3	Regional
R-15	07/31/12	5848.46	Transducer	958.6	1020.3	Regional
R-15	07/30/12	5848.51	Transducer	958.6	1020.3	Regional
R-15	07/29/12	5848.37	Transducer	958.6	1020.3	Regional
R-15	07/28/12	5848.39	Transducer	958.6	1020.3	Regional
R-15	07/27/12	5848.48	Transducer	958.6	1020.3	Regional
R-15	07/26/12	5848.66	Transducer	958.6	1020.3	Regional
R-15	07/25/12	5848.66	Transducer	958.6	1020.3	Regional
R-15	07/24/12	5848.54	Transducer	958.6	1020.3	Regional
R-15	07/23/12	5848.45	Transducer	958.6	1020.3	Regional
R-15	07/22/12	5848.49	Transducer	958.6	1020.3	Regional
R-15	07/21/12	5848.4	Transducer	958.6	1020.3	Regional
R-15	07/20/12	5848.44	Transducer	958.6	1020.3	Regional
R-15	07/19/12	5848.46	Transducer	958.6	1020.3	Regional
R-15	07/18/12	5848.63	Transducer	958.6	1020.3	Regional
R-15	07/17/12	5848.62	Transducer	958.6	1020.3	Regional
R-15	07/16/12	5848.58	Transducer	958.6	1020.3	Regional
R-15	07/15/12	5848.57	Transducer	958.6	1020.3	Regional
R-15	07/14/12	5848.55	Transducer	958.6	1020.3	Regional
R-15	07/13/12	5848.54	Transducer	958.6	1020.3	Regional
R-15	07/12/12	5848.53	Transducer	958.6	1020.3	Regional
R-15	07/11/12	5848.48	Transducer	958.6	1020.3	Regional
R-15	07/10/12	5848.42	Transducer	958.6	1020.3	Regional
R-15	07/09/12	5848.48	Transducer	958.6	1020.3	Regional
R-15	07/08/12	5848.5	Transducer	958.6	1020.3	Regional
R-15	07/07/12	5848.55	Transducer	958.6	1020.3	Regional
R-15	07/06/12	5848.61	Transducer	958.6	1020.3	Regional
R-15	07/05/12	5848.68	Transducer	958.6	1020.3	Regional
R-15	07/04/12	5848.65	Transducer	958.6	1020.3	Regional
R-15	07/03/12	5848.64	Transducer	958.6	1020.3	Regional
R-15	07/02/12	5848.66	Transducer	958.6	1020.3	Regional
R-15	07/01/12	5848.72	Transducer	958.6	1020.3	Regional
R-15	06/30/12	5848.72	Transducer	958.6	1020.3	Regional
R-15	06/29/12	5848.62	Transducer	958.6	1020.3	Regional
R-15	06/28/12	5848.62	Transducer	958.6	1020.3	Regional
R-15	06/27/12	5848.74	Transducer	958.6	1020.3	Regional
R-15	06/26/12	5848.71	Transducer	958.6	1020.3	Regional
R-15	06/25/12	5848.68	Transducer	958.6	1020.3	Regional
R-15	06/24/12	5848.78	Transducer	958.6	1020.3	Regional
R-15	06/23/12	5848.86	Transducer	958.6	1020.3	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-15	06/22/12	5848.79	Transducer	958.6	1020.3	Regional
R-15	06/21/12	5848.89	Transducer	958.6	1020.3	Regional
R-15	06/20/12	5849.14	Transducer	958.6	1020.3	Regional
R-15	06/19/12	5849.12	Transducer	958.6	1020.3	Regional
R-15	06/18/12	5849.01	Transducer	958.6	1020.3	Regional
R-15	06/17/12	5848.75	Transducer	958.6	1020.3	Regional
R-15	06/16/12	5848.9	Transducer	958.6	1020.3	Regional
R-15	06/15/12	5849.04	Transducer	958.6	1020.3	Regional
R-15	06/14/12	5849.08	Transducer	958.6	1020.3	Regional
R-15	06/13/12	5849.01	Transducer	958.6	1020.3	Regional
R-15	06/12/12	5848.89	Transducer	958.6	1020.3	Regional
R-15	06/11/12	5849.07	Transducer	958.6	1020.3	Regional
R-15	06/10/12	5849.26	Transducer	958.6	1020.3	Regional
R-15	06/09/12	5849.15	Transducer	958.6	1020.3	Regional
R-15	06/08/12	5849.09	Transducer	958.6	1020.3	Regional
R-15	06/07/12	5849.22	Transducer	958.6	1020.3	Regional
R-15	06/06/12	5849.18	Transducer	958.6	1020.3	Regional
R-15	06/05/12	5849.09	Transducer	958.6	1020.3	Regional
R-15	06/05/12	5849.274	Transducer	958.6	1020.3	Regional
R-15	06/04/12	5849.255	Transducer	958.6	1020.3	Regional
R-15	06/03/12	5849.34	Transducer	958.6	1020.3	Regional
R-15	06/02/12	5849.41	Transducer	958.6	1020.3	Regional
R-15	06/01/12	5849.323	Transducer	958.6	1020.3	Regional
R-15	05/31/12	5849.454	Transducer	958.6	1020.3	Regional
R-15	05/30/12	5849.452	Transducer	958.6	1020.3	Regional
R-15	05/29/12	5849.341	Transducer	958.6	1020.3	Regional
R-15	05/28/12	5849.369	Transducer	958.6	1020.3	Regional
R-15	05/27/12	5849.522	Transducer	958.6	1020.3	Regional
R-15	05/26/12	5849.551	Transducer	958.6	1020.3	Regional
R-15	05/25/12	5849.682	Transducer	958.6	1020.3	Regional
R-15	05/24/12	5849.852	Transducer	958.6	1020.3	Regional
R-15	05/23/12	5849.599	Transducer	958.6	1020.3	Regional
R-15	05/22/12	5849.353	Transducer	958.6	1020.3	Regional
R-15	05/21/12	5849.186	Transducer	958.6	1020.3	Regional
R-15	05/20/12	5849.395	Transducer	958.6	1020.3	Regional
R-15	05/19/12	5849.618	Transducer	958.6	1020.3	Regional
R-15	05/18/12	5849.623	Transducer	958.6	1020.3	Regional
R-15	05/17/12	5849.38	Transducer	958.6	1020.3	Regional
R-15	05/16/12	5849.247	Transducer	958.6	1020.3	Regional
R-15	05/15/12	5849.281	Transducer	958.6	1020.3	Regional
R-15	05/14/12	5849.334	Transducer	958.6	1020.3	Regional
R-15	05/13/12	5849.216	Transducer	958.6	1020.3	Regional
R-15	05/12/12	5849.328	Transducer	958.6	1020.3	Regional
R-15	05/11/12	5849.599	Transducer	958.6	1020.3	Regional
R-15	05/10/12	5849.478	Transducer	958.6	1020.3	Regional
R-15	05/09/12	5849.277	Transducer	958.6	1020.3	Regional
R-15	05/08/12	5849.368	Transducer	958.6	1020.3	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-15	05/07/12	5849.438	Transducer	958.6	1020.3	Regional
R-15	05/06/12	5849.521	Transducer	958.6	1020.3	Regional
R-15	05/05/12	5849.534	Transducer	958.6	1020.3	Regional
R-15	05/04/12	5849.516	Transducer	958.6	1020.3	Regional
R-15	05/03/12	5849.542	Transducer	958.6	1020.3	Regional
R-15	05/02/12	5849.668	Transducer	958.6	1020.3	Regional
R-15	05/01/12	5849.665	Transducer	958.6	1020.3	Regional
R-15	04/30/12	5849.532	Transducer	958.6	1020.3	Regional
R-15	04/29/12	5849.589	Transducer	958.6	1020.3	Regional
R-15	04/28/12	5849.674	Transducer	958.6	1020.3	Regional
R-15	04/27/12	5849.733	Transducer	958.6	1020.3	Regional
R-15	04/26/12	5849.488	Transducer	958.6	1020.3	Regional
R-15	04/25/12	5849.603	Transducer	958.6	1020.3	Regional
R-15	04/24/12	5849.485	Transducer	958.6	1020.3	Regional
R-15	04/23/12	5849.387	Transducer	958.6	1020.3	Regional
R-15	04/22/12	5849.457	Transducer	958.6	1020.3	Regional
R-15	04/21/12	5849.54	Transducer	958.6	1020.3	Regional
R-15	04/20/12	5849.587	Transducer	958.6	1020.3	Regional
R-15	04/19/12	5849.71	Transducer	958.6	1020.3	Regional
R-15	04/18/12	5849.559	Transducer	958.6	1020.3	Regional
R-15	04/17/12	5849.484	Transducer	958.6	1020.3	Regional
R-15	04/16/12	5849.58	Transducer	958.6	1020.3	Regional
R-15	04/15/12	5849.964	Transducer	958.6	1020.3	Regional
R-15	04/14/12	5849.933	Transducer	958.6	1020.3	Regional
R-15	04/13/12	5849.717	Transducer	958.6	1020.3	Regional
R-15	04/12/12	5849.774	Transducer	958.6	1020.3	Regional
R-15	04/11/12	5849.523	Transducer	958.6	1020.3	Regional
R-15	04/10/12	5849.485	Transducer	958.6	1020.3	Regional
R-15	04/09/12	5849.418	Transducer	958.6	1020.3	Regional
R-15	04/08/12	5849.321	Transducer	958.6	1020.3	Regional
R-15	04/07/12	5849.602	Transducer	958.6	1020.3	Regional
R-15	04/06/12	5849.694	Transducer	958.6	1020.3	Regional
R-15	04/05/12	5849.734	Transducer	958.6	1020.3	Regional
R-15	04/04/12	5849.698	Transducer	958.6	1020.3	Regional
R-15	04/03/12	5849.796	Transducer	958.6	1020.3	Regional
R-15	04/02/12	5849.92	Transducer	958.6	1020.3	Regional
R-15	04/01/12	5849.688	Transducer	958.6	1020.3	Regional
R-15	03/31/12	5849.629	Transducer	958.6	1020.3	Regional
R-15	03/30/12	5849.62	Transducer	958.6	1020.3	Regional
R-15	03/29/12	5849.644	Transducer	958.6	1020.3	Regional
R-15	03/28/12	5849.617	Transducer	958.6	1020.3	Regional
R-15	03/27/12	5849.599	Transducer	958.6	1020.3	Regional
R-15	03/26/12	5849.683	Transducer	958.6	1020.3	Regional
R-15	03/25/12	5849.527	Transducer	958.6	1020.3	Regional
R-15	03/24/12	5849.532	Transducer	958.6	1020.3	Regional
R-15	03/23/12	5849.662	Transducer	958.6	1020.3	Regional
R-15	03/22/12	5849.723	Transducer	958.6	1020.3	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-15	03/21/12	5849.713	Transducer	958.6	1020.3	Regional
R-15	03/20/12	5849.974	Transducer	958.6	1020.3	Regional
R-15	03/19/12	5850.001	Transducer	958.6	1020.3	Regional
R-15	03/18/12	5849.834	Transducer	958.6	1020.3	Regional
R-15	03/17/12	5849.654	Transducer	958.6	1020.3	Regional
R-15	03/16/12	5849.525	Transducer	958.6	1020.3	Regional
R-15	03/15/12	5849.466	Transducer	958.6	1020.3	Regional
R-15	03/14/12	5849.603	Transducer	958.6	1020.3	Regional
R-15	03/13/12	5849.545	Transducer	958.6	1020.3	Regional
R-15	03/12/12	5849.701	Transducer	958.6	1020.3	Regional
R-15	03/11/12	5849.725	Transducer	958.6	1020.3	Regional
R-15	03/10/12	5849.401	Transducer	958.6	1020.3	Regional
R-15	03/09/12	5849.213	Transducer	958.6	1020.3	Regional
R-15	03/08/12	5849.686	Transducer	958.6	1020.3	Regional
R-15	03/07/12	5849.889	Transducer	958.6	1020.3	Regional
R-15	03/07/12	5849.882	Transducer	958.6	1020.3	Regional
R-15	03/06/12	5849.5	Transducer	958.6	1020.3	Regional
R-15	03/05/12	5849.376	Transducer	958.6	1020.3	Regional
R-15	03/04/12	5849.367	Transducer	958.6	1020.3	Regional
R-15	03/03/12	5849.536	Transducer	958.6	1020.3	Regional
R-15	03/02/12	5849.785	Transducer	958.6	1020.3	Regional
R-15	03/01/12	5849.69	Transducer	958.6	1020.3	Regional
R-15	02/29/12	5849.541	Transducer	958.6	1020.3	Regional
R-15	02/28/12	5849.707	Transducer	958.6	1020.3	Regional
R-15	02/27/12	5849.515	Transducer	958.6	1020.3	Regional
R-15	02/26/12	5849.652	Transducer	958.6	1020.3	Regional
R-15	02/25/12	5849.38	Transducer	958.6	1020.3	Regional
R-15	02/24/12	5849.537	Transducer	958.6	1020.3	Regional
R-15	02/23/12	5849.738	Transducer	958.6	1020.3	Regional
R-15	02/22/12	5849.475	Transducer	958.6	1020.3	Regional
R-15	02/21/12	5849.422	Transducer	958.6	1020.3	Regional
R-15	02/20/12	5849.742	Transducer	958.6	1020.3	Regional
R-15	02/19/12	5849.59	Transducer	958.6	1020.3	Regional
R-15	02/18/12	5849.517	Transducer	958.6	1020.3	Regional
R-15	02/17/12	5849.49	Transducer	958.6	1020.3	Regional
R-15	02/16/12	5849.471	Transducer	958.6	1020.3	Regional
R-15	02/15/12	5849.737	Transducer	958.6	1020.3	Regional
R-15	02/14/12	5849.634	Transducer	958.6	1020.3	Regional
R-15	02/13/12	5849.689	Transducer	958.6	1020.3	Regional
R-15	02/12/12	5849.341	Transducer	958.6	1020.3	Regional
R-15	02/11/12	5849.324	Transducer	958.6	1020.3	Regional
R-15	02/10/12	5849.37	Transducer	958.6	1020.3	Regional
R-15	02/09/12	5849.347	Transducer	958.6	1020.3	Regional
R-15	02/08/12	5849.208	Transducer	958.6	1020.3	Regional
R-15	02/07/12	5849.404	Transducer	958.6	1020.3	Regional
R-15	02/06/12	5849.338	Transducer	958.6	1020.3	Regional
R-15	02/05/12	5849.209	Transducer	958.6	1020.3	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-15	02/04/12	5849.319	Transducer	958.6	1020.3	Regional
R-15	02/03/12	5849.622	Transducer	958.6	1020.3	Regional
R-15	02/02/12	5849.413	Transducer	958.6	1020.3	Regional
R-15	02/01/12	5849.28	Transducer	958.6	1020.3	Regional
R-15	01/31/12	5849.487	Transducer	958.6	1020.3	Regional
R-15	01/30/12	5849.313	Transducer	958.6	1020.3	Regional
R-15	01/29/12	5849.128	Transducer	958.6	1020.3	Regional
R-15	01/28/12	5849.227	Transducer	958.6	1020.3	Regional
R-15	01/27/12	5849.494	Transducer	958.6	1020.3	Regional
R-15	01/26/12	5849.324	Transducer	958.6	1020.3	Regional
R-15	01/25/12	5849.336	Transducer	958.6	1020.3	Regional
R-15	01/24/12	5849.582	Transducer	958.6	1020.3	Regional
R-15	01/23/12	5849.369	Transducer	958.6	1020.3	Regional
R-15	01/22/12	5849.815	Transducer	958.6	1020.3	Regional
R-15	01/21/12	5849.392	Transducer	958.6	1020.3	Regional
R-15	01/20/12	5849.537	Transducer	958.6	1020.3	Regional
R-15	01/19/12	5849.334	Transducer	958.6	1020.3	Regional
R-15	01/18/12	5849.29	Transducer	958.6	1020.3	Regional
R-15	01/17/12	5849.425	Transducer	958.6	1020.3	Regional
R-15	01/16/12	5849.415	Transducer	958.6	1020.3	Regional
R-15	01/15/12	5849.18	Transducer	958.6	1020.3	Regional
R-15	01/14/12	5849.151	Transducer	958.6	1020.3	Regional
R-15	01/13/12	5849.383	Transducer	958.6	1020.3	Regional
R-15	01/12/12	5849.377	Transducer	958.6	1020.3	Regional
R-15	01/11/12	5849.417	Transducer	958.6	1020.3	Regional
R-15	01/10/12	5849.268	Transducer	958.6	1020.3	Regional
R-15	01/09/12	5849.226	Transducer	958.6	1020.3	Regional
R-15	01/08/12	5849.403	Transducer	958.6	1020.3	Regional
R-15	01/07/12	5849.353	Transducer	958.6	1020.3	Regional
R-15	01/06/12	5849.288	Transducer	958.6	1020.3	Regional
R-15	01/05/12	5848.935	Transducer	958.6	1020.3	Regional
R-15	01/04/12	5849.039	Transducer	958.6	1020.3	Regional
R-15	01/03/12	5848.907	Transducer	958.6	1020.3	Regional
R-15	01/02/12	5848.797	Transducer	958.6	1020.3	Regional
R-15	01/01/12	5848.924	Transducer	958.6	1020.3	Regional
R-15	12/31/11	5849.205	Transducer	958.6	1020.3	Regional
R-15	12/30/11	5849.163	Transducer	958.6	1020.3	Regional
R-15	12/29/11	5849.074	Transducer	958.6	1020.3	Regional
R-15	12/28/11	5849.175	Transducer	958.6	1020.3	Regional
R-15	12/27/11	5849.095	Transducer	958.6	1020.3	Regional
R-15	12/26/11	5849.149	Transducer	958.6	1020.3	Regional
R-15	12/25/11	5848.907	Transducer	958.6	1020.3	Regional
R-15	12/24/11	5849.055	Transducer	958.6	1020.3	Regional
R-15	12/23/11	5849.125	Transducer	958.6	1020.3	Regional
R-15	12/22/11	5849.427	Transducer	958.6	1020.3	Regional
R-15	12/21/11	5849.366	Transducer	958.6	1020.3	Regional
R-15	12/20/11	5849.327	Transducer	958.6	1020.3	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-15	12/19/11	5849.389	Transducer	958.6	1020.3	Regional
R-15	12/18/11	5848.958	Transducer	958.6	1020.3	Regional
R-15	12/17/11	5848.826	Transducer	958.6	1020.3	Regional
R-15	12/16/11	5848.975	Transducer	958.6	1020.3	Regional
R-15	12/15/11	5849.139	Transducer	958.6	1020.3	Regional
R-15	12/14/11	5849.308	Transducer	958.6	1020.3	Regional
R-15	12/13/11	5849.225	Transducer	958.6	1020.3	Regional
R-15	12/12/11	5849.15	Transducer	958.6	1020.3	Regional
R-15	12/11/11	5849.009	Transducer	958.6	1020.3	Regional
R-15	12/10/11	5848.878	Transducer	958.6	1020.3	Regional
R-15	12/09/11	5849.066	Transducer	958.6	1020.3	Regional
R-15	12/08/11	5849.041	Transducer	958.6	1020.3	Regional
R-15	12/07/11	5848.972	Transducer	958.6	1020.3	Regional
R-15	12/06/11	5848.993	Transducer	958.6	1020.3	Regional
R-15	12/05/11	5849.18	Transducer	958.6	1020.3	Regional
R-15	12/04/11	5849.08	Transducer	958.6	1020.3	Regional
R-15	12/03/11	5849.274	Transducer	958.6	1020.3	Regional
R-15	12/02/11	5848.954	Transducer	958.6	1020.3	Regional
R-15	12/01/11	5849.169	Transducer	958.6	1020.3	Regional
R-15	11/30/11	5848.863	Transducer	958.6	1020.3	Regional
R-15	11/29/11	5848.791	Transducer	958.6	1020.3	Regional
R-15	11/28/11	5848.739	Transducer	958.6	1020.3	Regional
R-15	11/27/11	5848.568	Transducer	958.6	1020.3	Regional
R-15	11/26/11	5849.045	Transducer	958.6	1020.3	Regional
R-15	11/25/11	5848.955	Transducer	958.6	1020.3	Regional
R-15	11/24/11	5848.839	Transducer	958.6	1020.3	Regional
R-15	11/23/11	5848.717	Transducer	958.6	1020.3	Regional
R-15	11/22/11	5848.829	Transducer	958.6	1020.3	Regional
R-15	11/21/11	5848.956	Transducer	958.6	1020.3	Regional
R-15	11/20/11	5848.99	Transducer	958.6	1020.3	Regional
R-15	11/19/11	5849.201	Transducer	958.6	1020.3	Regional
R-15	11/18/11	5848.961	Transducer	958.6	1020.3	Regional
R-15	11/17/11	5848.75	Transducer	958.6	1020.3	Regional
R-15	11/16/11	5848.982	Transducer	958.6	1020.3	Regional
R-15	11/15/11	5849.053	Transducer	958.6	1020.3	Regional
R-15	11/14/11	5849.115	Transducer	958.6	1020.3	Regional
R-15	11/13/11	5849.074	Transducer	958.6	1020.3	Regional
R-15	11/12/11	5848.97	Transducer	958.6	1020.3	Regional
R-15	11/11/11	5848.699	Transducer	958.6	1020.3	Regional
R-15	11/10/11	5848.483	Transducer	958.6	1020.3	Regional
R-15	11/09/11	5848.701	Transducer	958.6	1020.3	Regional
R-15	11/08/11	5849.053	Transducer	958.6	1020.3	Regional
R-15	11/07/11	5848.904	Transducer	958.6	1020.3	Regional
R-15	11/06/11	5848.997	Transducer	958.6	1020.3	Regional
R-15	11/05/11	5849.078	Transducer	958.6	1020.3	Regional
R-15	11/04/11	5848.747	Transducer	958.6	1020.3	Regional
R-15	11/03/11	5848.561	Transducer	958.6	1020.3	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-15	11/02/11	5849.006	Transducer	958.6	1020.3	Regional
R-15	11/01/11	5848.729	Transducer	958.6	1020.3	Regional
R-15	10/31/11	5848.586	Transducer	958.6	1020.3	Regional
R-15	10/30/11	5848.665	Transducer	958.6	1020.3	Regional
R-15	10/29/11	5848.616	Transducer	958.6	1020.3	Regional
R-15	10/28/11	5848.665	Transducer	958.6	1020.3	Regional
R-15	10/27/11	5848.791	Transducer	958.6	1020.3	Regional
R-15	10/26/11	5848.739	Transducer	958.6	1020.3	Regional
R-15	10/25/11	5848.633	Transducer	958.6	1020.3	Regional
R-15	10/24/11	5848.496	Transducer	958.6	1020.3	Regional
R-15	10/23/11	5848.541	Transducer	958.6	1020.3	Regional
R-15	10/22/11	5848.532	Transducer	958.6	1020.3	Regional
R-15	10/21/11	5848.462	Transducer	958.6	1020.3	Regional
R-15	10/20/11	5848.576	Transducer	958.6	1020.3	Regional
R-15	10/19/11	5848.447	Transducer	958.6	1020.3	Regional
R-15	10/18/11	5848.497	Transducer	958.6	1020.3	Regional
R-15	10/17/11	5848.572	Transducer	958.6	1020.3	Regional
R-15	10/16/11	5848.45	Transducer	958.6	1020.3	Regional
R-15	10/15/11	5848.441	Transducer	958.6	1020.3	Regional
R-15	10/14/11	5848.453	Transducer	958.6	1020.3	Regional
R-15	10/13/11	5848.397	Transducer	958.6	1020.3	Regional
R-15	10/12/11	5848.448	Transducer	958.6	1020.3	Regional
R-15	10/11/11	5848.48	Transducer	958.6	1020.3	Regional
R-15	10/10/11	5848.392	Transducer	958.6	1020.3	Regional
R-15	10/09/11	5848.447	Transducer	958.6	1020.3	Regional
R-15	10/08/11	5848.584	Transducer	958.6	1020.3	Regional
R-15	10/07/11	5848.475	Transducer	958.6	1020.3	Regional
R-15	10/06/11	5848.543	Transducer	958.6	1020.3	Regional
R-15	10/05/11	5848.313	Transducer	958.6	1020.3	Regional
R-15	10/04/11	5848.187	Transducer	958.6	1020.3	Regional
R-15	10/03/11	5848.087	Transducer	958.6	1020.3	Regional
R-15	10/02/11	5848.095	Transducer	958.6	1020.3	Regional
R-15	10/01/11	5848.071	Transducer	958.6	1020.3	Regional
R-15	09/30/11	5848.003	Transducer	958.6	1020.3	Regional
R-15	09/29/11	5848.102	Transducer	958.6	1020.3	Regional
R-15	09/28/11	5848.066	Transducer	958.6	1020.3	Regional
R-15	09/27/11	5848.115	Transducer	958.6	1020.3	Regional
R-15	09/26/11	5848.186	Transducer	958.6	1020.3	Regional
R-15	09/25/11	5848.171	Transducer	958.6	1020.3	Regional
R-15	09/24/11	5847.974	Transducer	958.6	1020.3	Regional
R-15	09/23/11	5847.922	Transducer	958.6	1020.3	Regional
R-15	09/22/11	5848.026	Transducer	958.6	1020.3	Regional
R-15	09/21/11	5848.039	Transducer	958.6	1020.3	Regional
R-15	09/20/11	5848.052	Transducer	958.6	1020.3	Regional
R-15	09/19/11	5847.961	Transducer	958.6	1020.3	Regional
R-15	09/18/11	5848.026	Transducer	958.6	1020.3	Regional
R-15	09/17/11	5848.07	Transducer	958.6	1020.3	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-15	09/16/11	5848.055	Transducer	958.6	1020.3	Regional
R-15	09/15/11	5848.005	Transducer	958.6	1020.3	Regional
R-15	09/14/11	5847.987	Transducer	958.6	1020.3	Regional
R-15	09/13/11	5847.77	Transducer	958.6	1020.3	Regional
R-15	09/13/11	5847.876	Transducer	958.6	1020.3	Regional
R-15	09/12/11	5847.7	Transducer	958.6	1020.3	Regional
R-15	09/11/11	5847.68	Transducer	958.6	1020.3	Regional
R-15	09/10/11	5847.71	Transducer	958.6	1020.3	Regional
R-15	09/09/11	5847.66	Transducer	958.6	1020.3	Regional
R-15	09/08/11	5847.56	Transducer	958.6	1020.3	Regional
R-15	09/07/11	5847.72	Transducer	958.6	1020.3	Regional
R-15	09/06/11	5847.71	Transducer	958.6	1020.3	Regional
R-15	09/05/11	5847.59	Transducer	958.6	1020.3	Regional
R-15	09/04/11	5847.68	Transducer	958.6	1020.3	Regional
R-15	09/03/11	5847.76	Transducer	958.6	1020.3	Regional
R-15	09/02/11	5847.66	Transducer	958.6	1020.3	Regional
R-15	09/01/11	5847.64	Transducer	958.6	1020.3	Regional
R-15	08/31/11	5847.69	Transducer	958.6	1020.3	Regional
R-15	08/30/11	5847.69	Transducer	958.6	1020.3	Regional
R-15	08/29/11	5847.61	Transducer	958.6	1020.3	Regional
R-15	08/28/11	5847.51	Transducer	958.6	1020.3	Regional
R-15	08/27/11	5847.39	Transducer	958.6	1020.3	Regional
R-15	08/26/11	5847.34	Transducer	958.6	1020.3	Regional
R-15	08/25/11	5847.37	Transducer	958.6	1020.3	Regional
R-15	08/24/11	5847.43	Transducer	958.6	1020.3	Regional
R-15	08/23/11	5847.41	Transducer	958.6	1020.3	Regional
R-15	08/22/11	5847.3	Transducer	958.6	1020.3	Regional
R-15	08/21/11	5847.37	Transducer	958.6	1020.3	Regional
R-15	08/20/11	5847.39	Transducer	958.6	1020.3	Regional
R-15	08/19/11	5847.33	Transducer	958.6	1020.3	Regional
R-15	08/18/11	5847.16	Transducer	958.6	1020.3	Regional
R-15	08/17/11	5847.18	Transducer	958.6	1020.3	Regional
R-15	08/16/11	5847.31	Transducer	958.6	1020.3	Regional
R-15	08/15/11	5847.23	Transducer	958.6	1020.3	Regional
R-15	08/14/11	5847.03	Transducer	958.6	1020.3	Regional
R-15	08/13/11	5847.14	Transducer	958.6	1020.3	Regional
R-15	08/12/11	5847.16	Transducer	958.6	1020.3	Regional
R-15	08/11/11	5847.12	Transducer	958.6	1020.3	Regional
R-15	08/10/11	5847.14	Transducer	958.6	1020.3	Regional
R-15	08/09/11	5847.09	Transducer	958.6	1020.3	Regional
R-15	08/08/11	5847.07	Transducer	958.6	1020.3	Regional
R-15	08/07/11	5847.01	Transducer	958.6	1020.3	Regional
R-15	08/06/11	5846.92	Transducer	958.6	1020.3	Regional
R-15	08/05/11	5846.87	Transducer	958.6	1020.3	Regional
R-15	08/04/11	5846.82	Transducer	958.6	1020.3	Regional
R-15	08/03/11	5846.77	Transducer	958.6	1020.3	Regional
R-15	08/02/11	5846.7	Transducer	958.6	1020.3	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-15	08/01/11	5846.57	Transducer	958.6	1020.3	Regional
R-15	07/31/11	5846.49	Transducer	958.6	1020.3	Regional
R-15	07/30/11	5846.44	Transducer	958.6	1020.3	Regional
R-15	07/29/11	5846.45	Transducer	958.6	1020.3	Regional
R-15	07/28/11	5846.44	Transducer	958.6	1020.3	Regional
R-15	07/27/11	5846.34	Transducer	958.6	1020.3	Regional
R-15	07/26/11	5846.24	Transducer	958.6	1020.3	Regional
R-15	07/25/11	5846.09	Transducer	958.6	1020.3	Regional
R-15	07/24/11	5846.09	Transducer	958.6	1020.3	Regional
R-15	07/23/11	5846.16	Transducer	958.6	1020.3	Regional
R-15	07/22/11	5846.19	Transducer	958.6	1020.3	Regional
R-15	07/21/11	5846.16	Transducer	958.6	1020.3	Regional
R-15	07/20/11	5846.13	Transducer	958.6	1020.3	Regional
R-15	07/19/11	5846.06	Transducer	958.6	1020.3	Regional
R-15	07/18/11	5846.01	Transducer	958.6	1020.3	Regional
R-15	07/17/11	5846.12	Transducer	958.6	1020.3	Regional
R-15	07/16/11	5846.29	Transducer	958.6	1020.3	Regional
R-15	07/15/11	5846.36	Transducer	958.6	1020.3	Regional
R-15	07/14/11	5846.36	Transducer	958.6	1020.3	Regional
R-15	07/13/11	5846.33	Transducer	958.6	1020.3	Regional
R-15	07/12/11	5846.31	Transducer	958.6	1020.3	Regional
R-15	07/11/11	5846.32	Transducer	958.6	1020.3	Regional
R-15	07/10/11	5846.41	Transducer	958.6	1020.3	Regional
R-15	07/09/11	5846.47	Transducer	958.6	1020.3	Regional
R-15	07/08/11	5846.51	Transducer	958.6	1020.3	Regional
R-15	07/07/11	5846.47	Transducer	958.6	1020.3	Regional
R-15	07/06/11	5846.46	Transducer	958.6	1020.3	Regional
R-15	07/05/11	5846.49	Transducer	958.6	1020.3	Regional
R-15	07/04/11	5846.61	Transducer	958.6	1020.3	Regional
R-15	07/03/11	5846.58	Transducer	958.6	1020.3	Regional
R-15	07/02/11	5846.66	Transducer	958.6	1020.3	Regional
R-15	07/01/11	5846.73	Transducer	958.6	1020.3	Regional
R-15	06/30/11	5846.73	Transducer	958.6	1020.3	Regional
R-15	06/29/11	5846.61	Transducer	958.6	1020.3	Regional
R-15	06/28/11	5846.61	Transducer	958.6	1020.3	Regional
R-15	06/27/11	5846.87	Transducer	958.6	1020.3	Regional
R-15	06/26/11	5846.9	Transducer	958.6	1020.3	Regional
R-15	06/25/11	5846.99	Transducer	958.6	1020.3	Regional
R-15	06/24/11	5847	Transducer	958.6	1020.3	Regional
R-15	06/23/11	5846.94	Transducer	958.6	1020.3	Regional
R-15	06/22/11	5846.99	Transducer	958.6	1020.3	Regional
R-15	06/21/11	5847.13	Transducer	958.6	1020.3	Regional
R-15	06/20/11	5847.34	Transducer	958.6	1020.3	Regional
R-15	06/19/11	5847.27	Transducer	958.6	1020.3	Regional
R-15	06/18/11	5847.2	Transducer	958.6	1020.3	Regional
R-15	06/17/11	5847.36	Transducer	958.6	1020.3	Regional
R-15	06/16/11	5847.34	Transducer	958.6	1020.3	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-15	06/15/11	5847.22	Transducer	958.6	1020.3	Regional
R-15	06/14/11	5847.3	Transducer	958.6	1020.3	Regional
R-15	06/13/11	5847.35	Transducer	958.6	1020.3	Regional
R-15	06/12/11	5847.4	Transducer	958.6	1020.3	Regional
R-15	06/11/11	5847.37	Transducer	958.6	1020.3	Regional
R-15	06/10/11	5847.44	Transducer	958.6	1020.3	Regional
R-15	06/09/11	5847.51	Transducer	958.6	1020.3	Regional
R-15	06/08/11	5847.55	Transducer	958.6	1020.3	Regional
R-15	06/07/11	5847.57	Transducer	958.6	1020.3	Regional
R-15	06/06/11	5847.42	Transducer	958.6	1020.3	Regional
R-15	06/05/11	5847.34	Transducer	958.6	1020.3	Regional
R-15	06/04/11	5847.54	Transducer	958.6	1020.3	Regional
R-15	06/03/11	5847.68	Transducer	958.6	1020.3	Regional
R-15	06/02/11	5847.62	Transducer	958.6	1020.3	Regional
R-15	06/01/11	5847.46	Transducer	958.6	1020.3	Regional
R-15	05/31/11	5847.59	Transducer	958.6	1020.3	Regional
R-15	05/30/11	5848.09	Transducer	958.6	1020.3	Regional
R-15	05/29/11	5848.08	Transducer	958.6	1020.3	Regional
R-15	05/28/11	5847.99	Transducer	958.6	1020.3	Regional
R-15	05/27/11	5847.98	Transducer	958.6	1020.3	Regional
R-15	05/26/11	5847.82	Transducer	958.6	1020.3	Regional
R-15	05/25/11	5847.96	Transducer	958.6	1020.3	Regional
R-15	05/24/11	5848.16	Transducer	958.6	1020.3	Regional
R-15	05/23/11	5848.08	Transducer	958.6	1020.3	Regional
R-15	05/22/11	5848.06	Transducer	958.6	1020.3	Regional
R-15	05/21/11	5848.14	Transducer	958.6	1020.3	Regional
R-15	05/20/11	5848.27	Transducer	958.6	1020.3	Regional
R-15	05/19/11	5848.46	Transducer	958.6	1020.3	Regional
R-15	05/18/11	5848.43	Transducer	958.6	1020.3	Regional
R-15	05/17/11	5848.38	Transducer	958.6	1020.3	Regional
R-15	05/16/11	5848.25	Transducer	958.6	1020.3	Regional
R-15	05/15/11	5848.29	Transducer	958.6	1020.3	Regional
R-15	05/14/11	5848.2	Transducer	958.6	1020.3	Regional
R-15	05/13/11	5848.22	Transducer	958.6	1020.3	Regional
R-15	05/12/11	5848.45	Transducer	958.6	1020.3	Regional
R-15	05/11/11	5848.73	Transducer	958.6	1020.3	Regional
R-15	05/10/11	5848.73	Transducer	958.6	1020.3	Regional
R-15	05/09/11	5848.76	Transducer	958.6	1020.3	Regional
R-15	05/08/11	5848.66	Transducer	958.6	1020.3	Regional
R-15	05/07/11	5848.64	Transducer	958.6	1020.3	Regional
R-15	05/06/11	5848.52	Transducer	958.6	1020.3	Regional
R-15	05/05/11	5848.52	Transducer	958.6	1020.3	Regional
R-15	05/04/11	5848.52	Transducer	958.6	1020.3	Regional
R-15	05/03/11	5848.46	Transducer	958.6	1020.3	Regional
R-15	05/02/11	5848.66	Transducer	958.6	1020.3	Regional
R-15	05/01/11	5848.98	Transducer	958.6	1020.3	Regional
R-15	04/30/11	5849.13	Transducer	958.6	1020.3	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-15	04/29/11	5849.06	Transducer	958.6	1020.3	Regional
R-15	04/28/11	5848.87	Transducer	958.6	1020.3	Regional
R-15	04/27/11	5849.31	Transducer	958.6	1020.3	Regional
R-15	04/26/11	5849.4	Transducer	958.6	1020.3	Regional
R-15	04/25/11	5849.39	Transducer	958.6	1020.3	Regional
R-15	04/24/11	5849.41	Transducer	958.6	1020.3	Regional
R-15	04/23/11	5849.55	Transducer	958.6	1020.3	Regional
R-15	04/22/11	5849.65	Transducer	958.6	1020.3	Regional
R-15	04/21/11	5849.69	Transducer	958.6	1020.3	Regional
R-15	04/20/11	5849.78	Transducer	958.6	1020.3	Regional
R-15	04/19/11	5849.98	Transducer	958.6	1020.3	Regional
R-15	04/18/11	5849.85	Transducer	958.6	1020.3	Regional
R-15	04/17/11	5849.77	Transducer	958.6	1020.3	Regional
R-15	04/16/11	5849.7	Transducer	958.6	1020.3	Regional
R-15	04/15/11	5849.74	Transducer	958.6	1020.3	Regional
R-15	04/14/11	5849.89	Transducer	958.6	1020.3	Regional
R-15	04/13/11	5849.76	Transducer	958.6	1020.3	Regional
R-15	04/12/11	5849.57	Transducer	958.6	1020.3	Regional
R-15	04/11/11	5849.61	Transducer	958.6	1020.3	Regional
R-15	04/10/11	5849.86	Transducer	958.6	1020.3	Regional
R-15	04/09/11	5849.92	Transducer	958.6	1020.3	Regional
R-15	04/08/11	5849.95	Transducer	958.6	1020.3	Regional
R-15	04/07/11	5849.83	Transducer	958.6	1020.3	Regional
R-15	04/06/11	5849.84	Transducer	958.6	1020.3	Regional
R-15	04/05/11	5849.59	Transducer	958.6	1020.3	Regional
R-15	04/04/11	5849.76	Transducer	958.6	1020.3	Regional
R-15	04/03/11	5849.83	Transducer	958.6	1020.3	Regional
R-15	04/02/11	5849.65	Transducer	958.6	1020.3	Regional
R-15	04/01/11	5849.76	Transducer	958.6	1020.3	Regional
R-15	03/31/11	5849.75	Transducer	958.6	1020.3	Regional
R-15	03/30/11	5849.68	Transducer	958.6	1020.3	Regional
R-15	03/29/11	5849.84	Transducer	958.6	1020.3	Regional
R-15	03/28/11	5849.85	Transducer	958.6	1020.3	Regional
R-15	03/27/11	5849.93	Transducer	958.6	1020.3	Regional
R-15	03/26/11	5849.88	Transducer	958.6	1020.3	Regional
R-15	03/25/11	5849.78	Transducer	958.6	1020.3	Regional
R-15	03/24/11	5849.77	Transducer	958.6	1020.3	Regional
R-15	03/23/11	5849.74	Transducer	958.6	1020.3	Regional
R-15	03/22/11	5849.93	Transducer	958.6	1020.3	Regional
R-15	03/21/11	5849.68	Transducer	958.6	1020.3	Regional
R-15	03/20/11	5849.65	Transducer	958.6	1020.3	Regional
R-15	03/19/11	5849.51	Transducer	958.6	1020.3	Regional
R-15	03/18/11	5849.59	Transducer	958.6	1020.3	Regional
R-15	03/17/11	5849.65	Transducer	958.6	1020.3	Regional
R-15	03/16/11	5849.56	Transducer	958.6	1020.3	Regional
R-15	03/15/11	5849.56	Transducer	958.6	1020.3	Regional
R-15	03/14/11	5849.39	Transducer	958.6	1020.3	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-15	03/13/11	5849.61	Transducer	958.6	1020.3	Regional
R-15	03/12/11	5849.59	Transducer	958.6	1020.3	Regional
R-15	03/11/11	5849.5	Transducer	958.6	1020.3	Regional
R-15	03/10/11	5849.3	Transducer	958.6	1020.3	Regional
R-15	03/09/11	5849.54	Transducer	958.6	1020.3	Regional
R-15	03/08/11	5849.98	Transducer	958.6	1020.3	Regional
R-15	03/07/11	5849.84	Transducer	958.6	1020.3	Regional
R-15	03/06/11	5849.49	Transducer	958.6	1020.3	Regional
R-15	03/05/11	5849.31	Transducer	958.6	1020.3	Regional
R-15	03/04/11	5849.66	Transducer	958.6	1020.3	Regional
R-15	03/03/11	5849.52	Transducer	958.6	1020.3	Regional
R-15	03/02/11	5849.47	Transducer	958.6	1020.3	Regional
R-15	03/01/11	5849.37	Transducer	958.6	1020.3	Regional
R-15	02/28/11	5849.57	Transducer	958.6	1020.3	Regional
R-15	02/27/11	5849.88	Transducer	958.6	1020.3	Regional
R-15	02/26/11	5849.73	Transducer	958.6	1020.3	Regional
R-15	02/25/11	5849.61	Transducer	958.6	1020.3	Regional
R-15	02/24/11	5849.76	Transducer	958.6	1020.3	Regional
R-15	02/23/11	5849.64	Transducer	958.6	1020.3	Regional
R-15	02/22/11	5849.63	Transducer	958.6	1020.3	Regional
R-15	02/21/11	5849.72	Transducer	958.6	1020.3	Regional
R-15	02/20/11	5849.77	Transducer	958.6	1020.3	Regional
R-15	02/19/11	5849.4	Transducer	958.6	1020.3	Regional
R-15	02/18/11	5849.47	Transducer	958.6	1020.3	Regional
R-15	02/17/11	5849.67	Transducer	958.6	1020.3	Regional
R-15	02/16/11	5849.47	Transducer	958.6	1020.3	Regional
R-15	02/15/11	5849.4	Transducer	958.6	1020.3	Regional
R-15	02/14/11	5849.26	Transducer	958.6	1020.3	Regional
R-15	02/13/11	5849.16	Transducer	958.6	1020.3	Regional
R-15	02/12/11	5849.16	Transducer	958.6	1020.3	Regional
R-15	02/11/11	5849.44	Transducer	958.6	1020.3	Regional
R-15	02/10/11	5849.46	Transducer	958.6	1020.3	Regional
R-15	02/09/11	5849.54	Transducer	958.6	1020.3	Regional
R-15	02/08/11	5849.71	Transducer	958.6	1020.3	Regional
R-15	02/07/11	5849.29	Transducer	958.6	1020.3	Regional
R-15	02/06/11	5849.62	Transducer	958.6	1020.3	Regional
R-15	02/05/11	5849.51	Transducer	958.6	1020.3	Regional
R-15	02/04/11	5849.42	Transducer	958.6	1020.3	Regional
R-15	02/03/11	5849.3	Transducer	958.6	1020.3	Regional
R-15	02/02/11	5849.51	Transducer	958.6	1020.3	Regional
R-15	02/01/11	5849.65	Transducer	958.6	1020.3	Regional
R-15	01/31/11	5849.52	Transducer	958.6	1020.3	Regional
R-15	01/30/11	5849.4	Transducer	958.6	1020.3	Regional
R-15	01/29/11	5849.41	Transducer	958.6	1020.3	Regional
R-15	01/28/11	5849.24	Transducer	958.6	1020.3	Regional
R-15	01/27/11	5849.19	Transducer	958.6	1020.3	Regional
R-15	01/26/11	5849.37	Transducer	958.6	1020.3	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-15	01/25/11	5849.26	Transducer	958.6	1020.3	Regional
R-15	01/24/11	5849.4	Transducer	958.6	1020.3	Regional
R-15	01/23/11	5849.45	Transducer	958.6	1020.3	Regional
R-15	01/22/11	5849.34	Transducer	958.6	1020.3	Regional
R-15	01/21/11	5849.33	Transducer	958.6	1020.3	Regional
R-15	01/20/11	5849.46	Transducer	958.6	1020.3	Regional
R-15	01/19/11	5849.39	Transducer	958.6	1020.3	Regional
R-15	01/18/11	5849.43	Transducer	958.6	1020.3	Regional
R-15	01/17/11	5849.29	Transducer	958.6	1020.3	Regional
R-15	01/16/11	5849.22	Transducer	958.6	1020.3	Regional
R-15	01/15/11	5849.05	Transducer	958.6	1020.3	Regional
R-15	01/14/11	5849.15	Transducer	958.6	1020.3	Regional
R-15	01/13/11	5849.02	Transducer	958.6	1020.3	Regional
R-15	01/12/11	5849.03	Transducer	958.6	1020.3	Regional
R-15	01/11/11	5849.1	Transducer	958.6	1020.3	Regional
R-15	01/10/11	5849.54	Transducer	958.6	1020.3	Regional
R-15	01/09/11	5849.55	Transducer	958.6	1020.3	Regional
R-15	01/08/11	5849.35	Transducer	958.6	1020.3	Regional
R-15	01/07/11	5849.17	Transducer	958.6	1020.3	Regional
R-15	01/06/11	5849.05	Transducer	958.6	1020.3	Regional
R-15	01/05/11	5849.13	Transducer	958.6	1020.3	Regional
R-15	01/04/11	5849.19	Transducer	958.6	1020.3	Regional
R-15	01/03/11	5849.16	Transducer	958.6	1020.3	Regional
R-15	01/02/11	5849.04	Transducer	958.6	1020.3	Regional
R-15	01/01/11	5849.35	Transducer	958.6	1020.3	Regional
R-15	12/31/10	5849.85	Transducer	958.6	1020.3	Regional
R-15	12/30/10	5849.78	Transducer	958.6	1020.3	Regional
R-15	12/29/10	5849.31	Transducer	958.6	1020.3	Regional
R-15	12/28/10	5849.1	Transducer	958.6	1020.3	Regional
R-15	12/27/10	5849.13	Transducer	958.6	1020.3	Regional
R-15	12/26/10	5848.92	Transducer	958.6	1020.3	Regional
R-15	12/25/10	5848.88	Transducer	958.6	1020.3	Regional
R-15	12/24/10	5849.05	Transducer	958.6	1020.3	Regional
R-15	12/23/10	5849.05	Transducer	958.6	1020.3	Regional
R-15	12/22/10	5848.99	Transducer	958.6	1020.3	Regional
R-15	12/21/10	5849.15	Transducer	958.6	1020.3	Regional
R-15	12/20/10	5849.23	Transducer	958.6	1020.3	Regional
R-15	12/19/10	5849.17	Transducer	958.6	1020.3	Regional
R-15	12/18/10	5849.12	Transducer	958.6	1020.3	Regional
R-15	12/17/10	5849.27	Transducer	958.6	1020.3	Regional
R-15	12/16/10	5849.26	Transducer	958.6	1020.3	Regional
R-15	12/15/10	5849.26	Transducer	958.6	1020.3	Regional
R-15	12/14/10	5848.98	Transducer	958.6	1020.3	Regional
R-15	12/13/10	5848.79	Transducer	958.6	1020.3	Regional
R-15	12/12/10	5848.8	Transducer	958.6	1020.3	Regional
R-15	12/11/10	5849.01	Transducer	958.6	1020.3	Regional
R-15	12/10/10	5849	Transducer	958.6	1020.3	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-15	12/09/10	5848.88	Transducer	958.6	1020.3	Regional
R-15	12/08/10	5848.73	Transducer	958.6	1020.3	Regional
R-15	12/07/10	5848.89	Transducer	958.6	1020.3	Regional
R-15	12/06/10	5848.7	Transducer	958.6	1020.3	Regional
R-15	12/05/10	5848.77	Transducer	958.6	1020.3	Regional
R-15	12/04/10	5848.8	Transducer	958.6	1020.3	Regional
R-15	12/03/10	5848.79	Transducer	958.6	1020.3	Regional
R-15	12/02/10	5848.79	Transducer	958.6	1020.3	Regional
R-15	12/01/10	5848.71	Transducer	958.6	1020.3	Regional
R-15	11/30/10	5848.83	Transducer	958.6	1020.3	Regional
R-15	11/29/10	5849.32	Transducer	958.6	1020.3	Regional
R-15	11/28/10	5849.16	Transducer	958.6	1020.3	Regional
R-15	11/27/10	5848.79	Transducer	958.6	1020.3	Regional
R-15	11/26/10	5848.8	Transducer	958.6	1020.3	Regional
R-15	11/25/10	5849.15	Transducer	958.6	1020.3	Regional
R-15	11/24/10	5849.16	Transducer	958.6	1020.3	Regional
R-15	11/23/10	5848.82	Transducer	958.6	1020.3	Regional
R-15	11/22/10	5849.07	Transducer	958.6	1020.3	Regional
R-15	11/21/10	5848.97	Transducer	958.6	1020.3	Regional
R-15	11/20/10	5848.84	Transducer	958.6	1020.3	Regional
R-15	11/19/10	5848.73	Transducer	958.6	1020.3	Regional
R-15	11/18/10	5848.55	Transducer	958.6	1020.3	Regional
R-15	11/17/10	5849.03	Transducer	958.6	1020.3	Regional
R-15	11/16/10	5848.87	Transducer	958.6	1020.3	Regional
R-15	11/15/10	5849.02	Transducer	958.6	1020.3	Regional
R-15	11/14/10	5848.81	Transducer	958.6	1020.3	Regional
R-15	11/13/10	5848.56	Transducer	958.6	1020.3	Regional
R-15	11/12/10	5848.67	Transducer	958.6	1020.3	Regional
R-15	11/11/10	5848.9	Transducer	958.6	1020.3	Regional
R-15	11/10/10	5848.91	Transducer	958.6	1020.3	Regional
R-15	11/09/10	5848.99	Transducer	958.6	1020.3	Regional
R-15	11/08/10	5848.68	Transducer	958.6	1020.3	Regional
R-15	11/07/10	5848.54	Transducer	958.6	1020.3	Regional
R-15	11/06/10	5848.51	Transducer	958.6	1020.3	Regional
R-15	11/05/10	5848.43	Transducer	958.6	1020.3	Regional
R-15	11/04/10	5848.23	Transducer	958.6	1020.3	Regional
R-15	11/03/10	5848.27	Transducer	958.6	1020.3	Regional
R-15	11/02/10	5848.24	Transducer	958.6	1020.3	Regional
R-15	11/01/10	5848.45	Transducer	958.6	1020.3	Regional
R-15	10/31/10	5848.51	Transducer	958.6	1020.3	Regional
R-15	10/30/10	5848.38	Transducer	958.6	1020.3	Regional
R-28	11/15/12	5835.76	Transducer	934.3	958.1	Regional
R-28	11/14/12	5835.65	Transducer	934.3	958.1	Regional
R-28	11/13/12	5835.63	Transducer	934.3	958.1	Regional
R-28	11/12/12	5835.7	Transducer	934.3	958.1	Regional
R-28	11/11/12	5836.12	Transducer	934.3	958.1	Regional
R-28	11/10/12	5836.16	Transducer	934.3	958.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-28	11/09/12	5835.97	Transducer	934.3	958.1	Regional
R-28	11/08/12	5835.84	Transducer	934.3	958.1	Regional
R-28	11/07/12	5835.67	Transducer	934.3	958.1	Regional
R-28	11/06/12	5835.73	Transducer	934.3	958.1	Regional
R-28	11/05/12	5835.65	Transducer	934.3	958.1	Regional
R-28	11/04/12	5835.69	Transducer	934.3	958.1	Regional
R-28	11/03/12	5835.84	Transducer	934.3	958.1	Regional
R-28	11/02/12	5835.83	Transducer	934.3	958.1	Regional
R-28	11/01/12	5835.73	Transducer	934.3	958.1	Regional
R-28	10/31/12	5835.78	Transducer	934.3	958.1	Regional
R-28	10/30/12	5835.75	Transducer	934.3	958.1	Regional
R-28	10/29/12	5835.71	Transducer	934.3	958.1	Regional
R-28	10/28/12	5835.8	Transducer	934.3	958.1	Regional
R-28	10/27/12	5835.67	Transducer	934.3	958.1	Regional
R-28	10/26/12	5835.74	Transducer	934.3	958.1	Regional
R-28	10/25/12	5835.99	Transducer	934.3	958.1	Regional
R-28	10/24/12	5835.92	Transducer	934.3	958.1	Regional
R-28	10/23/12	5835.9	Transducer	934.3	958.1	Regional
R-28	10/22/12	5835.94	Transducer	934.3	958.1	Regional
R-28	10/21/12	5836.04	Transducer	934.3	958.1	Regional
R-28	10/20/12	5835.9	Transducer	934.3	958.1	Regional
R-28	10/19/12	5835.81	Transducer	934.3	958.1	Regional
R-28	10/18/12	5835.94	Transducer	934.3	958.1	Regional
R-28	10/17/12	5836.07	Transducer	934.3	958.1	Regional
R-28	10/16/12	5835.9	Transducer	934.3	958.1	Regional
R-28	10/15/12	5835.7	Transducer	934.3	958.1	Regional
R-28	10/14/12	5835.79	Transducer	934.3	958.1	Regional
R-28	10/13/12	5835.95	Transducer	934.3	958.1	Regional
R-28	10/12/12	5835.81	Transducer	934.3	958.1	Regional
R-28	10/11/12	5835.9	Transducer	934.3	958.1	Regional
R-28	10/10/12	5835.84	Transducer	934.3	958.1	Regional
R-28	10/09/12	5835.92	Transducer	934.3	958.1	Regional
R-28	10/08/12	5835.94	Transducer	934.3	958.1	Regional
R-28	10/07/12	5835.92	Transducer	934.3	958.1	Regional
R-28	10/06/12	5835.97	Transducer	934.3	958.1	Regional
R-28	10/05/12	5835.92	Transducer	934.3	958.1	Regional
R-28	10/04/12	5835.86	Transducer	934.3	958.1	Regional
R-28	10/03/12	5836	Transducer	934.3	958.1	Regional
R-28	10/02/12	5835.81	Transducer	934.3	958.1	Regional
R-28	10/01/12	5835.82	Transducer	934.3	958.1	Regional
R-28	09/30/12	5835.87	Transducer	934.3	958.1	Regional
R-28	09/29/12	5835.84	Transducer	934.3	958.1	Regional
R-28	09/28/12	5835.9	Transducer	934.3	958.1	Regional
R-28	09/27/12	5835.93	Transducer	934.3	958.1	Regional
R-28	09/26/12	5835.98	Transducer	934.3	958.1	Regional
R-28	09/25/12	5835.92	Transducer	934.3	958.1	Regional
R-28	09/24/12	5835.83	Transducer	934.3	958.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-28	09/23/12	5835.85	Transducer	934.3	958.1	Regional
R-28	09/22/12	5835.85	Transducer	934.3	958.1	Regional
R-28	09/21/12	5835.88	Transducer	934.3	958.1	Regional
R-28	09/20/12	5835.9	Transducer	934.3	958.1	Regional
R-28	09/19/12	5835.85	Transducer	934.3	958.1	Regional
R-28	09/18/12	5835.89	Transducer	934.3	958.1	Regional
R-28	09/17/12	5835.98	Transducer	934.3	958.1	Regional
R-28	09/16/12	5835.85	Transducer	934.3	958.1	Regional
R-28	09/15/12	5835.74	Transducer	934.3	958.1	Regional
R-28	09/14/12	5835.62	Transducer	934.3	958.1	Regional
R-28	09/13/12	5835.84	Transducer	934.3	958.1	Regional
R-28	09/12/12	5835.99	Transducer	934.3	958.1	Regional
R-28	09/11/12	5835.96	Transducer	934.3	958.1	Regional
R-28	09/10/12	5835.83	Transducer	934.3	958.1	Regional
R-28	09/10/12	5835.813	Transducer	934.3	958.1	Regional
R-28	09/09/12	5835.778	Transducer	934.3	958.1	Regional
R-28	09/08/12	5835.76	Transducer	934.3	958.1	Regional
R-28	09/07/12	5835.939	Transducer	934.3	958.1	Regional
R-28	09/06/12	5835.913	Transducer	934.3	958.1	Regional
R-28	09/05/12	5835.947	Transducer	934.3	958.1	Regional
R-28	09/04/12	5835.922	Transducer	934.3	958.1	Regional
R-28	09/03/12	5835.953	Transducer	934.3	958.1	Regional
R-28	09/02/12	5835.918	Transducer	934.3	958.1	Regional
R-28	09/01/12	5835.914	Transducer	934.3	958.1	Regional
R-28	08/31/12	5835.968	Transducer	934.3	958.1	Regional
R-28	08/30/12	5835.914	Transducer	934.3	958.1	Regional
R-28	08/29/12	5835.82	Transducer	934.3	958.1	Regional
R-28	08/28/12	5835.75	Transducer	934.3	958.1	Regional
R-28	08/27/12	5835.806	Transducer	934.3	958.1	Regional
R-28	08/26/12	5835.938	Transducer	934.3	958.1	Regional
R-28	08/25/12	5836.116	Transducer	934.3	958.1	Regional
R-28	08/24/12	5836.035	Transducer	934.3	958.1	Regional
R-28	08/23/12	5835.958	Transducer	934.3	958.1	Regional
R-28	08/22/12	5835.912	Transducer	934.3	958.1	Regional
R-28	08/21/12	5835.994	Transducer	934.3	958.1	Regional
R-28	08/20/12	5835.942	Transducer	934.3	958.1	Regional
R-28	08/19/12	5836.024	Transducer	934.3	958.1	Regional
R-28	08/18/12	5835.987	Transducer	934.3	958.1	Regional
R-28	08/17/12	5835.927	Transducer	934.3	958.1	Regional
R-28	08/16/12	5836.067	Transducer	934.3	958.1	Regional
R-28	08/15/12	5836.044	Transducer	934.3	958.1	Regional
R-28	08/14/12	5835.994	Transducer	934.3	958.1	Regional
R-28	08/13/12	5835.853	Transducer	934.3	958.1	Regional
R-28	08/12/12	5835.988	Transducer	934.3	958.1	Regional
R-28	08/11/12	5836.006	Transducer	934.3	958.1	Regional
R-28	08/10/12	5835.901	Transducer	934.3	958.1	Regional
R-28	08/09/12	5835.854	Transducer	934.3	958.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-28	08/08/12	5835.89	Transducer	934.3	958.1	Regional
R-28	08/07/12	5835.884	Transducer	934.3	958.1	Regional
R-28	08/06/12	5835.756	Transducer	934.3	958.1	Regional
R-28	08/05/12	5835.843	Transducer	934.3	958.1	Regional
R-28	08/04/12	5836.017	Transducer	934.3	958.1	Regional
R-28	08/03/12	5835.976	Transducer	934.3	958.1	Regional
R-28	08/02/12	5836.005	Transducer	934.3	958.1	Regional
R-28	08/01/12	5835.886	Transducer	934.3	958.1	Regional
R-28	07/31/12	5835.982	Transducer	934.3	958.1	Regional
R-28	07/30/12	5835.937	Transducer	934.3	958.1	Regional
R-28	07/29/12	5835.869	Transducer	934.3	958.1	Regional
R-28	07/28/12	5835.864	Transducer	934.3	958.1	Regional
R-28	07/27/12	5835.965	Transducer	934.3	958.1	Regional
R-28	07/26/12	5836.096	Transducer	934.3	958.1	Regional
R-28	07/25/12	5836.103	Transducer	934.3	958.1	Regional
R-28	07/24/12	5835.983	Transducer	934.3	958.1	Regional
R-28	07/23/12	5835.943	Transducer	934.3	958.1	Regional
R-28	07/22/12	5835.933	Transducer	934.3	958.1	Regional
R-28	07/21/12	5835.854	Transducer	934.3	958.1	Regional
R-28	07/20/12	5835.84	Transducer	934.3	958.1	Regional
R-28	07/19/12	5835.914	Transducer	934.3	958.1	Regional
R-28	07/18/12	5836.069	Transducer	934.3	958.1	Regional
R-28	07/17/12	5836.077	Transducer	934.3	958.1	Regional
R-28	07/16/12	5836.036	Transducer	934.3	958.1	Regional
R-28	07/15/12	5835.985	Transducer	934.3	958.1	Regional
R-28	07/14/12	5835.995	Transducer	934.3	958.1	Regional
R-28	07/13/12	5835.94	Transducer	934.3	958.1	Regional
R-28	07/12/12	5835.922	Transducer	934.3	958.1	Regional
R-28	07/11/12	5835.908	Transducer	934.3	958.1	Regional
R-28	07/10/12	5835.879	Transducer	934.3	958.1	Regional
R-28	07/09/12	5835.914	Transducer	934.3	958.1	Regional
R-28	07/08/12	5835.898	Transducer	934.3	958.1	Regional
R-28	07/07/12	5835.939	Transducer	934.3	958.1	Regional
R-28	07/06/12	5835.976	Transducer	934.3	958.1	Regional
R-28	07/05/12	5836.082	Transducer	934.3	958.1	Regional
R-28	07/04/12	5836.063	Transducer	934.3	958.1	Regional
R-28	07/03/12	5836.087	Transducer	934.3	958.1	Regional
R-28	07/02/12	5836.096	Transducer	934.3	958.1	Regional
R-28	07/01/12	5836.083	Transducer	934.3	958.1	Regional
R-28	06/30/12	5836.105	Transducer	934.3	958.1	Regional
R-28	06/29/12	5835.978	Transducer	934.3	958.1	Regional
R-28	06/28/12	5835.973	Transducer	934.3	958.1	Regional
R-28	06/27/12	5836.088	Transducer	934.3	958.1	Regional
R-28	06/26/12	5836.027	Transducer	934.3	958.1	Regional
R-28	06/25/12	5835.942	Transducer	934.3	958.1	Regional
R-28	06/24/12	5836.047	Transducer	934.3	958.1	Regional
R-28	06/23/12	5836.171	Transducer	934.3	958.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-28	06/22/12	5835.987	Transducer	934.3	958.1	Regional
R-28	06/21/12	5836.103	Transducer	934.3	958.1	Regional
R-28	06/20/12	5836.327	Transducer	934.3	958.1	Regional
R-28	06/19/12	5836.327	Transducer	934.3	958.1	Regional
R-28	06/18/12	5836.255	Transducer	934.3	958.1	Regional
R-28	06/17/12	5836	Transducer	934.3	958.1	Regional
R-28	06/16/12	5836.151	Transducer	934.3	958.1	Regional
R-28	06/15/12	5836.271	Transducer	934.3	958.1	Regional
R-28	06/14/12	5836.25	Transducer	934.3	958.1	Regional
R-28	06/13/12	5836.189	Transducer	934.3	958.1	Regional
R-28	06/12/12	5836.041	Transducer	934.3	958.1	Regional
R-28	06/11/12	5836.113	Transducer	934.3	958.1	Regional
R-28	06/10/12	5836.359	Transducer	934.3	958.1	Regional
R-28	06/09/12	5836.327	Transducer	934.3	958.1	Regional
R-28	06/08/12	5836.202	Transducer	934.3	958.1	Regional
R-28	06/07/12	5836.307	Transducer	934.3	958.1	Regional
R-28	06/06/12	5836.274	Transducer	934.3	958.1	Regional
R-28	06/05/12	5836.22	Transducer	934.3	958.1	Regional
R-28	06/05/12	5836.227	Transducer	934.3	958.1	Regional
R-28	06/04/12	5836.178	Transducer	934.3	958.1	Regional
R-28	06/03/12	5836.309	Transducer	934.3	958.1	Regional
R-28	06/02/12	5836.343	Transducer	934.3	958.1	Regional
R-28	06/01/12	5836.246	Transducer	934.3	958.1	Regional
R-28	05/31/12	5836.298	Transducer	934.3	958.1	Regional
R-28	05/30/12	5836.32	Transducer	934.3	958.1	Regional
R-28	05/29/12	5836.272	Transducer	934.3	958.1	Regional
R-28	05/28/12	5836.309	Transducer	934.3	958.1	Regional
R-28	05/27/12	5836.406	Transducer	934.3	958.1	Regional
R-28	05/26/12	5836.453	Transducer	934.3	958.1	Regional
R-28	05/25/12	5836.622	Transducer	934.3	958.1	Regional
R-28	05/24/12	5836.724	Transducer	934.3	958.1	Regional
R-28	05/23/12	5836.581	Transducer	934.3	958.1	Regional
R-28	05/22/12	5836.243	Transducer	934.3	958.1	Regional
R-28	05/21/12	5836.179	Transducer	934.3	958.1	Regional
R-28	05/20/12	5836.355	Transducer	934.3	958.1	Regional
R-28	05/19/12	5836.604	Transducer	934.3	958.1	Regional
R-28	05/18/12	5836.604	Transducer	934.3	958.1	Regional
R-28	05/17/12	5836.379	Transducer	934.3	958.1	Regional
R-28	05/16/12	5836.249	Transducer	934.3	958.1	Regional
R-28	05/15/12	5836.195	Transducer	934.3	958.1	Regional
R-28	05/14/12	5836.25	Transducer	934.3	958.1	Regional
R-28	05/13/12	5836.138	Transducer	934.3	958.1	Regional
R-28	05/12/12	5836.212	Transducer	934.3	958.1	Regional
R-28	05/11/12	5836.487	Transducer	934.3	958.1	Regional
R-28	05/10/12	5836.419	Transducer	934.3	958.1	Regional
R-28	05/09/12	5836.247	Transducer	934.3	958.1	Regional
R-28	05/08/12	5836.319	Transducer	934.3	958.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-28	05/07/12	5836.427	Transducer	934.3	958.1	Regional
R-28	05/06/12	5836.495	Transducer	934.3	958.1	Regional
R-28	05/05/12	5836.479	Transducer	934.3	958.1	Regional
R-28	05/04/12	5836.451	Transducer	934.3	958.1	Regional
R-28	05/03/12	5836.544	Transducer	934.3	958.1	Regional
R-28	05/02/12	5836.567	Transducer	934.3	958.1	Regional
R-28	05/01/12	5836.599	Transducer	934.3	958.1	Regional
R-28	04/30/12	5836.516	Transducer	934.3	958.1	Regional
R-28	04/29/12	5836.601	Transducer	934.3	958.1	Regional
R-28	04/28/12	5836.628	Transducer	934.3	958.1	Regional
R-28	04/27/12	5836.679	Transducer	934.3	958.1	Regional
R-28	04/26/12	5836.451	Transducer	934.3	958.1	Regional
R-28	04/25/12	5836.511	Transducer	934.3	958.1	Regional
R-28	04/24/12	5836.421	Transducer	934.3	958.1	Regional
R-28	04/23/12	5836.29	Transducer	934.3	958.1	Regional
R-28	04/22/12	5836.34	Transducer	934.3	958.1	Regional
R-28	04/21/12	5836.425	Transducer	934.3	958.1	Regional
R-28	04/20/12	5836.503	Transducer	934.3	958.1	Regional
R-28	04/19/12	5836.529	Transducer	934.3	958.1	Regional
R-28	04/18/12	5836.427	Transducer	934.3	958.1	Regional
R-28	04/17/12	5836.312	Transducer	934.3	958.1	Regional
R-28	04/16/12	5836.46	Transducer	934.3	958.1	Regional
R-28	04/15/12	5836.825	Transducer	934.3	958.1	Regional
R-28	04/14/12	5836.879	Transducer	934.3	958.1	Regional
R-28	04/13/12	5836.616	Transducer	934.3	958.1	Regional
R-28	04/12/12	5836.639	Transducer	934.3	958.1	Regional
R-28	04/11/12	5836.465	Transducer	934.3	958.1	Regional
R-28	04/10/12	5836.384	Transducer	934.3	958.1	Regional
R-28	04/09/12	5836.302	Transducer	934.3	958.1	Regional
R-28	04/08/12	5836.191	Transducer	934.3	958.1	Regional
R-28	04/07/12	5836.411	Transducer	934.3	958.1	Regional
R-28	04/06/12	5836.564	Transducer	934.3	958.1	Regional
R-28	04/05/12	5836.54	Transducer	934.3	958.1	Regional
R-28	04/04/12	5836.554	Transducer	934.3	958.1	Regional
R-28	04/03/12	5836.696	Transducer	934.3	958.1	Regional
R-28	04/02/12	5836.821	Transducer	934.3	958.1	Regional
R-28	04/01/12	5836.611	Transducer	934.3	958.1	Regional
R-28	03/31/12	5836.533	Transducer	934.3	958.1	Regional
R-28	03/30/12	5836.553	Transducer	934.3	958.1	Regional
R-28	03/29/12	5836.573	Transducer	934.3	958.1	Regional
R-28	03/28/12	5836.492	Transducer	934.3	958.1	Regional
R-28	03/27/12	5836.499	Transducer	934.3	958.1	Regional
R-28	03/26/12	5836.55	Transducer	934.3	958.1	Regional
R-28	03/25/12	5836.396	Transducer	934.3	958.1	Regional
R-28	03/24/12	5836.439	Transducer	934.3	958.1	Regional
R-28	03/23/12	5836.525	Transducer	934.3	958.1	Regional
R-28	03/22/12	5836.559	Transducer	934.3	958.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-28	03/21/12	5836.604	Transducer	934.3	958.1	Regional
R-28	03/20/12	5836.906	Transducer	934.3	958.1	Regional
R-28	03/19/12	5836.877	Transducer	934.3	958.1	Regional
R-28	03/18/12	5836.8	Transducer	934.3	958.1	Regional
R-28	03/17/12	5836.633	Transducer	934.3	958.1	Regional
R-28	03/16/12	5836.495	Transducer	934.3	958.1	Regional
R-28	03/15/12	5836.441	Transducer	934.3	958.1	Regional
R-28	03/14/12	5836.513	Transducer	934.3	958.1	Regional
R-28	03/13/12	5836.411	Transducer	934.3	958.1	Regional
R-28	03/12/12	5836.422	Transducer	934.3	958.1	Regional
R-28	03/12/12	5836.4	Manual	934.3	958.1	Regional
R-28	03/06/12	5836.628	Transducer	934.3	958.1	Regional
R-28	03/05/12	5836.628	Transducer	934.3	958.1	Regional
R-28	03/04/12	5836.618	Transducer	934.3	958.1	Regional
R-28	03/03/12	5836.611	Transducer	934.3	958.1	Regional
R-28	03/02/12	5836.596	Transducer	934.3	958.1	Regional
R-28	03/01/12	5836.594	Transducer	934.3	958.1	Regional
R-28	02/29/12	5836.573	Transducer	934.3	958.1	Regional
R-28	02/28/12	5836.545	Transducer	934.3	958.1	Regional
R-28	02/27/12	5836.52	Transducer	934.3	958.1	Regional
R-28	02/26/12	5836.484	Transducer	934.3	958.1	Regional
R-28	02/25/12	5834.299	Transducer	934.3	958.1	Regional
R-28	02/24/12	5834.294	Transducer	934.3	958.1	Regional
R-28	02/23/12	5834.263	Transducer	934.3	958.1	Regional
R-28	02/22/12	5834.229	Transducer	934.3	958.1	Regional
R-28	02/21/12	5834.294	Transducer	934.3	958.1	Regional
R-28	02/20/12	5834.325	Transducer	934.3	958.1	Regional
R-28	02/19/12	5834.343	Transducer	934.3	958.1	Regional
R-28	02/18/12	5834.313	Transducer	934.3	958.1	Regional
R-28	02/17/12	5834.395	Transducer	934.3	958.1	Regional
R-28	02/16/12	5834.459	Transducer	934.3	958.1	Regional
R-28	02/15/12	5836.654	Transducer	934.3	958.1	Regional
R-28	02/14/12	5836.589	Transducer	934.3	958.1	Regional
R-28	02/09/12	5836.206	Transducer	934.3	958.1	Regional
R-28	02/08/12	5836.087	Transducer	934.3	958.1	Regional
R-28	02/07/12	5836.286	Transducer	934.3	958.1	Regional
R-28	02/06/12	5836.193	Transducer	934.3	958.1	Regional
R-28	02/05/12	5836.06	Transducer	934.3	958.1	Regional
R-28	02/04/12	5836.181	Transducer	934.3	958.1	Regional
R-28	02/03/12	5836.491	Transducer	934.3	958.1	Regional
R-28	02/02/12	5836.291	Transducer	934.3	958.1	Regional
R-28	02/01/12	5836.203	Transducer	934.3	958.1	Regional
R-28	01/31/12	5836.334	Transducer	934.3	958.1	Regional
R-28	01/30/12	5836.151	Transducer	934.3	958.1	Regional
R-28	01/29/12	5836.01	Transducer	934.3	958.1	Regional
R-28	01/28/12	5836.084	Transducer	934.3	958.1	Regional
R-28	01/27/12	5836.355	Transducer	934.3	958.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-28	01/26/12	5836.194	Transducer	934.3	958.1	Regional
R-28	01/25/12	5836.206	Transducer	934.3	958.1	Regional
R-28	01/24/12	5836.451	Transducer	934.3	958.1	Regional
R-28	01/23/12	5836.294	Transducer	934.3	958.1	Regional
R-28	01/22/12	5836.715	Transducer	934.3	958.1	Regional
R-28	01/21/12	5836.294	Transducer	934.3	958.1	Regional
R-28	01/20/12	5836.444	Transducer	934.3	958.1	Regional
R-28	01/19/12	5836.279	Transducer	934.3	958.1	Regional
R-28	01/18/12	5836.191	Transducer	934.3	958.1	Regional
R-28	01/17/12	5836.398	Transducer	934.3	958.1	Regional
R-28	01/16/12	5836.398	Transducer	934.3	958.1	Regional
R-28	01/15/12	5836.186	Transducer	934.3	958.1	Regional
R-28	01/14/12	5836.124	Transducer	934.3	958.1	Regional
R-28	01/13/12	5836.299	Transducer	934.3	958.1	Regional
R-28	01/12/12	5836.313	Transducer	934.3	958.1	Regional
R-28	01/11/12	5836.423	Transducer	934.3	958.1	Regional
R-28	01/10/12	5836.234	Transducer	934.3	958.1	Regional
R-28	01/09/12	5836.24	Transducer	934.3	958.1	Regional
R-28	01/08/12	5836.484	Transducer	934.3	958.1	Regional
R-28	01/07/12	5836.361	Transducer	934.3	958.1	Regional
R-28	01/06/12	5836.36	Transducer	934.3	958.1	Regional
R-28	01/05/12	5836.011	Transducer	934.3	958.1	Regional
R-28	01/04/12	5836.093	Transducer	934.3	958.1	Regional
R-28	01/03/12	5835.953	Transducer	934.3	958.1	Regional
R-28	01/02/12	5835.872	Transducer	934.3	958.1	Regional
R-28	01/01/12	5836.034	Transducer	934.3	958.1	Regional
R-28	12/31/11	5836.298	Transducer	934.3	958.1	Regional
R-28	12/30/11	5836.252	Transducer	934.3	958.1	Regional
R-28	12/29/11	5836.163	Transducer	934.3	958.1	Regional
R-28	12/28/11	5836.202	Transducer	934.3	958.1	Regional
R-28	12/27/11	5836.115	Transducer	934.3	958.1	Regional
R-28	12/26/11	5836.159	Transducer	934.3	958.1	Regional
R-28	12/25/11	5835.984	Transducer	934.3	958.1	Regional
R-28	12/24/11	5836.06	Transducer	934.3	958.1	Regional
R-28	12/23/11	5836.16	Transducer	934.3	958.1	Regional
R-28	12/22/11	5836.448	Transducer	934.3	958.1	Regional
R-28	12/21/11	5836.444	Transducer	934.3	958.1	Regional
R-28	12/20/11	5836.389	Transducer	934.3	958.1	Regional
R-28	12/19/11	5836.496	Transducer	934.3	958.1	Regional
R-28	12/18/11	5836.051	Transducer	934.3	958.1	Regional
R-28	12/17/11	5835.946	Transducer	934.3	958.1	Regional
R-28	12/16/11	5836.096	Transducer	934.3	958.1	Regional
R-28	12/15/11	5836.218	Transducer	934.3	958.1	Regional
R-28	12/14/11	5836.43	Transducer	934.3	958.1	Regional
R-28	12/13/11	5836.313	Transducer	934.3	958.1	Regional
R-28	12/12/11	5836.308	Transducer	934.3	958.1	Regional
R-28	12/11/11	5836.155	Transducer	934.3	958.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-28	12/10/11	5836.006	Transducer	934.3	958.1	Regional
R-28	12/09/11	5836.192	Transducer	934.3	958.1	Regional
R-28	12/08/11	5836.221	Transducer	934.3	958.1	Regional
R-28	12/07/11	5836.099	Transducer	934.3	958.1	Regional
R-28	12/06/11	5836.171	Transducer	934.3	958.1	Regional
R-28	12/05/11	5836.339	Transducer	934.3	958.1	Regional
R-28	12/04/11	5836.299	Transducer	934.3	958.1	Regional
R-28	12/03/11	5836.513	Transducer	934.3	958.1	Regional
R-28	12/02/11	5836.151	Transducer	934.3	958.1	Regional
R-28	12/01/11	5836.425	Transducer	934.3	958.1	Regional
R-28	11/30/11	5836.073	Transducer	934.3	958.1	Regional
R-28	11/29/11	5836.04	Transducer	934.3	958.1	Regional
R-28	11/28/11	5835.927	Transducer	934.3	958.1	Regional
R-28	11/27/11	5835.82	Transducer	934.3	958.1	Regional
R-28	11/26/11	5836.252	Transducer	934.3	958.1	Regional
R-28	11/25/11	5836.199	Transducer	934.3	958.1	Regional
R-28	11/24/11	5836.03	Transducer	934.3	958.1	Regional
R-28	11/23/11	5835.914	Transducer	934.3	958.1	Regional
R-28	11/22/11	5836.071	Transducer	934.3	958.1	Regional
R-28	11/21/11	5836.166	Transducer	934.3	958.1	Regional
R-28	11/20/11	5836.261	Transducer	934.3	958.1	Regional
R-28	11/19/11	5836.429	Transducer	934.3	958.1	Regional
R-28	11/18/11	5836.222	Transducer	934.3	958.1	Regional
R-28	11/17/11	5835.97	Transducer	934.3	958.1	Regional
R-28	11/16/11	5836.261	Transducer	934.3	958.1	Regional
R-28	11/15/11	5836.287	Transducer	934.3	958.1	Regional
R-28	11/14/11	5836.351	Transducer	934.3	958.1	Regional
R-28	11/13/11	5836.359	Transducer	934.3	958.1	Regional
R-28	11/12/11	5836.292	Transducer	934.3	958.1	Regional
R-28	11/11/11	5836.001	Transducer	934.3	958.1	Regional
R-28	11/10/11	5835.806	Transducer	934.3	958.1	Regional
R-28	11/09/11	5835.975	Transducer	934.3	958.1	Regional
R-28	11/08/11	5836.34	Transducer	934.3	958.1	Regional
R-28	11/07/11	5836.271	Transducer	934.3	958.1	Regional
R-28	11/06/11	5836.342	Transducer	934.3	958.1	Regional
R-28	11/05/11	5836.473	Transducer	934.3	958.1	Regional
R-28	11/04/11	5836.137	Transducer	934.3	958.1	Regional
R-28	11/03/11	5835.906	Transducer	934.3	958.1	Regional
R-28	11/02/11	5836.363	Transducer	934.3	958.1	Regional
R-28	11/01/11	5836.137	Transducer	934.3	958.1	Regional
R-28	10/31/11	5835.977	Transducer	934.3	958.1	Regional
R-28	10/30/11	5836.084	Transducer	934.3	958.1	Regional
R-28	10/29/11	5835.987	Transducer	934.3	958.1	Regional
R-28	10/28/11	5836.099	Transducer	934.3	958.1	Regional
R-28	10/27/11	5836.249	Transducer	934.3	958.1	Regional
R-28	10/26/11	5836.171	Transducer	934.3	958.1	Regional
R-28	10/25/11	5836.087	Transducer	934.3	958.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-28	10/24/11	5835.984	Transducer	934.3	958.1	Regional
R-28	10/23/11	5836.016	Transducer	934.3	958.1	Regional
R-28	10/22/11	5836.008	Transducer	934.3	958.1	Regional
R-28	10/21/11	5836.018	Transducer	934.3	958.1	Regional
R-28	10/20/11	5836.133	Transducer	934.3	958.1	Regional
R-28	10/19/11	5835.961	Transducer	934.3	958.1	Regional
R-28	10/18/11	5836.015	Transducer	934.3	958.1	Regional
R-28	10/17/11	5836.101	Transducer	934.3	958.1	Regional
R-28	10/16/11	5835.991	Transducer	934.3	958.1	Regional
R-28	10/15/11	5836.011	Transducer	934.3	958.1	Regional
R-28	10/14/11	5836.084	Transducer	934.3	958.1	Regional
R-28	10/13/11	5836.001	Transducer	934.3	958.1	Regional
R-28	10/12/11	5836.137	Transducer	934.3	958.1	Regional
R-28	10/11/11	5836.163	Transducer	934.3	958.1	Regional
R-28	10/10/11	5836.084	Transducer	934.3	958.1	Regional
R-28	10/09/11	5836.116	Transducer	934.3	958.1	Regional
R-28	10/08/11	5836.29	Transducer	934.3	958.1	Regional
R-28	10/07/11	5836.292	Transducer	934.3	958.1	Regional
R-28	10/06/11	5836.337	Transducer	934.3	958.1	Regional
R-28	10/05/11	5836.156	Transducer	934.3	958.1	Regional
R-28	10/04/11	5836.018	Transducer	934.3	958.1	Regional
R-28	10/03/11	5835.977	Transducer	934.3	958.1	Regional
R-28	10/02/11	5835.959	Transducer	934.3	958.1	Regional
R-28	10/01/11	5835.956	Transducer	934.3	958.1	Regional
R-28	09/30/11	5835.835	Transducer	934.3	958.1	Regional
R-28	09/29/11	5836.028	Transducer	934.3	958.1	Regional
R-28	09/28/11	5835.961	Transducer	934.3	958.1	Regional
R-28	09/27/11	5836.047	Transducer	934.3	958.1	Regional
R-28	09/26/11	5836.163	Transducer	934.3	958.1	Regional
R-28	09/25/11	5836.12	Transducer	934.3	958.1	Regional
R-28	09/24/11	5835.98	Transducer	934.3	958.1	Regional
R-28	09/23/11	5835.937	Transducer	934.3	958.1	Regional
R-28	09/22/11	5836.044	Transducer	934.3	958.1	Regional
R-28	09/21/11	5836.047	Transducer	934.3	958.1	Regional
R-28	09/20/11	5836.03	Transducer	934.3	958.1	Regional
R-28	09/19/11	5835.942	Transducer	934.3	958.1	Regional
R-28	09/18/11	5836.015	Transducer	934.3	958.1	Regional
R-28	09/17/11	5836.073	Transducer	934.3	958.1	Regional
R-28	09/16/11	5836.082	Transducer	934.3	958.1	Regional
R-28	09/15/11	5836.044	Transducer	934.3	958.1	Regional
R-28	09/14/11	5836.015	Transducer	934.3	958.1	Regional
R-28	09/13/11	5835.916	Transducer	934.3	958.1	Regional
R-28	09/12/11	5835.863	Transducer	934.3	958.1	Regional
R-28	09/11/11	5835.892	Transducer	934.3	958.1	Regional
R-28	09/10/11	5835.928	Transducer	934.3	958.1	Regional
R-28	09/09/11	5835.891	Transducer	934.3	958.1	Regional
R-28	09/08/11	5835.785	Transducer	934.3	958.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-28	09/07/11	5835.934	Transducer	934.3	958.1	Regional
R-28	09/06/11	5835.928	Transducer	934.3	958.1	Regional
R-28	09/05/11	5835.858	Transducer	934.3	958.1	Regional
R-28	09/04/11	5835.94	Transducer	934.3	958.1	Regional
R-28	09/03/11	5836.052	Transducer	934.3	958.1	Regional
R-28	09/02/11	5835.97	Transducer	934.3	958.1	Regional
R-28	09/01/11	5835.996	Transducer	934.3	958.1	Regional
R-28	08/31/11	5836.063	Transducer	934.3	958.1	Regional
R-28	08/30/11	5836.052	Transducer	934.3	958.1	Regional
R-28	08/29/11	5836.016	Transducer	934.3	958.1	Regional
R-28	08/28/11	5835.944	Transducer	934.3	958.1	Regional
R-28	08/27/11	5835.863	Transducer	934.3	958.1	Regional
R-28	08/26/11	5835.872	Transducer	934.3	958.1	Regional
R-28	08/25/11	5835.896	Transducer	934.3	958.1	Regional
R-28	08/24/11	5835.959	Transducer	934.3	958.1	Regional
R-28	08/23/11	5835.939	Transducer	934.3	958.1	Regional
R-28	08/22/11	5835.858	Transducer	934.3	958.1	Regional
R-28	08/21/11	5835.932	Transducer	934.3	958.1	Regional
R-28	08/20/11	5836.001	Transducer	934.3	958.1	Regional
R-28	08/19/11	5835.97	Transducer	934.3	958.1	Regional
R-28	08/19/11	5836.039	Transducer	934.3	958.1	Regional
R-28	08/18/11	5835.82	Transducer	934.3	958.1	Regional
R-28	08/17/11	5835.87	Transducer	934.3	958.1	Regional
R-28	08/16/11	5836	Transducer	934.3	958.1	Regional
R-28	08/15/11	5835.96	Transducer	934.3	958.1	Regional
R-28	08/14/11	5835.81	Transducer	934.3	958.1	Regional
R-28	08/13/11	5835.95	Transducer	934.3	958.1	Regional
R-28	08/12/11	5836	Transducer	934.3	958.1	Regional
R-28	08/11/11	5836.01	Transducer	934.3	958.1	Regional
R-28	08/10/11	5836.07	Transducer	934.3	958.1	Regional
R-28	08/09/11	5836.03	Transducer	934.3	958.1	Regional
R-28	08/08/11	5836.04	Transducer	934.3	958.1	Regional
R-28	08/07/11	5835.99	Transducer	934.3	958.1	Regional
R-28	08/06/11	5835.95	Transducer	934.3	958.1	Regional
R-28	08/05/11	5835.97	Transducer	934.3	958.1	Regional
R-28	08/04/11	5835.95	Transducer	934.3	958.1	Regional
R-28	08/03/11	5835.92	Transducer	934.3	958.1	Regional
R-28	08/02/11	5835.87	Transducer	934.3	958.1	Regional
R-28	08/01/11	5835.78	Transducer	934.3	958.1	Regional
R-28	07/31/11	5835.76	Transducer	934.3	958.1	Regional
R-28	07/30/11	5835.77	Transducer	934.3	958.1	Regional
R-28	07/29/11	5835.86	Transducer	934.3	958.1	Regional
R-28	07/28/11	5835.96	Transducer	934.3	958.1	Regional
R-28	07/27/11	5835.97	Transducer	934.3	958.1	Regional
R-28	07/26/11	5835.89	Transducer	934.3	958.1	Regional
R-28	07/25/11	5835.77	Transducer	934.3	958.1	Regional
R-28	07/24/11	5835.82	Transducer	934.3	958.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-28	07/23/11	5835.93	Transducer	934.3	958.1	Regional
R-28	07/22/11	5835.96	Transducer	934.3	958.1	Regional
R-28	07/21/11	5835.93	Transducer	934.3	958.1	Regional
R-28	07/20/11	5835.88	Transducer	934.3	958.1	Regional
R-28	07/19/11	5835.79	Transducer	934.3	958.1	Regional
R-28	07/18/11	5835.73	Transducer	934.3	958.1	Regional
R-28	07/17/11	5835.83	Transducer	934.3	958.1	Regional
R-28	07/16/11	5835.97	Transducer	934.3	958.1	Regional
R-28	07/15/11	5836.01	Transducer	934.3	958.1	Regional
R-28	07/14/11	5835.98	Transducer	934.3	958.1	Regional
R-28	07/13/11	5835.94	Transducer	934.3	958.1	Regional
R-28	07/12/11	5835.91	Transducer	934.3	958.1	Regional
R-28	07/11/11	5835.93	Transducer	934.3	958.1	Regional
R-28	07/10/11	5835.95	Transducer	934.3	958.1	Regional
R-28	07/09/11	5836.01	Transducer	934.3	958.1	Regional
R-28	07/08/11	5835.96	Transducer	934.3	958.1	Regional
R-28	07/07/11	5835.9	Transducer	934.3	958.1	Regional
R-28	07/06/11	5835.89	Transducer	934.3	958.1	Regional
R-28	07/05/11	5835.89	Transducer	934.3	958.1	Regional
R-28	07/04/11	5835.89	Transducer	934.3	958.1	Regional
R-28	07/03/11	5835.84	Transducer	934.3	958.1	Regional
R-28	07/02/11	5835.91	Transducer	934.3	958.1	Regional
R-28	07/01/11	5835.96	Transducer	934.3	958.1	Regional
R-28	06/30/11	5835.96	Transducer	934.3	958.1	Regional
R-28	06/29/11	5835.88	Transducer	934.3	958.1	Regional
R-28	06/28/11	5835.85	Transducer	934.3	958.1	Regional
R-28	06/27/11	5836.02	Transducer	934.3	958.1	Regional
R-28	06/26/11	5836.03	Transducer	934.3	958.1	Regional
R-28	06/25/11	5836.08	Transducer	934.3	958.1	Regional
R-28	06/24/11	5836.08	Transducer	934.3	958.1	Regional
R-28	06/23/11	5835.99	Transducer	934.3	958.1	Regional
R-28	06/22/11	5836.01	Transducer	934.3	958.1	Regional
R-28	06/21/11	5836.13	Transducer	934.3	958.1	Regional
R-28	06/20/11	5836.29	Transducer	934.3	958.1	Regional
R-28	06/19/11	5836.18	Transducer	934.3	958.1	Regional
R-28	06/18/11	5836.12	Transducer	934.3	958.1	Regional
R-28	06/17/11	5836.26	Transducer	934.3	958.1	Regional
R-28	06/16/11	5836.21	Transducer	934.3	958.1	Regional
R-28	06/15/11	5836.04	Transducer	934.3	958.1	Regional
R-28	06/14/11	5836.09	Transducer	934.3	958.1	Regional
R-28	06/13/11	5836.14	Transducer	934.3	958.1	Regional
R-28	06/12/11	5836.19	Transducer	934.3	958.1	Regional
R-28	06/11/11	5836.13	Transducer	934.3	958.1	Regional
R-28	06/10/11	5836.16	Transducer	934.3	958.1	Regional
R-28	06/09/11	5836.21	Transducer	934.3	958.1	Regional
R-28	06/08/11	5836.19	Transducer	934.3	958.1	Regional
R-28	06/07/11	5836.19	Transducer	934.3	958.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-28	06/06/11	5836	Transducer	934.3	958.1	Regional
R-28	06/05/11	5835.89	Transducer	934.3	958.1	Regional
R-28	06/04/11	5836.07	Transducer	934.3	958.1	Regional
R-28	06/03/11	5836.17	Transducer	934.3	958.1	Regional
R-28	06/02/11	5836.1	Transducer	934.3	958.1	Regional
R-28	06/01/11	5835.89	Transducer	934.3	958.1	Regional
R-28	05/31/11	5836	Transducer	934.3	958.1	Regional
R-28	05/30/11	5836.47	Transducer	934.3	958.1	Regional
R-28	05/29/11	5836.46	Transducer	934.3	958.1	Regional
R-28	05/28/11	5836.37	Transducer	934.3	958.1	Regional
R-28	05/27/11	5836.3	Transducer	934.3	958.1	Regional
R-28	05/26/11	5836.15	Transducer	934.3	958.1	Regional
R-28	05/25/11	5836.27	Transducer	934.3	958.1	Regional
R-28	05/24/11	5836.44	Transducer	934.3	958.1	Regional
R-28	05/23/11	5836.34	Transducer	934.3	958.1	Regional
R-28	05/22/11	5836.31	Transducer	934.3	958.1	Regional
R-28	05/21/11	5836.35	Transducer	934.3	958.1	Regional
R-28	05/20/11	5836.45	Transducer	934.3	958.1	Regional
R-28	05/19/11	5836.64	Transducer	934.3	958.1	Regional
R-28	05/18/11	5836.61	Transducer	934.3	958.1	Regional
R-28	05/17/11	5836.52	Transducer	934.3	958.1	Regional
R-28	05/16/11	5836.36	Transducer	934.3	958.1	Regional
R-28	05/15/11	5836.38	Transducer	934.3	958.1	Regional
R-28	05/14/11	5836.26	Transducer	934.3	958.1	Regional
R-28	05/13/11	5836.26	Transducer	934.3	958.1	Regional
R-28	05/12/11	5836.48	Transducer	934.3	958.1	Regional
R-28	05/11/11	5836.74	Transducer	934.3	958.1	Regional
R-28	05/10/11	5836.73	Transducer	934.3	958.1	Regional
R-28	05/09/11	5836.72	Transducer	934.3	958.1	Regional
R-28	05/08/11	5836.61	Transducer	934.3	958.1	Regional
R-28	05/07/11	5836.57	Transducer	934.3	958.1	Regional
R-28	05/06/11	5836.42	Transducer	934.3	958.1	Regional
R-28	05/05/11	5836.39	Transducer	934.3	958.1	Regional
R-28	05/04/11	5836.35	Transducer	934.3	958.1	Regional
R-28	05/03/11	5836.24	Transducer	934.3	958.1	Regional
R-28	05/02/11	5836.4	Transducer	934.3	958.1	Regional
R-28	05/01/11	5836.69	Transducer	934.3	958.1	Regional
R-28	04/30/11	5836.79	Transducer	934.3	958.1	Regional
R-28	04/29/11	5836.68	Transducer	934.3	958.1	Regional
R-28	04/28/11	5836.46	Transducer	934.3	958.1	Regional
R-28	04/27/11	5836.85	Transducer	934.3	958.1	Regional
R-28	04/26/11	5836.92	Transducer	934.3	958.1	Regional
R-28	04/25/11	5836.85	Transducer	934.3	958.1	Regional
R-28	04/24/11	5836.83	Transducer	934.3	958.1	Regional
R-28	04/23/11	5836.89	Transducer	934.3	958.1	Regional
R-28	04/22/11	5836.9	Transducer	934.3	958.1	Regional
R-28	04/21/11	5836.82	Transducer	934.3	958.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-28	04/20/11	5836.85	Transducer	934.3	958.1	Regional
R-28	04/19/11	5837.06	Transducer	934.3	958.1	Regional
R-28	04/18/11	5836.95	Transducer	934.3	958.1	Regional
R-28	04/17/11	5836.88	Transducer	934.3	958.1	Regional
R-28	04/16/11	5836.78	Transducer	934.3	958.1	Regional
R-28	04/15/11	5836.84	Transducer	934.3	958.1	Regional
R-28	04/14/11	5836.98	Transducer	934.3	958.1	Regional
R-28	04/13/11	5836.87	Transducer	934.3	958.1	Regional
R-28	04/12/11	5836.7	Transducer	934.3	958.1	Regional
R-28	04/11/11	5836.72	Transducer	934.3	958.1	Regional
R-28	04/10/11	5836.98	Transducer	934.3	958.1	Regional
R-28	04/09/11	5837.06	Transducer	934.3	958.1	Regional
R-28	04/08/11	5837.05	Transducer	934.3	958.1	Regional
R-28	04/07/11	5836.94	Transducer	934.3	958.1	Regional
R-28	04/06/11	5836.96	Transducer	934.3	958.1	Regional
R-28	04/05/11	5836.72	Transducer	934.3	958.1	Regional
R-28	04/04/11	5836.9	Transducer	934.3	958.1	Regional
R-28	04/03/11	5836.98	Transducer	934.3	958.1	Regional
R-28	04/02/11	5836.81	Transducer	934.3	958.1	Regional
R-28	04/01/11	5836.88	Transducer	934.3	958.1	Regional
R-28	03/31/11	5836.87	Transducer	934.3	958.1	Regional
R-28	03/30/11	5836.81	Transducer	934.3	958.1	Regional
R-28	03/29/11	5836.98	Transducer	934.3	958.1	Regional
R-28	03/28/11	5837.02	Transducer	934.3	958.1	Regional
R-28	03/27/11	5837.12	Transducer	934.3	958.1	Regional
R-28	03/26/11	5837.07	Transducer	934.3	958.1	Regional
R-28	03/25/11	5836.95	Transducer	934.3	958.1	Regional
R-28	03/24/11	5836.95	Transducer	934.3	958.1	Regional
R-28	03/23/11	5836.94	Transducer	934.3	958.1	Regional
R-28	03/22/11	5837.14	Transducer	934.3	958.1	Regional
R-28	03/21/11	5836.92	Transducer	934.3	958.1	Regional
R-28	03/20/11	5836.9	Transducer	934.3	958.1	Regional
R-28	03/19/11	5836.77	Transducer	934.3	958.1	Regional
R-28	03/18/11	5836.81	Transducer	934.3	958.1	Regional
R-28	03/17/11	5836.87	Transducer	934.3	958.1	Regional
R-28	03/16/11	5836.79	Transducer	934.3	958.1	Regional
R-28	03/15/11	5836.8	Transducer	934.3	958.1	Regional
R-28	03/14/11	5836.64	Transducer	934.3	958.1	Regional
R-28	03/13/11	5836.86	Transducer	934.3	958.1	Regional
R-28	03/12/11	5836.84	Transducer	934.3	958.1	Regional
R-28	03/11/11	5836.71	Transducer	934.3	958.1	Regional
R-28	03/10/11	5836.51	Transducer	934.3	958.1	Regional
R-28	03/09/11	5836.76	Transducer	934.3	958.1	Regional
R-28	03/08/11	5837.22	Transducer	934.3	958.1	Regional
R-28	03/07/11	5837.1	Transducer	934.3	958.1	Regional
R-28	03/06/11	5836.74	Transducer	934.3	958.1	Regional
R-28	03/05/11	5836.57	Transducer	934.3	958.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-28	03/04/11	5836.88	Transducer	934.3	958.1	Regional
R-28	03/03/11	5836.74	Transducer	934.3	958.1	Regional
R-28	03/02/11	5836.68	Transducer	934.3	958.1	Regional
R-28	03/01/11	5836.57	Transducer	934.3	958.1	Regional
R-28	02/28/11	5836.82	Transducer	934.3	958.1	Regional
R-28	02/27/11	5837.15	Transducer	934.3	958.1	Regional
R-28	02/26/11	5837.02	Transducer	934.3	958.1	Regional
R-28	02/25/11	5836.87	Transducer	934.3	958.1	Regional
R-28	02/24/11	5837.03	Transducer	934.3	958.1	Regional
R-28	02/23/11	5836.93	Transducer	934.3	958.1	Regional
R-28	02/22/11	5836.93	Transducer	934.3	958.1	Regional
R-28	02/21/11	5837.05	Transducer	934.3	958.1	Regional
R-28	02/20/11	5837.11	Transducer	934.3	958.1	Regional
R-28	02/19/11	5836.76	Transducer	934.3	958.1	Regional
R-28	02/18/11	5836.8	Transducer	934.3	958.1	Regional
R-28	02/17/11	5837.02	Transducer	934.3	958.1	Regional
R-28	02/16/11	5836.82	Transducer	934.3	958.1	Regional
R-28	02/15/11	5836.75	Transducer	934.3	958.1	Regional
R-28	02/14/11	5836.63	Transducer	934.3	958.1	Regional
R-28	02/13/11	5836.53	Transducer	934.3	958.1	Regional
R-28	02/12/11	5836.51	Transducer	934.3	958.1	Regional
R-28	02/11/11	5836.74	Transducer	934.3	958.1	Regional
R-28	02/10/11	5836.78	Transducer	934.3	958.1	Regional
R-28	02/09/11	5836.87	Transducer	934.3	958.1	Regional
R-28	02/08/11	5837.05	Transducer	934.3	958.1	Regional
R-28	02/07/11	5836.65	Transducer	934.3	958.1	Regional
R-28	02/06/11	5837	Transducer	934.3	958.1	Regional
R-28	02/05/11	5836.86	Transducer	934.3	958.1	Regional
R-28	02/04/11	5836.77	Transducer	934.3	958.1	Regional
R-28	02/03/11	5836.65	Transducer	934.3	958.1	Regional
R-28	02/02/11	5836.87	Transducer	934.3	958.1	Regional
R-28	02/01/11	5837.05	Transducer	934.3	958.1	Regional
R-28	01/31/11	5836.93	Transducer	934.3	958.1	Regional
R-28	01/30/11	5836.82	Transducer	934.3	958.1	Regional
R-28	01/29/11	5836.82	Transducer	934.3	958.1	Regional
R-28	01/28/11	5836.66	Transducer	934.3	958.1	Regional
R-28	01/27/11	5836.61	Transducer	934.3	958.1	Regional
R-28	01/26/11	5836.78	Transducer	934.3	958.1	Regional
R-28	01/25/11	5836.67	Transducer	934.3	958.1	Regional
R-28	01/24/11	5836.83	Transducer	934.3	958.1	Regional
R-28	01/23/11	5836.89	Transducer	934.3	958.1	Regional
R-28	01/22/11	5836.77	Transducer	934.3	958.1	Regional
R-28	01/21/11	5836.76	Transducer	934.3	958.1	Regional
R-28	01/20/11	5836.91	Transducer	934.3	958.1	Regional
R-28	01/19/11	5836.85	Transducer	934.3	958.1	Regional
R-28	01/18/11	5836.9	Transducer	934.3	958.1	Regional
R-28	01/17/11	5836.8	Transducer	934.3	958.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-28	01/16/11	5836.72	Transducer	934.3	958.1	Regional
R-28	01/15/11	5836.54	Transducer	934.3	958.1	Regional
R-28	01/14/11	5836.63	Transducer	934.3	958.1	Regional
R-28	01/13/11	5836.49	Transducer	934.3	958.1	Regional
R-28	01/12/11	5836.5	Transducer	934.3	958.1	Regional
R-28	01/11/11	5836.57	Transducer	934.3	958.1	Regional
R-28	01/10/11	5837.03	Transducer	934.3	958.1	Regional
R-28	01/09/11	5837.07	Transducer	934.3	958.1	Regional
R-28	01/08/11	5836.85	Transducer	934.3	958.1	Regional
R-28	01/07/11	5836.67	Transducer	934.3	958.1	Regional
R-28	01/06/11	5836.55	Transducer	934.3	958.1	Regional
R-28	01/05/11	5836.62	Transducer	934.3	958.1	Regional
R-28	01/04/11	5836.7	Transducer	934.3	958.1	Regional
R-28	01/03/11	5836.67	Transducer	934.3	958.1	Regional
R-28	01/02/11	5836.55	Transducer	934.3	958.1	Regional
R-28	01/01/11	5836.88	Transducer	934.3	958.1	Regional
R-28	12/31/10	5837.4	Transducer	934.3	958.1	Regional
R-28	12/30/10	5837.36	Transducer	934.3	958.1	Regional
R-28	12/29/10	5836.92	Transducer	934.3	958.1	Regional
R-28	12/28/10	5836.75	Transducer	934.3	958.1	Regional
R-28	12/27/10	5836.76	Transducer	934.3	958.1	Regional
R-28	12/26/10	5836.54	Transducer	934.3	958.1	Regional
R-28	12/25/10	5836.49	Transducer	934.3	958.1	Regional
R-28	12/24/10	5836.7	Transducer	934.3	958.1	Regional
R-28	12/23/10	5836.69	Transducer	934.3	958.1	Regional
R-28	12/22/10	5836.59	Transducer	934.3	958.1	Regional
R-28	12/21/10	5836.76	Transducer	934.3	958.1	Regional
R-28	12/20/10	5836.88	Transducer	934.3	958.1	Regional
R-28	12/19/10	5836.83	Transducer	934.3	958.1	Regional
R-28	12/18/10	5836.8	Transducer	934.3	958.1	Regional
R-28	12/17/10	5836.92	Transducer	934.3	958.1	Regional
R-28	12/16/10	5836.94	Transducer	934.3	958.1	Regional
R-28	12/15/10	5836.96	Transducer	934.3	958.1	Regional
R-28	12/14/10	5836.69	Transducer	934.3	958.1	Regional
R-28	12/13/10	5836.52	Transducer	934.3	958.1	Regional
R-28	12/12/10	5836.54	Transducer	934.3	958.1	Regional
R-28	12/11/10	5836.77	Transducer	934.3	958.1	Regional
R-28	12/10/10	5836.71	Transducer	934.3	958.1	Regional
R-28	12/09/10	5836.61	Transducer	934.3	958.1	Regional
R-28	12/08/10	5836.45	Transducer	934.3	958.1	Regional
R-28	12/07/10	5836.61	Transducer	934.3	958.1	Regional
R-28	12/06/10	5836.44	Transducer	934.3	958.1	Regional
R-28	12/05/10	5836.5	Transducer	934.3	958.1	Regional
R-28	12/04/10	5836.54	Transducer	934.3	958.1	Regional
R-28	12/03/10	5836.48	Transducer	934.3	958.1	Regional
R-28	12/02/10	5836.48	Transducer	934.3	958.1	Regional
R-28	12/01/10	5836.39	Transducer	934.3	958.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-28	11/30/10	5836.52	Transducer	934.3	958.1	Regional
R-28	11/29/10	5837.04	Transducer	934.3	958.1	Regional
R-28	11/28/10	5836.88	Transducer	934.3	958.1	Regional
R-28	11/27/10	5836.5	Transducer	934.3	958.1	Regional
R-28	11/26/10	5836.52	Transducer	934.3	958.1	Regional
R-28	11/25/10	5836.89	Transducer	934.3	958.1	Regional
R-28	11/24/10	5836.91	Transducer	934.3	958.1	Regional
R-28	11/23/10	5836.59	Transducer	934.3	958.1	Regional
R-28	11/22/10	5836.87	Transducer	934.3	958.1	Regional
R-28	11/21/10	5836.78	Transducer	934.3	958.1	Regional
R-28	11/20/10	5836.66	Transducer	934.3	958.1	Regional
R-28	11/19/10	5836.52	Transducer	934.3	958.1	Regional
R-28	11/18/10	5836.34	Transducer	934.3	958.1	Regional
R-28	11/17/10	5836.83	Transducer	934.3	958.1	Regional
R-28	11/16/10	5836.7	Transducer	934.3	958.1	Regional
R-28	11/15/10	5836.88	Transducer	934.3	958.1	Regional
R-28	11/14/10	5836.67	Transducer	934.3	958.1	Regional
R-28	11/13/10	5836.44	Transducer	934.3	958.1	Regional
R-28	11/12/10	5836.52	Transducer	934.3	958.1	Regional
R-28	11/11/10	5836.77	Transducer	934.3	958.1	Regional
R-28	11/10/10	5836.78	Transducer	934.3	958.1	Regional
R-28	11/09/10	5836.89	Transducer	934.3	958.1	Regional
R-28	11/08/10	5836.6	Transducer	934.3	958.1	Regional
R-28	11/07/10	5836.48	Transducer	934.3	958.1	Regional
R-28	11/06/10	5836.47	Transducer	934.3	958.1	Regional
R-28	11/05/10	5836.4	Transducer	934.3	958.1	Regional
R-28	11/04/10	5836.21	Transducer	934.3	958.1	Regional
R-28	11/03/10	5836.25	Transducer	934.3	958.1	Regional
R-28	11/02/10	5836.21	Transducer	934.3	958.1	Regional
R-28	11/01/10	5836.43	Transducer	934.3	958.1	Regional
R-28	10/31/10	5836.52	Transducer	934.3	958.1	Regional
R-28	10/30/10	5836.37	Transducer	934.3	958.1	Regional
R-35a	11/15/12	5827.3	Transducer	1013.1	1062.2	Regional
R-35a	11/14/12	5827.17	Transducer	1013.1	1062.2	Regional
R-35a	11/13/12	5827.04	Transducer	1013.1	1062.2	Regional
R-35a	11/12/12	5827	Transducer	1013.1	1062.2	Regional
R-35a	11/11/12	5827.21	Transducer	1013.1	1062.2	Regional
R-35a	11/10/12	5826.92	Transducer	1013.1	1062.2	Regional
R-35a	11/09/12	5827.23	Transducer	1013.1	1062.2	Regional
R-35a	11/08/12	5826.73	Transducer	1013.1	1062.2	Regional
R-35a	11/07/12	5825.62	Transducer	1013.1	1062.2	Regional
R-35a	11/06/12	5825.29	Transducer	1013.1	1062.2	Regional
R-35a	11/05/12	5826.9	Transducer	1013.1	1062.2	Regional
R-35a	11/04/12	5825.35	Transducer	1013.1	1062.2	Regional
R-35a	11/03/12	5826.6	Transducer	1013.1	1062.2	Regional
R-35a	11/02/12	5826.64	Transducer	1013.1	1062.2	Regional
R-35a	11/01/12	5826.28	Transducer	1013.1	1062.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35a	10/31/12	5823.43	Transducer	1013.1	1062.2	Regional
R-35a	10/30/12	5826.52	Transducer	1013.1	1062.2	Regional
R-35a	10/29/12	5826.58	Transducer	1013.1	1062.2	Regional
R-35a	10/28/12	5826.56	Transducer	1013.1	1062.2	Regional
R-35a	10/27/12	5826.39	Transducer	1013.1	1062.2	Regional
R-35a	10/26/12	5826.57	Transducer	1013.1	1062.2	Regional
R-35a	10/25/12	5826.75	Transducer	1013.1	1062.2	Regional
R-35a	10/24/12	5826.57	Transducer	1013.1	1062.2	Regional
R-35a	10/23/12	5826.36	Transducer	1013.1	1062.2	Regional
R-35a	10/22/12	5824.14	Transducer	1013.1	1062.2	Regional
R-35a	10/21/12	5826.61	Transducer	1013.1	1062.2	Regional
R-35a	10/20/12	5826.41	Transducer	1013.1	1062.2	Regional
R-35a	10/19/12	5826.19	Transducer	1013.1	1062.2	Regional
R-35a	10/18/12	5826.09	Transducer	1013.1	1062.2	Regional
R-35a	10/17/12	5826.1	Transducer	1013.1	1062.2	Regional
R-35a	10/16/12	5825.86	Transducer	1013.1	1062.2	Regional
R-35a	10/15/12	5825.55	Transducer	1013.1	1062.2	Regional
R-35a	10/14/12	5825.44	Transducer	1013.1	1062.2	Regional
R-35a	10/13/12	5825.66	Transducer	1013.1	1062.2	Regional
R-35a	10/12/12	5825.79	Transducer	1013.1	1062.2	Regional
R-35a	10/11/12	5825.7	Transducer	1013.1	1062.2	Regional
R-35a	10/10/12	5825.42	Transducer	1013.1	1062.2	Regional
R-35a	10/09/12	5821.94	Transducer	1013.1	1062.2	Regional
R-35a	10/08/12	5821.04	Transducer	1013.1	1062.2	Regional
R-35a	10/07/12	5821.74	Transducer	1013.1	1062.2	Regional
R-35a	10/06/12	5825.13	Transducer	1013.1	1062.2	Regional
R-35a	10/05/12	5821.02	Transducer	1013.1	1062.2	Regional
R-35a	10/04/12	5819.55	Transducer	1013.1	1062.2	Regional
R-35a	10/03/12	5819.48	Transducer	1013.1	1062.2	Regional
R-35a	10/02/12	5822.96	Transducer	1013.1	1062.2	Regional
R-35a	10/01/12	5819.27	Transducer	1013.1	1062.2	Regional
R-35a	09/30/12	5819.63	Transducer	1013.1	1062.2	Regional
R-35a	09/29/12	5825.13	Transducer	1013.1	1062.2	Regional
R-35a	09/28/12	5820.48	Transducer	1013.1	1062.2	Regional
R-35a	09/27/12	5821.41	Transducer	1013.1	1062.2	Regional
R-35a	09/26/12	5824.49	Transducer	1013.1	1062.2	Regional
R-35a	09/25/12	5819.42	Transducer	1013.1	1062.2	Regional
R-35a	09/24/12	5819.9	Transducer	1013.1	1062.2	Regional
R-35a	09/23/12	5819.88	Transducer	1013.1	1062.2	Regional
R-35a	09/22/12	5817.41	Transducer	1013.1	1062.2	Regional
R-35a	09/21/12	5819.28	Transducer	1013.1	1062.2	Regional
R-35a	09/20/12	5818.71	Transducer	1013.1	1062.2	Regional
R-35a	09/19/12	5818.36	Transducer	1013.1	1062.2	Regional
R-35a	09/18/12	5821.79	Transducer	1013.1	1062.2	Regional
R-35a	09/17/12	5821.16	Transducer	1013.1	1062.2	Regional
R-35a	09/16/12	5821.36	Transducer	1013.1	1062.2	Regional
R-35a	09/15/12	5824.02	Transducer	1013.1	1062.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35a	09/14/12	5823.93	Transducer	1013.1	1062.2	Regional
R-35a	09/13/12	5819.88	Transducer	1013.1	1062.2	Regional
R-35a	09/12/12	5818.12	Transducer	1013.1	1062.2	Regional
R-35a	09/11/12	5817.39	Transducer	1013.1	1062.2	Regional
R-35a	09/10/12	5816.97	Transducer	1013.1	1062.2	Regional
R-35a	09/09/12	5818.51	Transducer	1013.1	1062.2	Regional
R-35a	09/08/12	5822.83	Transducer	1013.1	1062.2	Regional
R-35a	09/07/12	5817.17	Transducer	1013.1	1062.2	Regional
R-35a	09/06/12	5817.47	Transducer	1013.1	1062.2	Regional
R-35a	09/05/12	5816.7	Transducer	1013.1	1062.2	Regional
R-35a	09/04/12	5816.71	Transducer	1013.1	1062.2	Regional
R-35a	09/03/12	5816.74	Transducer	1013.1	1062.2	Regional
R-35a	09/02/12	5816.88	Transducer	1013.1	1062.2	Regional
R-35a	09/01/12	5817.41	Transducer	1013.1	1062.2	Regional
R-35a	08/31/12	5817.41	Transducer	1013.1	1062.2	Regional
R-35a	08/30/12	5818.05	Transducer	1013.1	1062.2	Regional
R-35a	08/29/12	5818.48	Transducer	1013.1	1062.2	Regional
R-35a	08/28/12	5821.16	Transducer	1013.1	1062.2	Regional
R-35a	08/27/12	5818.73	Transducer	1013.1	1062.2	Regional
R-35a	08/26/12	5819.14	Transducer	1013.1	1062.2	Regional
R-35a	08/25/12	5824.53	Transducer	1013.1	1062.2	Regional
R-35a	08/24/12	5820.19	Transducer	1013.1	1062.2	Regional
R-35a	08/23/12	5818.51	Transducer	1013.1	1062.2	Regional
R-35a	08/22/12	5818.42	Transducer	1013.1	1062.2	Regional
R-35a	08/21/12	5818.39	Transducer	1013.1	1062.2	Regional
R-35a	08/20/12	5817.67	Transducer	1013.1	1062.2	Regional
R-35a	08/19/12	5822.44	Transducer	1013.1	1062.2	Regional
R-35a	08/18/12	5823.67	Transducer	1013.1	1062.2	Regional
R-35a	08/17/12	5818.77	Transducer	1013.1	1062.2	Regional
R-35a	08/16/12	5816.99	Transducer	1013.1	1062.2	Regional
R-35a	08/15/12	5817.23	Transducer	1013.1	1062.2	Regional
R-35a	08/14/12	5816.42	Transducer	1013.1	1062.2	Regional
R-35a	08/13/12	5815.52	Transducer	1013.1	1062.2	Regional
R-35a	08/12/12	5815.88	Transducer	1013.1	1062.2	Regional
R-35a	08/11/12	5817.8	Transducer	1013.1	1062.2	Regional
R-35a	08/10/12	5816.98	Transducer	1013.1	1062.2	Regional
R-35a	08/09/12	5817.12	Transducer	1013.1	1062.2	Regional
R-35a	08/08/12	5817.96	Transducer	1013.1	1062.2	Regional
R-35a	08/07/12	5817.7	Transducer	1013.1	1062.2	Regional
R-35a	08/06/12	5818.42	Transducer	1013.1	1062.2	Regional
R-35a	08/05/12	5818.42	Transducer	1013.1	1062.2	Regional
R-35a	08/04/12	5823.65	Transducer	1013.1	1062.2	Regional
R-35a	08/03/12	5819.74	Transducer	1013.1	1062.2	Regional
R-35a	08/02/12	5816.41	Transducer	1013.1	1062.2	Regional
R-35a	08/01/12	5816.13	Transducer	1013.1	1062.2	Regional
R-35a	07/31/12	5816.46	Transducer	1013.1	1062.2	Regional
R-35a	07/30/12	5816.18	Transducer	1013.1	1062.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35a	07/29/12	5817.04	Transducer	1013.1	1062.2	Regional
R-35a	07/28/12	5817.52	Transducer	1013.1	1062.2	Regional
R-35a	07/27/12	5817.76	Manual	1013.1	1062.2	Regional
R-35a	07/27/12	5823.3	Transducer	1013.1	1062.2	Regional
R-35a	07/26/12	5818.04	Transducer	1013.1	1062.2	Regional
R-35a	07/25/12	5816.35	Transducer	1013.1	1062.2	Regional
R-35a	07/24/12	5817.1	Transducer	1013.1	1062.2	Regional
R-35a	07/23/12	5820.35	Transducer	1013.1	1062.2	Regional
R-35a	07/22/12	5814.79	Transducer	1013.1	1062.2	Regional
R-35a	07/21/12	5815.08	Transducer	1013.1	1062.2	Regional
R-35a	07/20/12	5816.38	Transducer	1013.1	1062.2	Regional
R-35a	07/19/12	5816.47	Transducer	1013.1	1062.2	Regional
R-35a	07/18/12	5816.83	Transducer	1013.1	1062.2	Regional
R-35a	07/17/12	5817	Transducer	1013.1	1062.2	Regional
R-35a	07/16/12	5815.66	Transducer	1013.1	1062.2	Regional
R-35a	07/15/12	5817.15	Transducer	1013.1	1062.2	Regional
R-35a	07/14/12	5822.72	Transducer	1013.1	1062.2	Regional
R-35a	07/13/12	5818.35	Transducer	1013.1	1062.2	Regional
R-35a	07/12/12	5817.97	Transducer	1013.1	1062.2	Regional
R-35a	07/11/12	5816.8	Transducer	1013.1	1062.2	Regional
R-35a	07/10/12	5816.19	Transducer	1013.1	1062.2	Regional
R-35a	07/09/12	5816.87	Transducer	1013.1	1062.2	Regional
R-35a	07/08/12	5822.99	Transducer	1013.1	1062.2	Regional
R-35a	07/07/12	5823.31	Transducer	1013.1	1062.2	Regional
R-35a	07/06/12	5819	Transducer	1013.1	1062.2	Regional
R-35a	07/05/12	5817.94	Transducer	1013.1	1062.2	Regional
R-35a	07/04/12	5821.19	Transducer	1013.1	1062.2	Regional
R-35a	07/03/12	5819.15	Transducer	1013.1	1062.2	Regional
R-35a	07/02/12	5814.34	Transducer	1013.1	1062.2	Regional
R-35a	07/01/12	5814.28	Transducer	1013.1	1062.2	Regional
R-35a	06/30/12	5814.49	Transducer	1013.1	1062.2	Regional
R-35a	06/29/12	5814.83	Transducer	1013.1	1062.2	Regional
R-35a	06/28/12	5815.7	Transducer	1013.1	1062.2	Regional
R-35a	06/27/12	5814.84	Transducer	1013.1	1062.2	Regional
R-35a	06/26/12	5814.83	Transducer	1013.1	1062.2	Regional
R-35a	06/25/12	5814.82	Transducer	1013.1	1062.2	Regional
R-35a	06/24/12	5815.07	Transducer	1013.1	1062.2	Regional
R-35a	06/23/12	5815.08	Transducer	1013.1	1062.2	Regional
R-35a	06/22/12	5816.49	Transducer	1013.1	1062.2	Regional
R-35a	06/21/12	5815.4	Transducer	1013.1	1062.2	Regional
R-35a	06/20/12	5815.69	Transducer	1013.1	1062.2	Regional
R-35a	06/19/12	5816.44	Transducer	1013.1	1062.2	Regional
R-35a	06/18/12	5815.72	Transducer	1013.1	1062.2	Regional
R-35a	06/17/12	5817.58	Transducer	1013.1	1062.2	Regional
R-35a	06/16/12	5815.17	Transducer	1013.1	1062.2	Regional
R-35a	06/15/12	5815.63	Transducer	1013.1	1062.2	Regional
R-35a	06/14/12	5815.75	Transducer	1013.1	1062.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35a	06/13/12	5815.99	Transducer	1013.1	1062.2	Regional
R-35a	06/12/12	5816.31	Transducer	1013.1	1062.2	Regional
R-35a	06/11/12	5816.18	Transducer	1013.1	1062.2	Regional
R-35a	06/11/12	5816.957	Transducer	1013.1	1062.2	Regional
R-35a	06/10/12	5816.068	Transducer	1013.1	1062.2	Regional
R-35a	06/09/12	5816.736	Transducer	1013.1	1062.2	Regional
R-35a	06/08/12	5817.883	Transducer	1013.1	1062.2	Regional
R-35a	06/07/12	5818.003	Transducer	1013.1	1062.2	Regional
R-35a	06/06/12	5818.083	Transducer	1013.1	1062.2	Regional
R-35a	06/05/12	5819.085	Transducer	1013.1	1062.2	Regional
R-35a	06/04/12	5816.811	Transducer	1013.1	1062.2	Regional
R-35a	06/03/12	5816.888	Transducer	1013.1	1062.2	Regional
R-35a	06/02/12	5818.228	Transducer	1013.1	1062.2	Regional
R-35a	06/01/12	5818.528	Transducer	1013.1	1062.2	Regional
R-35a	05/31/12	5818.707	Transducer	1013.1	1062.2	Regional
R-35a	05/30/12	5818.732	Transducer	1013.1	1062.2	Regional
R-35a	05/29/12	5817.908	Transducer	1013.1	1062.2	Regional
R-35a	05/28/12	5820.34	Transducer	1013.1	1062.2	Regional
R-35a	05/27/12	5824.854	Transducer	1013.1	1062.2	Regional
R-35a	05/26/12	5822.334	Transducer	1013.1	1062.2	Regional
R-35a	05/25/12	5818.747	Transducer	1013.1	1062.2	Regional
R-35a	05/24/12	5819.743	Transducer	1013.1	1062.2	Regional
R-35a	05/23/12	5819.947	Transducer	1013.1	1062.2	Regional
R-35a	05/22/12	5819.737	Transducer	1013.1	1062.2	Regional
R-35a	05/21/12	5818.649	Transducer	1013.1	1062.2	Regional
R-35a	05/20/12	5820.023	Transducer	1013.1	1062.2	Regional
R-35a	05/19/12	5825.241	Transducer	1013.1	1062.2	Regional
R-35a	05/18/12	5821.088	Transducer	1013.1	1062.2	Regional
R-35a	05/17/12	5821.313	Transducer	1013.1	1062.2	Regional
R-35a	05/16/12	5823.924	Transducer	1013.1	1062.2	Regional
R-35a	05/15/12	5821.598	Transducer	1013.1	1062.2	Regional
R-35a	05/14/12	5827.06	Transducer	1013.1	1062.2	Regional
R-35a	05/13/12	5826.356	Transducer	1013.1	1062.2	Regional
R-35a	05/12/12	5825.423	Transducer	1013.1	1062.2	Regional
R-35a	05/11/12	5820.627	Transducer	1013.1	1062.2	Regional
R-35a	05/10/12	5823.307	Transducer	1013.1	1062.2	Regional
R-35a	05/09/12	5821.918	Transducer	1013.1	1062.2	Regional
R-35a	05/08/12	5822.526	Transducer	1013.1	1062.2	Regional
R-35a	05/07/12	5820.146	Transducer	1013.1	1062.2	Regional
R-35a	05/06/12	5821.813	Transducer	1013.1	1062.2	Regional
R-35a	05/05/12	5823.555	Transducer	1013.1	1062.2	Regional
R-35a	05/04/12	5822.974	Transducer	1013.1	1062.2	Regional
R-35a	05/03/12	5825.484	Transducer	1013.1	1062.2	Regional
R-35a	05/02/12	5821.246	Transducer	1013.1	1062.2	Regional
R-35a	05/01/12	5822.207	Transducer	1013.1	1062.2	Regional
R-35a	04/30/12	5826.164	Transducer	1013.1	1062.2	Regional
R-35a	04/29/12	5825.201	Transducer	1013.1	1062.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35a	04/28/12	5822.964	Transducer	1013.1	1062.2	Regional
R-35a	04/27/12	5823.757	Transducer	1013.1	1062.2	Regional
R-35a	04/26/12	5827.074	Transducer	1013.1	1062.2	Regional
R-35a	04/25/12	5826.816	Transducer	1013.1	1062.2	Regional
R-35a	04/24/12	5826.322	Transducer	1013.1	1062.2	Regional
R-35a	04/23/12	5825.718	Transducer	1013.1	1062.2	Regional
R-35a	04/22/12	5825.218	Transducer	1013.1	1062.2	Regional
R-35a	04/21/12	5826.863	Transducer	1013.1	1062.2	Regional
R-35a	04/20/12	5827.685	Transducer	1013.1	1062.2	Regional
R-35a	04/19/12	5822.897	Transducer	1013.1	1062.2	Regional
R-35a	04/18/12	5824.147	Transducer	1013.1	1062.2	Regional
R-35a	04/17/12	5824.649	Transducer	1013.1	1062.2	Regional
R-35a	04/16/12	5827.206	Transducer	1013.1	1062.2	Regional
R-35a	04/15/12	5828.417	Transducer	1013.1	1062.2	Regional
R-35a	04/14/12	5827.946	Transducer	1013.1	1062.2	Regional
R-35a	04/13/12	5824.505	Transducer	1013.1	1062.2	Regional
R-35a	04/12/12	5824.344	Transducer	1013.1	1062.2	Regional
R-35a	04/11/12	5824.949	Transducer	1013.1	1062.2	Regional
R-35a	04/10/12	5824.186	Transducer	1013.1	1062.2	Regional
R-35a	04/09/12	5823.902	Transducer	1013.1	1062.2	Regional
R-35a	04/08/12	5826.835	Transducer	1013.1	1062.2	Regional
R-35a	04/07/12	5827.698	Transducer	1013.1	1062.2	Regional
R-35a	04/06/12	5824.215	Transducer	1013.1	1062.2	Regional
R-35a	04/05/12	5823.383	Transducer	1013.1	1062.2	Regional
R-35a	04/04/12	5824.55	Transducer	1013.1	1062.2	Regional
R-35a	04/03/12	5827.594	Transducer	1013.1	1062.2	Regional
R-35a	04/02/12	5823.043	Transducer	1013.1	1062.2	Regional
R-35a	04/01/12	5825.559	Transducer	1013.1	1062.2	Regional
R-35a	03/31/12	5826.766	Transducer	1013.1	1062.2	Regional
R-35a	03/30/12	5827.84	Transducer	1013.1	1062.2	Regional
R-35a	03/29/12	5824.333	Transducer	1013.1	1062.2	Regional
R-35a	03/28/12	5825.332	Transducer	1013.1	1062.2	Regional
R-35a	03/27/12	5823.871	Transducer	1013.1	1062.2	Regional
R-35a	03/26/12	5822.656	Transducer	1013.1	1062.2	Regional
R-35a	03/25/12	5825.797	Transducer	1013.1	1062.2	Regional
R-35a	03/24/12	5827.709	Transducer	1013.1	1062.2	Regional
R-35a	03/23/12	5824.583	Transducer	1013.1	1062.2	Regional
R-35a	03/22/12	5824.79	Transducer	1013.1	1062.2	Regional
R-35a	03/21/12	5824.417	Transducer	1013.1	1062.2	Regional
R-35a	03/20/12	5824.572	Transducer	1013.1	1062.2	Regional
R-35a	03/19/12	5825.564	Transducer	1013.1	1062.2	Regional
R-35a	03/18/12	5827.525	Transducer	1013.1	1062.2	Regional
R-35a	03/17/12	5828.161	Transducer	1013.1	1062.2	Regional
R-35a	03/16/12	5824.479	Transducer	1013.1	1062.2	Regional
R-35a	03/15/12	5824.559	Transducer	1013.1	1062.2	Regional
R-35a	03/14/12	5824.71	Transducer	1013.1	1062.2	Regional
R-35a	03/13/12	5824.986	Transducer	1013.1	1062.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35a	03/12/12	5824.891	Transducer	1013.1	1062.2	Regional
R-35a	03/11/12	5826.653	Transducer	1013.1	1062.2	Regional
R-35a	03/10/12	5827.934	Transducer	1013.1	1062.2	Regional
R-35a	03/09/12	5828.192	Transducer	1013.1	1062.2	Regional
R-35a	03/08/12	5828.163	Transducer	1013.1	1062.2	Regional
R-35a	03/07/12	5827.534	Transducer	1013.1	1062.2	Regional
R-35a	03/06/12	5827.271	Transducer	1013.1	1062.2	Regional
R-35a	03/06/12	5827.067	Transducer	1013.1	1062.2	Regional
R-35a	03/05/12	5826.015	Transducer	1013.1	1062.2	Regional
R-35a	03/04/12	5826.978	Transducer	1013.1	1062.2	Regional
R-35a	03/03/12	5828.08	Transducer	1013.1	1062.2	Regional
R-35a	03/02/12	5826.741	Transducer	1013.1	1062.2	Regional
R-35a	03/01/12	5828.158	Transducer	1013.1	1062.2	Regional
R-35a	02/29/12	5827.643	Transducer	1013.1	1062.2	Regional
R-35a	02/28/12	5826.521	Transducer	1013.1	1062.2	Regional
R-35a	02/27/12	5827.763	Transducer	1013.1	1062.2	Regional
R-35a	02/26/12	5827.125	Transducer	1013.1	1062.2	Regional
R-35a	02/25/12	5828.548	Transducer	1013.1	1062.2	Regional
R-35a	02/24/12	5828.954	Transducer	1013.1	1062.2	Regional
R-35a	02/23/12	5828.929	Transducer	1013.1	1062.2	Regional
R-35a	02/22/12	5828.702	Transducer	1013.1	1062.2	Regional
R-35a	02/21/12	5828.605	Transducer	1013.1	1062.2	Regional
R-35a	02/20/12	5828.684	Transducer	1013.1	1062.2	Regional
R-35a	02/19/12	5828.355	Transducer	1013.1	1062.2	Regional
R-35a	02/18/12	5828.445	Transducer	1013.1	1062.2	Regional
R-35a	02/17/12	5828.58	Transducer	1013.1	1062.2	Regional
R-35a	02/16/12	5828.477	Transducer	1013.1	1062.2	Regional
R-35a	02/15/12	5828.29	Transducer	1013.1	1062.2	Regional
R-35a	02/14/12	5828.273	Transducer	1013.1	1062.2	Regional
R-35a	02/13/12	5828.224	Transducer	1013.1	1062.2	Regional
R-35a	02/12/12	5826.41	Transducer	1013.1	1062.2	Regional
R-35a	02/11/12	5827.902	Transducer	1013.1	1062.2	Regional
R-35a	02/10/12	5827.941	Transducer	1013.1	1062.2	Regional
R-35a	02/09/12	5827.979	Transducer	1013.1	1062.2	Regional
R-35a	02/08/12	5827.027	Transducer	1013.1	1062.2	Regional
R-35a	02/07/12	5827.455	Transducer	1013.1	1062.2	Regional
R-35a	02/06/12	5828.113	Transducer	1013.1	1062.2	Regional
R-35a	02/05/12	5827.555	Transducer	1013.1	1062.2	Regional
R-35a	02/04/12	5827.836	Transducer	1013.1	1062.2	Regional
R-35a	02/03/12	5827.447	Transducer	1013.1	1062.2	Regional
R-35a	02/02/12	5826.081	Transducer	1013.1	1062.2	Regional
R-35a	02/01/12	5827.765	Transducer	1013.1	1062.2	Regional
R-35a	01/31/12	5827.293	Transducer	1013.1	1062.2	Regional
R-35a	01/30/12	5827.068	Transducer	1013.1	1062.2	Regional
R-35a	01/29/12	5827.18	Transducer	1013.1	1062.2	Regional
R-35a	01/28/12	5827.925	Transducer	1013.1	1062.2	Regional
R-35a	01/27/12	5828.02	Transducer	1013.1	1062.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35a	01/26/12	5828.607	Transducer	1013.1	1062.2	Regional
R-35a	01/25/12	5828.339	Transducer	1013.1	1062.2	Regional
R-35a	01/24/12	5828.304	Transducer	1013.1	1062.2	Regional
R-35a	01/23/12	5827.561	Transducer	1013.1	1062.2	Regional
R-35a	01/22/12	5828.64	Transducer	1013.1	1062.2	Regional
R-35a	01/21/12	5828.137	Transducer	1013.1	1062.2	Regional
R-35a	01/20/12	5828.174	Transducer	1013.1	1062.2	Regional
R-35a	01/19/12	5828.042	Transducer	1013.1	1062.2	Regional
R-35a	01/18/12	5827.817	Transducer	1013.1	1062.2	Regional
R-35a	01/17/12	5828.151	Transducer	1013.1	1062.2	Regional
R-35a	01/16/12	5827.23	Transducer	1013.1	1062.2	Regional
R-35a	01/15/12	5828.322	Transducer	1013.1	1062.2	Regional
R-35a	01/14/12	5827.812	Transducer	1013.1	1062.2	Regional
R-35a	01/13/12	5827.104	Transducer	1013.1	1062.2	Regional
R-35a	01/12/12	5827.842	Transducer	1013.1	1062.2	Regional
R-35a	01/11/12	5826.984	Transducer	1013.1	1062.2	Regional
R-35a	01/10/12	5827.151	Transducer	1013.1	1062.2	Regional
R-35a	01/09/12	5826.638	Transducer	1013.1	1062.2	Regional
R-35a	01/08/12	5827.825	Transducer	1013.1	1062.2	Regional
R-35a	01/07/12	5827.346	Transducer	1013.1	1062.2	Regional
R-35a	01/06/12	5826.848	Transducer	1013.1	1062.2	Regional
R-35a	01/05/12	5826.086	Transducer	1013.1	1062.2	Regional
R-35a	01/04/12	5825.907	Transducer	1013.1	1062.2	Regional
R-35a	01/03/12	5826.835	Transducer	1013.1	1062.2	Regional
R-35a	01/02/12	5825.087	Transducer	1013.1	1062.2	Regional
R-35a	01/01/12	5827.743	Transducer	1013.1	1062.2	Regional
R-35a	12/31/11	5827.858	Transducer	1013.1	1062.2	Regional
R-35a	12/30/11	5827.156	Transducer	1013.1	1062.2	Regional
R-35a	12/29/11	5825.38	Transducer	1013.1	1062.2	Regional
R-35a	12/28/11	5827.158	Transducer	1013.1	1062.2	Regional
R-35a	12/27/11	5825.639	Transducer	1013.1	1062.2	Regional
R-35a	12/26/11	5825.262	Transducer	1013.1	1062.2	Regional
R-35a	12/25/11	5826.81	Transducer	1013.1	1062.2	Regional
R-35a	12/24/11	5826.977	Transducer	1013.1	1062.2	Regional
R-35a	12/23/11	5826.122	Transducer	1013.1	1062.2	Regional
R-35a	12/22/11	5825.049	Transducer	1013.1	1062.2	Regional
R-35a	12/21/11	5827.31	Transducer	1013.1	1062.2	Regional
R-35a	12/20/11	5827.374	Transducer	1013.1	1062.2	Regional
R-35a	12/19/11	5826.785	Transducer	1013.1	1062.2	Regional
R-35a	12/18/11	5827.288	Transducer	1013.1	1062.2	Regional
R-35a	12/17/11	5826.739	Transducer	1013.1	1062.2	Regional
R-35a	12/16/11	5825.909	Transducer	1013.1	1062.2	Regional
R-35a	12/15/11	5825.511	Transducer	1013.1	1062.2	Regional
R-35a	12/14/11	5826.692	Transducer	1013.1	1062.2	Regional
R-35a	12/13/11	5827.693	Transducer	1013.1	1062.2	Regional
R-35a	12/12/11	5827.367	Transducer	1013.1	1062.2	Regional
R-35a	12/11/11	5826.503	Transducer	1013.1	1062.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35a	12/10/11	5826.708	Transducer	1013.1	1062.2	Regional
R-35a	12/09/11	5827.092	Transducer	1013.1	1062.2	Regional
R-35a	12/08/11	5826.84	Transducer	1013.1	1062.2	Regional
R-35a	12/07/11	5827.323	Transducer	1013.1	1062.2	Regional
R-35a	12/06/11	5825.433	Transducer	1013.1	1062.2	Regional
R-35a	12/05/11	5826.394	Transducer	1013.1	1062.2	Regional
R-35a	12/04/11	5826.841	Transducer	1013.1	1062.2	Regional
R-35a	12/03/11	5826.968	Transducer	1013.1	1062.2	Regional
R-35a	12/02/11	5826.1	Transducer	1013.1	1062.2	Regional
R-35a	12/01/11	5825.819	Transducer	1013.1	1062.2	Regional
R-35a	11/30/11	5825.697	Transducer	1013.1	1062.2	Regional
R-35a	11/29/11	5826.073	Transducer	1013.1	1062.2	Regional
R-35a	11/28/11	5826.304	Transducer	1013.1	1062.2	Regional
R-35a	11/27/11	5825.916	Transducer	1013.1	1062.2	Regional
R-35a	11/26/11	5826.806	Transducer	1013.1	1062.2	Regional
R-35a	11/25/11	5826.691	Transducer	1013.1	1062.2	Regional
R-35a	11/24/11	5826.638	Transducer	1013.1	1062.2	Regional
R-35a	11/23/11	5826.717	Transducer	1013.1	1062.2	Regional
R-35a	11/22/11	5826.563	Transducer	1013.1	1062.2	Regional
R-35a	11/21/11	5827.161	Transducer	1013.1	1062.2	Regional
R-35a	11/20/11	5826.88	Transducer	1013.1	1062.2	Regional
R-35a	11/19/11	5826.688	Transducer	1013.1	1062.2	Regional
R-35a	11/18/11	5825.754	Transducer	1013.1	1062.2	Regional
R-35a	11/17/11	5825.739	Transducer	1013.1	1062.2	Regional
R-35a	11/16/11	5825.409	Transducer	1013.1	1062.2	Regional
R-35a	11/15/11	5825.918	Transducer	1013.1	1062.2	Regional
R-35a	11/14/11	5825.951	Transducer	1013.1	1062.2	Regional
R-35a	11/13/11	5825.548	Transducer	1013.1	1062.2	Regional
R-35a	11/12/11	5826.669	Transducer	1013.1	1062.2	Regional
R-35a	11/11/11	5826.272	Transducer	1013.1	1062.2	Regional
R-35a	11/10/11	5825.02	Transducer	1013.1	1062.2	Regional
R-35a	11/09/11	5824.599	Transducer	1013.1	1062.2	Regional
R-35a	11/08/11	5824.975	Transducer	1013.1	1062.2	Regional
R-35a	11/07/11	5825.779	Transducer	1013.1	1062.2	Regional
R-35a	11/06/11	5825.95	Transducer	1013.1	1062.2	Regional
R-35a	11/05/11	5826.529	Transducer	1013.1	1062.2	Regional
R-35a	11/04/11	5823.2	Transducer	1013.1	1062.2	Regional
R-35a	11/03/11	5823.156	Transducer	1013.1	1062.2	Regional
R-35a	11/02/11	5822.474	Transducer	1013.1	1062.2	Regional
R-35a	11/01/11	5822.07	Transducer	1013.1	1062.2	Regional
R-35a	10/31/11	5821.133	Transducer	1013.1	1062.2	Regional
R-35a	10/30/11	5818.675	Transducer	1013.1	1062.2	Regional
R-35a	10/29/11	5825.464	Transducer	1013.1	1062.2	Regional
R-35a	10/28/11	5819.696	Transducer	1013.1	1062.2	Regional
R-35a	10/27/11	5818.959	Transducer	1013.1	1062.2	Regional
R-35a	10/26/11	5819.021	Transducer	1013.1	1062.2	Regional
R-35a	10/25/11	5818.994	Transducer	1013.1	1062.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35a	10/24/11	5818.745	Transducer	1013.1	1062.2	Regional
R-35a	10/23/11	5819.942	Transducer	1013.1	1062.2	Regional
R-35a	10/22/11	5820.639	Transducer	1013.1	1062.2	Regional
R-35a	10/21/11	5818.951	Transducer	1013.1	1062.2	Regional
R-35a	10/20/11	5819.896	Transducer	1013.1	1062.2	Regional
R-35a	10/19/11	5818.814	Transducer	1013.1	1062.2	Regional
R-35a	10/18/11	5819.259	Transducer	1013.1	1062.2	Regional
R-35a	10/17/11	5818.675	Transducer	1013.1	1062.2	Regional
R-35a	10/16/11	5819.712	Transducer	1013.1	1062.2	Regional
R-35a	10/15/11	5819.207	Transducer	1013.1	1062.2	Regional
R-35a	10/14/11	5819.297	Transducer	1013.1	1062.2	Regional
R-35a	10/13/11	5819.557	Transducer	1013.1	1062.2	Regional
R-35a	10/12/11	5820.686	Transducer	1013.1	1062.2	Regional
R-35a	10/11/11	5818.765	Transducer	1013.1	1062.2	Regional
R-35a	10/10/11	5818.63	Transducer	1013.1	1062.2	Regional
R-35a	10/09/11	5818.899	Transducer	1013.1	1062.2	Regional
R-35a	10/08/11	5820.322	Transducer	1013.1	1062.2	Regional
R-35a	10/07/11	5821.128	Transducer	1013.1	1062.2	Regional
R-35a	10/06/11	5826.126	Transducer	1013.1	1062.2	Regional
R-35a	10/05/11	5825.266	Transducer	1013.1	1062.2	Regional
R-35a	10/04/11	5818.771	Transducer	1013.1	1062.2	Regional
R-35a	10/03/11	5819.03	Transducer	1013.1	1062.2	Regional
R-35a	10/02/11	5824.277	Transducer	1013.1	1062.2	Regional
R-35a	10/01/11	5819.939	Transducer	1013.1	1062.2	Regional
R-35a	09/30/11	5821.147	Transducer	1013.1	1062.2	Regional
R-35a	09/29/11	5819.211	Transducer	1013.1	1062.2	Regional
R-35a	09/28/11	5823.714	Transducer	1013.1	1062.2	Regional
R-35a	09/27/11	5819.457	Transducer	1013.1	1062.2	Regional
R-35a	09/26/11	5817.868	Transducer	1013.1	1062.2	Regional
R-35a	09/25/11	5820.176	Transducer	1013.1	1062.2	Regional
R-35a	09/24/11	5825.719	Transducer	1013.1	1062.2	Regional
R-35a	09/23/11	5825.841	Transducer	1013.1	1062.2	Regional
R-35a	09/22/11	5826.476	Transducer	1013.1	1062.2	Regional
R-35a	09/21/11	5826.249	Transducer	1013.1	1062.2	Regional
R-35a	09/20/11	5820.159	Transducer	1013.1	1062.2	Regional
R-35a	09/19/11	5826.373	Transducer	1013.1	1062.2	Regional
R-35a	09/18/11	5826.221	Transducer	1013.1	1062.2	Regional
R-35a	09/17/11	5825.697	Transducer	1013.1	1062.2	Regional
R-35a	09/16/11	5821.38	Transducer	1013.1	1062.2	Regional
R-35a	09/15/11	5825.649	Transducer	1013.1	1062.2	Regional
R-35a	09/14/11	5824.972	Transducer	1013.1	1062.2	Regional
R-35a	09/13/11	5818.362	Transducer	1013.1	1062.2	Regional
R-35a	09/12/11	5818.265	Transducer	1013.1	1062.2	Regional
R-35a	09/11/11	5818.797	Transducer	1013.1	1062.2	Regional
R-35a	09/10/11	5824.707	Transducer	1013.1	1062.2	Regional
R-35a	09/09/11	5824.736	Transducer	1013.1	1062.2	Regional
R-35a	09/08/11	5823.25	Transducer	1013.1	1062.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35a	09/07/11	5815.643	Transducer	1013.1	1062.2	Regional
R-35a	09/06/11	5815.358	Transducer	1013.1	1062.2	Regional
R-35a	09/05/11	5815.175	Transducer	1013.1	1062.2	Regional
R-35a	09/04/11	5815.358	Transducer	1013.1	1062.2	Regional
R-35a	09/03/11	5815.695	Transducer	1013.1	1062.2	Regional
R-35a	09/02/11	5816.438	Transducer	1013.1	1062.2	Regional
R-35a	09/01/11	5815.519	Transducer	1013.1	1062.2	Regional
R-35a	08/31/11	5815.686	Transducer	1013.1	1062.2	Regional
R-35a	08/30/11	5815.959	Transducer	1013.1	1062.2	Regional
R-35a	08/29/11	5815.756	Transducer	1013.1	1062.2	Regional
R-35a	08/28/11	5816.98	Transducer	1013.1	1062.2	Regional
R-35a	08/27/11	5815.726	Transducer	1013.1	1062.2	Regional
R-35a	08/26/11	5816.137	Transducer	1013.1	1062.2	Regional
R-35a	08/25/11	5816.726	Transducer	1013.1	1062.2	Regional
R-35a	08/24/11	5818.6	Transducer	1013.1	1062.2	Regional
R-35a	08/24/11	5817.284	Transducer	1013.1	1062.2	Regional
R-35a	08/23/11	5822.35	Transducer	1013.1	1062.2	Regional
R-35a	08/22/11	5815.4	Transducer	1013.1	1062.2	Regional
R-35a	08/21/11	5815.48	Transducer	1013.1	1062.2	Regional
R-35a	08/20/11	5815.32	Transducer	1013.1	1062.2	Regional
R-35a	08/19/11	5815.31	Transducer	1013.1	1062.2	Regional
R-35a	08/18/11	5815.2	Transducer	1013.1	1062.2	Regional
R-35a	08/17/11	5815.31	Transducer	1013.1	1062.2	Regional
R-35a	08/16/11	5815.39	Transducer	1013.1	1062.2	Regional
R-35a	08/15/11	5815.42	Transducer	1013.1	1062.2	Regional
R-35a	08/14/11	5815.37	Transducer	1013.1	1062.2	Regional
R-35a	08/13/11	5815.64	Transducer	1013.1	1062.2	Regional
R-35a	08/12/11	5815.7	Transducer	1013.1	1062.2	Regional
R-35a	08/11/11	5815.81	Transducer	1013.1	1062.2	Regional
R-35a	08/10/11	5815.94	Transducer	1013.1	1062.2	Regional
R-35a	08/09/11	5815.94	Transducer	1013.1	1062.2	Regional
R-35a	08/08/11	5815.53	Transducer	1013.1	1062.2	Regional
R-35a	08/07/11	5816	Transducer	1013.1	1062.2	Regional
R-35a	08/06/11	5816.05	Transducer	1013.1	1062.2	Regional
R-35a	08/05/11	5816.13	Transducer	1013.1	1062.2	Regional
R-35a	08/04/11	5816.1	Transducer	1013.1	1062.2	Regional
R-35a	08/03/11	5816.21	Transducer	1013.1	1062.2	Regional
R-35a	08/02/11	5816.33	Transducer	1013.1	1062.2	Regional
R-35a	08/01/11	5816.4	Transducer	1013.1	1062.2	Regional
R-35a	07/31/11	5817.29	Transducer	1013.1	1062.2	Regional
R-35a	07/30/11	5817	Transducer	1013.1	1062.2	Regional
R-35a	07/29/11	5817.29	Transducer	1013.1	1062.2	Regional
R-35a	07/28/11	5818.33	Transducer	1013.1	1062.2	Regional
R-35a	07/27/11	5819.59	Transducer	1013.1	1062.2	Regional
R-35a	07/26/11	5826.57	Transducer	1013.1	1062.2	Regional
R-35a	07/25/11	5826.32	Transducer	1013.1	1062.2	Regional
R-35a	07/24/11	5826.44	Transducer	1013.1	1062.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35a	07/23/11	5826.65	Transducer	1013.1	1062.2	Regional
R-35a	07/22/11	5826.88	Transducer	1013.1	1062.2	Regional
R-35a	07/21/11	5826.94	Transducer	1013.1	1062.2	Regional
R-35a	07/20/11	5826.87	Transducer	1013.1	1062.2	Regional
R-35a	07/19/11	5826.65	Transducer	1013.1	1062.2	Regional
R-35a	07/18/11	5826.36	Transducer	1013.1	1062.2	Regional
R-35a	07/17/11	5826.55	Transducer	1013.1	1062.2	Regional
R-35a	07/16/11	5826.95	Transducer	1013.1	1062.2	Regional
R-35a	07/15/11	5827.06	Transducer	1013.1	1062.2	Regional
R-35a	07/14/11	5826.96	Transducer	1013.1	1062.2	Regional
R-35a	07/13/11	5826.8	Transducer	1013.1	1062.2	Regional
R-35a	07/12/11	5826.64	Transducer	1013.1	1062.2	Regional
R-35a	07/11/11	5826.41	Transducer	1013.1	1062.2	Regional
R-35a	07/10/11	5826.62	Transducer	1013.1	1062.2	Regional
R-35a	07/09/11	5826.39	Transducer	1013.1	1062.2	Regional
R-35a	07/08/11	5826.48	Transducer	1013.1	1062.2	Regional
R-35a	07/07/11	5826.64	Transducer	1013.1	1062.2	Regional
R-35a	07/06/11	5826.51	Transducer	1013.1	1062.2	Regional
R-35a	07/05/11	5826.31	Transducer	1013.1	1062.2	Regional
R-35a	07/04/11	5825.25	Transducer	1013.1	1062.2	Regional
R-35a	07/03/11	5820.32	Transducer	1013.1	1062.2	Regional
R-35a	07/02/11	5819.15	Transducer	1013.1	1062.2	Regional
R-35a	07/01/11	5817.79	Transducer	1013.1	1062.2	Regional
R-35a	06/30/11	5817.68	Transducer	1013.1	1062.2	Regional
R-35a	06/29/11	5824.61	Transducer	1013.1	1062.2	Regional
R-35a	06/28/11	5821.55	Transducer	1013.1	1062.2	Regional
R-35a	06/27/11	5818.19	Transducer	1013.1	1062.2	Regional
R-35a	06/26/11	5817.27	Transducer	1013.1	1062.2	Regional
R-35a	06/25/11	5818.8	Transducer	1013.1	1062.2	Regional
R-35a	06/24/11	5819.39	Transducer	1013.1	1062.2	Regional
R-35a	06/23/11	5818.37	Transducer	1013.1	1062.2	Regional
R-35a	06/22/11	5818.77	Transducer	1013.1	1062.2	Regional
R-35a	06/21/11	5820.98	Transducer	1013.1	1062.2	Regional
R-35a	06/20/11	5826.38	Transducer	1013.1	1062.2	Regional
R-35a	06/19/11	5826.2	Transducer	1013.1	1062.2	Regional
R-35a	06/18/11	5825.87	Transducer	1013.1	1062.2	Regional
R-35a	06/17/11	5819.3	Transducer	1013.1	1062.2	Regional
R-35a	06/16/11	5821.26	Transducer	1013.1	1062.2	Regional
R-35a	06/15/11	5819.99	Transducer	1013.1	1062.2	Regional
R-35a	06/14/11	5823.09	Transducer	1013.1	1062.2	Regional
R-35a	06/13/11	5821.54	Transducer	1013.1	1062.2	Regional
R-35a	06/12/11	5820.02	Transducer	1013.1	1062.2	Regional
R-35a	06/11/11	5819.13	Transducer	1013.1	1062.2	Regional
R-35a	06/10/11	5819.83	Transducer	1013.1	1062.2	Regional
R-35a	06/09/11	5819.98	Transducer	1013.1	1062.2	Regional
R-35a	06/08/11	5820.18	Transducer	1013.1	1062.2	Regional
R-35a	06/07/11	5820	Transducer	1013.1	1062.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35a	06/06/11	5824.25	Transducer	1013.1	1062.2	Regional
R-35a	06/05/11	5822.85	Transducer	1013.1	1062.2	Regional
R-35a	06/04/11	5821.65	Transducer	1013.1	1062.2	Regional
R-35a	06/03/11	5819.93	Transducer	1013.1	1062.2	Regional
R-35a	06/02/11	5819.48	Transducer	1013.1	1062.2	Regional
R-35a	06/01/11	5819.08	Transducer	1013.1	1062.2	Regional
R-35a	05/31/11	5818.7	Transducer	1013.1	1062.2	Regional
R-35a	05/30/11	5819.99	Transducer	1013.1	1062.2	Regional
R-35a	05/29/11	5818.48	Transducer	1013.1	1062.2	Regional
R-35a	05/28/11	5819.61	Transducer	1013.1	1062.2	Regional
R-35a	05/27/11	5826.6	Transducer	1013.1	1062.2	Regional
R-35a	05/26/11	5820.5	Transducer	1013.1	1062.2	Regional
R-35a	05/25/11	5823.19	Transducer	1013.1	1062.2	Regional
R-35a	05/24/11	5823.11	Transducer	1013.1	1062.2	Regional
R-35a	05/23/11	5818.92	Transducer	1013.1	1062.2	Regional
R-35a	05/22/11	5820.56	Transducer	1013.1	1062.2	Regional
R-35a	05/21/11	5827.73	Transducer	1013.1	1062.2	Regional
R-35a	05/20/11	5827.5	Transducer	1013.1	1062.2	Regional
R-35a	05/19/11	5827.27	Transducer	1013.1	1062.2	Regional
R-35a	05/18/11	5822.45	Transducer	1013.1	1062.2	Regional
R-35a	05/17/11	5826.76	Transducer	1013.1	1062.2	Regional
R-35a	05/16/11	5820.73	Transducer	1013.1	1062.2	Regional
R-35a	05/15/11	5819.28	Transducer	1013.1	1062.2	Regional
R-35a	05/14/11	5824.13	Transducer	1013.1	1062.2	Regional
R-35a	05/13/11	5821.48	Transducer	1013.1	1062.2	Regional
R-35a	05/12/11	5824.46	Transducer	1013.1	1062.2	Regional
R-35a	05/11/11	5824.98	Transducer	1013.1	1062.2	Regional
R-35a	05/10/11	5827.15	Transducer	1013.1	1062.2	Regional
R-35a	05/09/11	5820.5	Transducer	1013.1	1062.2	Regional
R-35a	05/08/11	5819.62	Transducer	1013.1	1062.2	Regional
R-35a	05/07/11	5826.74	Transducer	1013.1	1062.2	Regional
R-35a	05/06/11	5822.58	Transducer	1013.1	1062.2	Regional
R-35a	05/05/11	5824.63	Transducer	1013.1	1062.2	Regional
R-35a	05/04/11	5824.85	Transducer	1013.1	1062.2	Regional
R-35a	05/03/11	5827.73	Transducer	1013.1	1062.2	Regional
R-35a	05/02/11	5821.13	Transducer	1013.1	1062.2	Regional
R-35a	05/01/11	5827.82	Transducer	1013.1	1062.2	Regional
R-35a	04/30/11	5827.41	Transducer	1013.1	1062.2	Regional
R-35a	04/29/11	5827.01	Transducer	1013.1	1062.2	Regional
R-35a	04/28/11	5828.07	Transducer	1013.1	1062.2	Regional
R-35a	04/27/11	5827.9	Transducer	1013.1	1062.2	Regional
R-35a	04/26/11	5821.47	Transducer	1013.1	1062.2	Regional
R-35a	04/25/11	5824.65	Transducer	1013.1	1062.2	Regional
R-35a	04/24/11	5826.61	Transducer	1013.1	1062.2	Regional
R-35a	04/23/11	5826.49	Transducer	1013.1	1062.2	Regional
R-35a	04/22/11	5824.49	Transducer	1013.1	1062.2	Regional
R-35a	04/21/11	5826.98	Transducer	1013.1	1062.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35a	04/20/11	5823.78	Transducer	1013.1	1062.2	Regional
R-35a	04/19/11	5821.73	Transducer	1013.1	1062.2	Regional
R-35a	04/18/11	5820.48	Transducer	1013.1	1062.2	Regional
R-35a	04/17/11	5825.13	Transducer	1013.1	1062.2	Regional
R-35a	04/16/11	5825.92	Transducer	1013.1	1062.2	Regional
R-35a	04/15/11	5825.54	Transducer	1013.1	1062.2	Regional
R-35a	04/14/11	5828.36	Transducer	1013.1	1062.2	Regional
R-35a	04/13/11	5824.7	Transducer	1013.1	1062.2	Regional
R-35a	04/12/11	5826.97	Transducer	1013.1	1062.2	Regional
R-35a	04/11/11	5823.09	Transducer	1013.1	1062.2	Regional
R-35a	04/10/11	5827.7	Transducer	1013.1	1062.2	Regional
R-35a	04/09/11	5828.27	Transducer	1013.1	1062.2	Regional
R-35a	04/08/11	5824.57	Transducer	1013.1	1062.2	Regional
R-35a	04/07/11	5824.4	Transducer	1013.1	1062.2	Regional
R-35a	04/06/11	5822.3	Transducer	1013.1	1062.2	Regional
R-35a	04/05/11	5828.48	Transducer	1013.1	1062.2	Regional
R-35a	04/04/11	5827.55	Transducer	1013.1	1062.2	Regional
R-35a	04/03/11	5826.26	Transducer	1013.1	1062.2	Regional
R-35a	04/02/11	5827.31	Transducer	1013.1	1062.2	Regional
R-35a	04/01/11	5824.05	Transducer	1013.1	1062.2	Regional
R-35a	03/31/11	5825.18	Transducer	1013.1	1062.2	Regional
R-35a	03/30/11	5825.21	Transducer	1013.1	1062.2	Regional
R-35a	03/29/11	5829.04	Transducer	1013.1	1062.2	Regional
R-35a	03/28/11	5827.3	Transducer	1013.1	1062.2	Regional
R-35a	03/27/11	5828.59	Transducer	1013.1	1062.2	Regional
R-35a	03/26/11	5829.16	Transducer	1013.1	1062.2	Regional
R-35a	03/25/11	5828.79	Transducer	1013.1	1062.2	Regional
R-35a	03/24/11	5825.11	Transducer	1013.1	1062.2	Regional
R-35a	03/23/11	5823.3	Transducer	1013.1	1062.2	Regional
R-35a	03/22/11	5825.47	Transducer	1013.1	1062.2	Regional
R-35a	03/21/11	5826.77	Transducer	1013.1	1062.2	Regional
R-35a	03/20/11	5827.27	Transducer	1013.1	1062.2	Regional
R-35a	03/19/11	5828.85	Transducer	1013.1	1062.2	Regional
R-35a	03/18/11	5829.18	Transducer	1013.1	1062.2	Regional
R-35a	03/17/11	5828.75	Transducer	1013.1	1062.2	Regional
R-35a	03/16/11	5824.96	Transducer	1013.1	1062.2	Regional
R-35a	03/15/11	5825.09	Transducer	1013.1	1062.2	Regional
R-35a	03/14/11	5826.45	Transducer	1013.1	1062.2	Regional
R-35a	03/13/11	5826.66	Transducer	1013.1	1062.2	Regional
R-35a	03/12/11	5829.11	Transducer	1013.1	1062.2	Regional
R-35a	03/11/11	5828.52	Transducer	1013.1	1062.2	Regional
R-35a	03/10/11	5828.1	Transducer	1013.1	1062.2	Regional
R-35a	03/09/11	5829.59	Transducer	1013.1	1062.2	Regional
R-35a	03/08/11	5829.95	Transducer	1013.1	1062.2	Regional
R-35a	03/07/11	5829.58	Transducer	1013.1	1062.2	Regional
R-35a	03/06/11	5828.81	Transducer	1013.1	1062.2	Regional
R-35a	03/05/11	5829.28	Transducer	1013.1	1062.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35a	03/04/11	5829.04	Transducer	1013.1	1062.2	Regional
R-35a	03/03/11	5828.94	Transducer	1013.1	1062.2	Regional
R-35a	03/02/11	5827.77	Transducer	1013.1	1062.2	Regional
R-35a	03/01/11	5828.99	Transducer	1013.1	1062.2	Regional
R-35a	02/28/11	5828.38	Transducer	1013.1	1062.2	Regional
R-35a	02/27/11	5828.48	Transducer	1013.1	1062.2	Regional
R-35a	02/26/11	5829.13	Transducer	1013.1	1062.2	Regional
R-35a	02/25/11	5828.2	Transducer	1013.1	1062.2	Regional
R-35a	02/24/11	5829.19	Transducer	1013.1	1062.2	Regional
R-35a	02/23/11	5829.27	Transducer	1013.1	1062.2	Regional
R-35a	02/22/11	5827.56	Transducer	1013.1	1062.2	Regional
R-35a	02/21/11	5829.25	Transducer	1013.1	1062.2	Regional
R-35a	02/20/11	5828.15	Transducer	1013.1	1062.2	Regional
R-35a	02/19/11	5828.69	Transducer	1013.1	1062.2	Regional
R-35a	02/18/11	5827.37	Transducer	1013.1	1062.2	Regional
R-35a	02/17/11	5828.72	Transducer	1013.1	1062.2	Regional
R-35a	02/16/11	5826.94	Transducer	1013.1	1062.2	Regional
R-35a	02/15/11	5828.67	Transducer	1013.1	1062.2	Regional
R-35a	02/14/11	5827.41	Transducer	1013.1	1062.2	Regional
R-35a	02/13/11	5826.95	Transducer	1013.1	1062.2	Regional
R-35a	02/12/11	5827.84	Transducer	1013.1	1062.2	Regional
R-35a	02/11/11	5825.8	Transducer	1013.1	1062.2	Regional
R-35a	02/10/11	5826.88	Transducer	1013.1	1062.2	Regional
R-35a	02/09/11	5825.27	Transducer	1013.1	1062.2	Regional
R-35a	02/08/11	5826.66	Transducer	1013.1	1062.2	Regional
R-35a	02/07/11	5826.63	Transducer	1013.1	1062.2	Regional
R-35a	02/06/11	5828.1	Transducer	1013.1	1062.2	Regional
R-35a	02/05/11	5829.26	Transducer	1013.1	1062.2	Regional
R-35a	02/04/11	5827.14	Transducer	1013.1	1062.2	Regional
R-35a	02/03/11	5828.17	Transducer	1013.1	1062.2	Regional
R-35a	02/02/11	5829.29	Transducer	1013.1	1062.2	Regional
R-35a	02/01/11	5829.37	Transducer	1013.1	1062.2	Regional
R-35a	01/31/11	5828.37	Transducer	1013.1	1062.2	Regional
R-35a	01/30/11	5828.57	Transducer	1013.1	1062.2	Regional
R-35a	01/29/11	5829.42	Transducer	1013.1	1062.2	Regional
R-35a	01/28/11	5829.68	Transducer	1013.1	1062.2	Regional
R-35a	01/27/11	5829.55	Transducer	1013.1	1062.2	Regional
R-35a	01/26/11	5829.11	Transducer	1013.1	1062.2	Regional
R-35a	01/25/11	5827.7	Transducer	1013.1	1062.2	Regional
R-35a	01/24/11	5829.13	Transducer	1013.1	1062.2	Regional
R-35a	01/23/11	5828.35	Transducer	1013.1	1062.2	Regional
R-35a	01/22/11	5828.85	Transducer	1013.1	1062.2	Regional
R-35a	01/21/11	5828.22	Transducer	1013.1	1062.2	Regional
R-35a	01/20/11	5828.43	Transducer	1013.1	1062.2	Regional
R-35a	01/19/11	5828.48	Transducer	1013.1	1062.2	Regional
R-35a	01/18/11	5827.99	Transducer	1013.1	1062.2	Regional
R-35a	01/17/11	5828.13	Transducer	1013.1	1062.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35a	01/16/11	5828.11	Transducer	1013.1	1062.2	Regional
R-35a	01/15/11	5828.81	Transducer	1013.1	1062.2	Regional
R-35a	01/14/11	5828.77	Transducer	1013.1	1062.2	Regional
R-35a	01/13/11	5828.77	Transducer	1013.1	1062.2	Regional
R-35a	01/12/11	5828.8	Transducer	1013.1	1062.2	Regional
R-35a	01/11/11	5828.32	Transducer	1013.1	1062.2	Regional
R-35a	01/10/11	5828.46	Transducer	1013.1	1062.2	Regional
R-35a	01/09/11	5828.57	Transducer	1013.1	1062.2	Regional
R-35a	01/08/11	5829.12	Transducer	1013.1	1062.2	Regional
R-35a	01/07/11	5827.98	Transducer	1013.1	1062.2	Regional
R-35a	01/06/11	5828.87	Transducer	1013.1	1062.2	Regional
R-35a	01/05/11	5829.13	Transducer	1013.1	1062.2	Regional
R-35a	01/04/11	5828.88	Transducer	1013.1	1062.2	Regional
R-35a	01/03/11	5828.4	Transducer	1013.1	1062.2	Regional
R-35a	01/02/11	5821.92	Transducer	1013.1	1062.2	Regional
R-35a	01/01/11	5829.89	Transducer	1013.1	1062.2	Regional
R-35a	12/31/10	5829.72	Transducer	1013.1	1062.2	Regional
R-35a	12/30/10	5829.26	Transducer	1013.1	1062.2	Regional
R-35a	12/29/10	5829.36	Transducer	1013.1	1062.2	Regional
R-35a	12/28/10	5829.16	Transducer	1013.1	1062.2	Regional
R-35a	12/27/10	5828.12	Transducer	1013.1	1062.2	Regional
R-35a	12/26/10	5828.24	Transducer	1013.1	1062.2	Regional
R-35a	12/25/10	5828.66	Transducer	1013.1	1062.2	Regional
R-35a	12/24/10	5827.83	Transducer	1013.1	1062.2	Regional
R-35a	12/23/10	5828.88	Transducer	1013.1	1062.2	Regional
R-35a	12/22/10	5828.61	Transducer	1013.1	1062.2	Regional
R-35a	12/21/10	5829.38	Transducer	1013.1	1062.2	Regional
R-35a	12/20/10	5828.5	Transducer	1013.1	1062.2	Regional
R-35a	12/19/10	5828.74	Transducer	1013.1	1062.2	Regional
R-35a	12/18/10	5829.42	Transducer	1013.1	1062.2	Regional
R-35a	12/17/10	5829.44	Transducer	1013.1	1062.2	Regional
R-35a	12/16/10	5828.13	Transducer	1013.1	1062.2	Regional
R-35a	12/15/10	5827.78	Transducer	1013.1	1062.2	Regional
R-35a	12/14/10	5827.31	Transducer	1013.1	1062.2	Regional
R-35a	12/13/10	5828.31	Transducer	1013.1	1062.2	Regional
R-35a	12/12/10	5828.17	Transducer	1013.1	1062.2	Regional
R-35a	12/11/10	5829.3	Transducer	1013.1	1062.2	Regional
R-35a	12/10/10	5829.18	Transducer	1013.1	1062.2	Regional
R-35a	12/09/10	5828.96	Transducer	1013.1	1062.2	Regional
R-35a	12/08/10	5827.95	Transducer	1013.1	1062.2	Regional
R-35a	12/07/10	5828.69	Transducer	1013.1	1062.2	Regional
R-35a	12/06/10	5826.26	Transducer	1013.1	1062.2	Regional
R-35a	12/05/10	5828.37	Transducer	1013.1	1062.2	Regional
R-35a	12/04/10	5829.04	Transducer	1013.1	1062.2	Regional
R-35a	12/03/10	5827.79	Transducer	1013.1	1062.2	Regional
R-35a	12/02/10	5827.87	Transducer	1013.1	1062.2	Regional
R-35a	12/01/10	5828.99	Transducer	1013.1	1062.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35a	11/30/10	5828.34	Transducer	1013.1	1062.2	Regional
R-35a	11/29/10	5828.79	Transducer	1013.1	1062.2	Regional
R-35a	11/28/10	5828.7	Transducer	1013.1	1062.2	Regional
R-35a	11/27/10	5828.97	Transducer	1013.1	1062.2	Regional
R-35a	11/26/10	5828.99	Transducer	1013.1	1062.2	Regional
R-35a	11/25/10	5829.25	Transducer	1013.1	1062.2	Regional
R-35a	11/24/10	5828.83	Transducer	1013.1	1062.2	Regional
R-35a	11/23/10	5827.88	Transducer	1013.1	1062.2	Regional
R-35a	11/22/10	5828.43	Transducer	1013.1	1062.2	Regional
R-35a	11/21/10	5828.58	Transducer	1013.1	1062.2	Regional
R-35a	11/20/10	5828.76	Transducer	1013.1	1062.2	Regional
R-35a	11/19/10	5827.48	Transducer	1013.1	1062.2	Regional
R-35a	11/18/10	5827.13	Transducer	1013.1	1062.2	Regional
R-35a	11/17/10	5827.86	Transducer	1013.1	1062.2	Regional
R-35a	11/16/10	5828.06	Transducer	1013.1	1062.2	Regional
R-35a	11/15/10	5825.32	Transducer	1013.1	1062.2	Regional
R-35a	11/14/10	5828.16	Transducer	1013.1	1062.2	Regional
R-35a	11/13/10	5828.39	Transducer	1013.1	1062.2	Regional
R-35a	11/12/10	5827.28	Transducer	1013.1	1062.2	Regional
R-35a	11/11/10	5827.87	Transducer	1013.1	1062.2	Regional
R-35a	11/10/10	5827.21	Transducer	1013.1	1062.2	Regional
R-35a	11/09/10	5828.78	Transducer	1013.1	1062.2	Regional
R-35a	11/08/10	5827.99	Transducer	1013.1	1062.2	Regional
R-35a	11/07/10	5828.39	Transducer	1013.1	1062.2	Regional
R-35a	11/06/10	5828.23	Transducer	1013.1	1062.2	Regional
R-35a	11/05/10	5828.16	Transducer	1013.1	1062.2	Regional
R-35a	11/04/10	5823.98	Transducer	1013.1	1062.2	Regional
R-35a	11/03/10	5823.79	Transducer	1013.1	1062.2	Regional
R-35a	11/02/10	5823.59	Transducer	1013.1	1062.2	Regional
R-35a	11/01/10	5822.34	Transducer	1013.1	1062.2	Regional
R-35a	10/31/10	5826.16	Transducer	1013.1	1062.2	Regional
R-35a	10/30/10	5823.29	Transducer	1013.1	1062.2	Regional
R-35b	11/15/12	5834.3	Transducer	825.4	848.5	Regional
R-35b	11/14/12	5834.22	Transducer	825.4	848.5	Regional
R-35b	11/13/12	5834.2	Transducer	825.4	848.5	Regional
R-35b	11/12/12	5834.19	Transducer	825.4	848.5	Regional
R-35b	11/11/12	5834.67	Transducer	825.4	848.5	Regional
R-35b	11/10/12	5834.73	Transducer	825.4	848.5	Regional
R-35b	11/09/12	5834.58	Transducer	825.4	848.5	Regional
R-35b	11/08/12	5834.45	Transducer	825.4	848.5	Regional
R-35b	11/07/12	5834.29	Transducer	825.4	848.5	Regional
R-35b	11/06/12	5834.29	Transducer	825.4	848.5	Regional
R-35b	11/05/12	5834.25	Transducer	825.4	848.5	Regional
R-35b	11/04/12	5834.28	Transducer	825.4	848.5	Regional
R-35b	11/03/12	5834.4	Transducer	825.4	848.5	Regional
R-35b	11/02/12	5834.44	Transducer	825.4	848.5	Regional
R-35b	11/01/12	5834.32	Transducer	825.4	848.5	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35b	10/31/12	5834.34	Transducer	825.4	848.5	Regional
R-35b	10/30/12	5834.31	Transducer	825.4	848.5	Regional
R-35b	10/29/12	5834.3	Transducer	825.4	848.5	Regional
R-35b	10/28/12	5834.34	Transducer	825.4	848.5	Regional
R-35b	10/27/12	5834.24	Transducer	825.4	848.5	Regional
R-35b	10/26/12	5834.29	Transducer	825.4	848.5	Regional
R-35b	10/25/12	5834.51	Transducer	825.4	848.5	Regional
R-35b	10/24/12	5834.49	Transducer	825.4	848.5	Regional
R-35b	10/23/12	5834.46	Transducer	825.4	848.5	Regional
R-35b	10/22/12	5834.5	Transducer	825.4	848.5	Regional
R-35b	10/21/12	5834.57	Transducer	825.4	848.5	Regional
R-35b	10/20/12	5834.47	Transducer	825.4	848.5	Regional
R-35b	10/19/12	5834.38	Transducer	825.4	848.5	Regional
R-35b	10/18/12	5834.46	Transducer	825.4	848.5	Regional
R-35b	10/17/12	5834.65	Transducer	825.4	848.5	Regional
R-35b	10/16/12	5834.49	Transducer	825.4	848.5	Regional
R-35b	10/15/12	5834.28	Transducer	825.4	848.5	Regional
R-35b	10/14/12	5834.32	Transducer	825.4	848.5	Regional
R-35b	10/13/12	5834.48	Transducer	825.4	848.5	Regional
R-35b	10/12/12	5834.38	Transducer	825.4	848.5	Regional
R-35b	10/11/12	5834.42	Transducer	825.4	848.5	Regional
R-35b	10/10/12	5834.4	Transducer	825.4	848.5	Regional
R-35b	10/09/12	5834.49	Transducer	825.4	848.5	Regional
R-35b	10/08/12	5834.47	Transducer	825.4	848.5	Regional
R-35b	10/07/12	5834.45	Transducer	825.4	848.5	Regional
R-35b	10/06/12	5834.49	Transducer	825.4	848.5	Regional
R-35b	10/05/12	5834.44	Transducer	825.4	848.5	Regional
R-35b	10/04/12	5834.43	Transducer	825.4	848.5	Regional
R-35b	10/03/12	5834.54	Transducer	825.4	848.5	Regional
R-35b	10/02/12	5834.38	Transducer	825.4	848.5	Regional
R-35b	10/01/12	5834.39	Transducer	825.4	848.5	Regional
R-35b	09/30/12	5834.4	Transducer	825.4	848.5	Regional
R-35b	09/29/12	5834.4	Transducer	825.4	848.5	Regional
R-35b	09/28/12	5834.42	Transducer	825.4	848.5	Regional
R-35b	09/27/12	5834.46	Transducer	825.4	848.5	Regional
R-35b	09/26/12	5834.54	Transducer	825.4	848.5	Regional
R-35b	09/25/12	5834.49	Transducer	825.4	848.5	Regional
R-35b	09/24/12	5834.4	Transducer	825.4	848.5	Regional
R-35b	09/23/12	5834.38	Transducer	825.4	848.5	Regional
R-35b	09/22/12	5834.41	Transducer	825.4	848.5	Regional
R-35b	09/21/12	5834.45	Transducer	825.4	848.5	Regional
R-35b	09/20/12	5834.43	Transducer	825.4	848.5	Regional
R-35b	09/19/12	5834.41	Transducer	825.4	848.5	Regional
R-35b	09/18/12	5834.41	Transducer	825.4	848.5	Regional
R-35b	09/17/12	5834.55	Transducer	825.4	848.5	Regional
R-35b	09/16/12	5834.44	Transducer	825.4	848.5	Regional
R-35b	09/15/12	5834.27	Transducer	825.4	848.5	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35b	09/14/12	5834.18	Transducer	825.4	848.5	Regional
R-35b	09/13/12	5834.36	Transducer	825.4	848.5	Regional
R-35b	09/12/12	5834.52	Transducer	825.4	848.5	Regional
R-35b	09/11/12	5834.48	Transducer	825.4	848.5	Regional
R-35b	09/10/12	5834.37	Transducer	825.4	848.5	Regional
R-35b	09/09/12	5834.3	Transducer	825.4	848.5	Regional
R-35b	09/08/12	5834.31	Transducer	825.4	848.5	Regional
R-35b	09/07/12	5834.49	Transducer	825.4	848.5	Regional
R-35b	09/06/12	5834.46	Transducer	825.4	848.5	Regional
R-35b	09/05/12	5834.49	Transducer	825.4	848.5	Regional
R-35b	09/04/12	5834.44	Transducer	825.4	848.5	Regional
R-35b	09/03/12	5834.46	Transducer	825.4	848.5	Regional
R-35b	09/02/12	5834.43	Transducer	825.4	848.5	Regional
R-35b	09/01/12	5834.42	Transducer	825.4	848.5	Regional
R-35b	08/31/12	5834.48	Transducer	825.4	848.5	Regional
R-35b	08/30/12	5834.47	Transducer	825.4	848.5	Regional
R-35b	08/29/12	5834.37	Transducer	825.4	848.5	Regional
R-35b	08/28/12	5834.29	Transducer	825.4	848.5	Regional
R-35b	08/27/12	5834.34	Transducer	825.4	848.5	Regional
R-35b	08/26/12	5834.48	Transducer	825.4	848.5	Regional
R-35b	08/25/12	5834.63	Transducer	825.4	848.5	Regional
R-35b	08/24/12	5834.59	Transducer	825.4	848.5	Regional
R-35b	08/23/12	5834.51	Transducer	825.4	848.5	Regional
R-35b	08/22/12	5834.46	Transducer	825.4	848.5	Regional
R-35b	08/21/12	5834.5	Transducer	825.4	848.5	Regional
R-35b	08/20/12	5834.49	Transducer	825.4	848.5	Regional
R-35b	08/19/12	5834.53	Transducer	825.4	848.5	Regional
R-35b	08/18/12	5834.49	Transducer	825.4	848.5	Regional
R-35b	08/17/12	5834.42	Transducer	825.4	848.5	Regional
R-35b	08/16/12	5834.57	Transducer	825.4	848.5	Regional
R-35b	08/15/12	5834.6	Transducer	825.4	848.5	Regional
R-35b	08/14/12	5834.52	Transducer	825.4	848.5	Regional
R-35b	08/13/12	5834.4	Transducer	825.4	848.5	Regional
R-35b	08/12/12	5834.55	Transducer	825.4	848.5	Regional
R-35b	08/11/12	5834.55	Transducer	825.4	848.5	Regional
R-35b	08/10/12	5834.47	Transducer	825.4	848.5	Regional
R-35b	08/09/12	5834.43	Transducer	825.4	848.5	Regional
R-35b	08/08/12	5834.48	Transducer	825.4	848.5	Regional
R-35b	08/07/12	5834.48	Transducer	825.4	848.5	Regional
R-35b	08/06/12	5834.29	Transducer	825.4	848.5	Regional
R-35b	08/05/12	5834.38	Transducer	825.4	848.5	Regional
R-35b	08/04/12	5834.6	Transducer	825.4	848.5	Regional
R-35b	08/03/12	5834.52	Transducer	825.4	848.5	Regional
R-35b	08/02/12	5834.55	Transducer	825.4	848.5	Regional
R-35b	08/01/12	5834.46	Transducer	825.4	848.5	Regional
R-35b	07/31/12	5834.52	Transducer	825.4	848.5	Regional
R-35b	07/30/12	5834.53	Transducer	825.4	848.5	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35b	07/29/12	5834.45	Transducer	825.4	848.5	Regional
R-35b	07/28/12	5834.44	Transducer	825.4	848.5	Regional
R-35b	07/27/12	5834.37	Manual	825.4	848.5	Regional
R-35b	07/27/12	5834.43	Transducer	825.4	848.5	Regional
R-35b	07/26/12	5834.57	Transducer	825.4	848.5	Regional
R-35b	07/25/12	5834.56	Transducer	825.4	848.5	Regional
R-35b	07/24/12	5834.46	Transducer	825.4	848.5	Regional
R-35b	07/23/12	5834.43	Transducer	825.4	848.5	Regional
R-35b	07/22/12	5834.39	Transducer	825.4	848.5	Regional
R-35b	07/21/12	5834.35	Transducer	825.4	848.5	Regional
R-35b	07/20/12	5834.34	Transducer	825.4	848.5	Regional
R-35b	07/19/12	5834.4	Transducer	825.4	848.5	Regional
R-35b	07/18/12	5834.53	Transducer	825.4	848.5	Regional
R-35b	07/17/12	5834.59	Transducer	825.4	848.5	Regional
R-35b	07/16/12	5834.54	Transducer	825.4	848.5	Regional
R-35b	07/15/12	5834.5	Transducer	825.4	848.5	Regional
R-35b	07/14/12	5834.46	Transducer	825.4	848.5	Regional
R-35b	07/13/12	5834.48	Transducer	825.4	848.5	Regional
R-35b	07/12/12	5834.45	Transducer	825.4	848.5	Regional
R-35b	07/11/12	5834.39	Transducer	825.4	848.5	Regional
R-35b	07/10/12	5834.39	Transducer	825.4	848.5	Regional
R-35b	07/09/12	5834.39	Transducer	825.4	848.5	Regional
R-35b	07/08/12	5834.35	Transducer	825.4	848.5	Regional
R-35b	07/07/12	5834.39	Transducer	825.4	848.5	Regional
R-35b	07/06/12	5834.46	Transducer	825.4	848.5	Regional
R-35b	07/05/12	5834.53	Transducer	825.4	848.5	Regional
R-35b	07/04/12	5834.55	Transducer	825.4	848.5	Regional
R-35b	07/03/12	5834.54	Transducer	825.4	848.5	Regional
R-35b	07/02/12	5834.55	Transducer	825.4	848.5	Regional
R-35b	07/01/12	5834.58	Transducer	825.4	848.5	Regional
R-35b	06/30/12	5834.55	Transducer	825.4	848.5	Regional
R-35b	06/29/12	5834.43	Transducer	825.4	848.5	Regional
R-35b	06/28/12	5834.45	Transducer	825.4	848.5	Regional
R-35b	06/27/12	5834.56	Transducer	825.4	848.5	Regional
R-35b	06/26/12	5834.51	Transducer	825.4	848.5	Regional
R-35b	06/25/12	5834.41	Transducer	825.4	848.5	Regional
R-35b	06/24/12	5834.49	Transducer	825.4	848.5	Regional
R-35b	06/23/12	5834.61	Transducer	825.4	848.5	Regional
R-35b	06/22/12	5834.45	Transducer	825.4	848.5	Regional
R-35b	06/21/12	5834.52	Transducer	825.4	848.5	Regional
R-35b	06/20/12	5834.76	Transducer	825.4	848.5	Regional
R-35b	06/19/12	5834.76	Transducer	825.4	848.5	Regional
R-35b	06/18/12	5834.7	Transducer	825.4	848.5	Regional
R-35b	06/17/12	5834.41	Transducer	825.4	848.5	Regional
R-35b	06/16/12	5834.56	Transducer	825.4	848.5	Regional
R-35b	06/15/12	5834.69	Transducer	825.4	848.5	Regional
R-35b	06/14/12	5834.72	Transducer	825.4	848.5	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35b	06/13/12	5834.6	Transducer	825.4	848.5	Regional
R-35b	06/12/12	5834.48	Transducer	825.4	848.5	Regional
R-35b	06/11/12	5834.52	Transducer	825.4	848.5	Regional
R-35b	06/11/12	5834.506	Transducer	825.4	848.5	Regional
R-35b	06/10/12	5834.697	Transducer	825.4	848.5	Regional
R-35b	06/09/12	5834.667	Transducer	825.4	848.5	Regional
R-35b	06/08/12	5834.532	Transducer	825.4	848.5	Regional
R-35b	06/07/12	5834.643	Transducer	825.4	848.5	Regional
R-35b	06/06/12	5834.608	Transducer	825.4	848.5	Regional
R-35b	06/05/12	5834.526	Transducer	825.4	848.5	Regional
R-35b	06/04/12	5834.495	Transducer	825.4	848.5	Regional
R-35b	06/03/12	5834.573	Transducer	825.4	848.5	Regional
R-35b	06/02/12	5834.608	Transducer	825.4	848.5	Regional
R-35b	06/01/12	5834.541	Transducer	825.4	848.5	Regional
R-35b	05/31/12	5834.588	Transducer	825.4	848.5	Regional
R-35b	05/30/12	5834.568	Transducer	825.4	848.5	Regional
R-35b	05/29/12	5834.51	Transducer	825.4	848.5	Regional
R-35b	05/28/12	5834.542	Transducer	825.4	848.5	Regional
R-35b	05/27/12	5834.661	Transducer	825.4	848.5	Regional
R-35b	05/26/12	5834.706	Transducer	825.4	848.5	Regional
R-35b	05/25/12	5834.845	Transducer	825.4	848.5	Regional
R-35b	05/24/12	5835.008	Transducer	825.4	848.5	Regional
R-35b	05/23/12	5834.839	Transducer	825.4	848.5	Regional
R-35b	05/22/12	5834.53	Transducer	825.4	848.5	Regional
R-35b	05/21/12	5834.412	Transducer	825.4	848.5	Regional
R-35b	05/20/12	5834.58	Transducer	825.4	848.5	Regional
R-35b	05/19/12	5834.829	Transducer	825.4	848.5	Regional
R-35b	05/18/12	5834.848	Transducer	825.4	848.5	Regional
R-35b	05/17/12	5834.682	Transducer	825.4	848.5	Regional
R-35b	05/16/12	5834.513	Transducer	825.4	848.5	Regional
R-35b	05/15/12	5834.467	Transducer	825.4	848.5	Regional
R-35b	05/14/12	5834.473	Transducer	825.4	848.5	Regional
R-35b	05/13/12	5834.391	Transducer	825.4	848.5	Regional
R-35b	05/12/12	5834.455	Transducer	825.4	848.5	Regional
R-35b	05/11/12	5834.746	Transducer	825.4	848.5	Regional
R-35b	05/10/12	5834.647	Transducer	825.4	848.5	Regional
R-35b	05/09/12	5834.489	Transducer	825.4	848.5	Regional
R-35b	05/08/12	5834.516	Transducer	825.4	848.5	Regional
R-35b	05/07/12	5834.62	Transducer	825.4	848.5	Regional
R-35b	05/06/12	5834.686	Transducer	825.4	848.5	Regional
R-35b	05/05/12	5834.656	Transducer	825.4	848.5	Regional
R-35b	05/04/12	5834.63	Transducer	825.4	848.5	Regional
R-35b	05/03/12	5834.7	Transducer	825.4	848.5	Regional
R-35b	05/02/12	5834.773	Transducer	825.4	848.5	Regional
R-35b	05/01/12	5834.772	Transducer	825.4	848.5	Regional
R-35b	04/30/12	5834.664	Transducer	825.4	848.5	Regional
R-35b	04/29/12	5834.751	Transducer	825.4	848.5	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35b	04/28/12	5834.781	Transducer	825.4	848.5	Regional
R-35b	04/27/12	5834.831	Transducer	825.4	848.5	Regional
R-35b	04/26/12	5834.648	Transducer	825.4	848.5	Regional
R-35b	04/25/12	5834.715	Transducer	825.4	848.5	Regional
R-35b	04/24/12	5834.619	Transducer	825.4	848.5	Regional
R-35b	04/23/12	5834.473	Transducer	825.4	848.5	Regional
R-35b	04/22/12	5834.52	Transducer	825.4	848.5	Regional
R-35b	04/21/12	5834.57	Transducer	825.4	848.5	Regional
R-35b	04/20/12	5834.643	Transducer	825.4	848.5	Regional
R-35b	04/19/12	5834.727	Transducer	825.4	848.5	Regional
R-35b	04/18/12	5834.577	Transducer	825.4	848.5	Regional
R-35b	04/17/12	5834.467	Transducer	825.4	848.5	Regional
R-35b	04/16/12	5834.601	Transducer	825.4	848.5	Regional
R-35b	04/15/12	5834.981	Transducer	825.4	848.5	Regional
R-35b	04/14/12	5835.021	Transducer	825.4	848.5	Regional
R-35b	04/13/12	5834.809	Transducer	825.4	848.5	Regional
R-35b	04/12/12	5834.847	Transducer	825.4	848.5	Regional
R-35b	04/11/12	5834.636	Transducer	825.4	848.5	Regional
R-35b	04/10/12	5834.586	Transducer	825.4	848.5	Regional
R-35b	04/09/12	5834.499	Transducer	825.4	848.5	Regional
R-35b	04/08/12	5834.327	Transducer	825.4	848.5	Regional
R-35b	04/07/12	5834.573	Transducer	825.4	848.5	Regional
R-35b	04/06/12	5834.736	Transducer	825.4	848.5	Regional
R-35b	04/05/12	5834.699	Transducer	825.4	848.5	Regional
R-35b	04/04/12	5834.668	Transducer	825.4	848.5	Regional
R-35b	04/03/12	5834.853	Transducer	825.4	848.5	Regional
R-35b	04/02/12	5835.003	Transducer	825.4	848.5	Regional
R-35b	04/01/12	5834.788	Transducer	825.4	848.5	Regional
R-35b	03/31/12	5834.681	Transducer	825.4	848.5	Regional
R-35b	03/30/12	5834.699	Transducer	825.4	848.5	Regional
R-35b	03/29/12	5834.722	Transducer	825.4	848.5	Regional
R-35b	03/28/12	5834.65	Transducer	825.4	848.5	Regional
R-35b	03/27/12	5834.677	Transducer	825.4	848.5	Regional
R-35b	03/26/12	5834.698	Transducer	825.4	848.5	Regional
R-35b	03/25/12	5834.572	Transducer	825.4	848.5	Regional
R-35b	03/24/12	5834.578	Transducer	825.4	848.5	Regional
R-35b	03/23/12	5834.647	Transducer	825.4	848.5	Regional
R-35b	03/22/12	5834.717	Transducer	825.4	848.5	Regional
R-35b	03/21/12	5834.706	Transducer	825.4	848.5	Regional
R-35b	03/20/12	5835.013	Transducer	825.4	848.5	Regional
R-35b	03/19/12	5835.06	Transducer	825.4	848.5	Regional
R-35b	03/18/12	5834.95	Transducer	825.4	848.5	Regional
R-35b	03/17/12	5834.794	Transducer	825.4	848.5	Regional
R-35b	03/16/12	5834.664	Transducer	825.4	848.5	Regional
R-35b	03/15/12	5834.603	Transducer	825.4	848.5	Regional
R-35b	03/14/12	5834.676	Transducer	825.4	848.5	Regional
R-35b	03/13/12	5834.624	Transducer	825.4	848.5	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35b	03/12/12	5834.784	Transducer	825.4	848.5	Regional
R-35b	03/11/12	5834.856	Transducer	825.4	848.5	Regional
R-35b	03/10/12	5834.51	Transducer	825.4	848.5	Regional
R-35b	03/09/12	5834.302	Transducer	825.4	848.5	Regional
R-35b	03/08/12	5834.797	Transducer	825.4	848.5	Regional
R-35b	03/07/12	5835.032	Transducer	825.4	848.5	Regional
R-35b	03/06/12	5834.82	Transducer	825.4	848.5	Regional
R-35b	03/06/12	5834.69	Transducer	825.4	848.5	Regional
R-35b	03/05/12	5834.472	Transducer	825.4	848.5	Regional
R-35b	03/04/12	5834.479	Transducer	825.4	848.5	Regional
R-35b	03/03/12	5834.638	Transducer	825.4	848.5	Regional
R-35b	03/02/12	5834.925	Transducer	825.4	848.5	Regional
R-35b	03/01/12	5834.794	Transducer	825.4	848.5	Regional
R-35b	02/29/12	5834.677	Transducer	825.4	848.5	Regional
R-35b	02/28/12	5834.84	Transducer	825.4	848.5	Regional
R-35b	02/27/12	5834.679	Transducer	825.4	848.5	Regional
R-35b	02/26/12	5834.816	Transducer	825.4	848.5	Regional
R-35b	02/25/12	5834.527	Transducer	825.4	848.5	Regional
R-35b	02/24/12	5834.686	Transducer	825.4	848.5	Regional
R-35b	02/23/12	5834.939	Transducer	825.4	848.5	Regional
R-35b	02/22/12	5834.643	Transducer	825.4	848.5	Regional
R-35b	02/21/12	5834.638	Transducer	825.4	848.5	Regional
R-35b	02/20/12	5834.978	Transducer	825.4	848.5	Regional
R-35b	02/19/12	5834.78	Transducer	825.4	848.5	Regional
R-35b	02/18/12	5834.766	Transducer	825.4	848.5	Regional
R-35b	02/17/12	5834.676	Transducer	825.4	848.5	Regional
R-35b	02/16/12	5834.669	Transducer	825.4	848.5	Regional
R-35b	02/15/12	5835.016	Transducer	825.4	848.5	Regional
R-35b	02/14/12	5834.943	Transducer	825.4	848.5	Regional
R-35b	02/13/12	5835.025	Transducer	825.4	848.5	Regional
R-35b	02/12/12	5834.682	Transducer	825.4	848.5	Regional
R-35b	02/11/12	5834.659	Transducer	825.4	848.5	Regional
R-35b	02/10/12	5834.655	Transducer	825.4	848.5	Regional
R-35b	02/09/12	5834.663	Transducer	825.4	848.5	Regional
R-35b	02/08/12	5834.544	Transducer	825.4	848.5	Regional
R-35b	02/07/12	5834.74	Transducer	825.4	848.5	Regional
R-35b	02/06/12	5834.647	Transducer	825.4	848.5	Regional
R-35b	02/05/12	5834.5	Transducer	825.4	848.5	Regional
R-35b	02/04/12	5834.613	Transducer	825.4	848.5	Regional
R-35b	02/03/12	5834.934	Transducer	825.4	848.5	Regional
R-35b	02/02/12	5834.752	Transducer	825.4	848.5	Regional
R-35b	02/01/12	5834.656	Transducer	825.4	848.5	Regional
R-35b	01/31/12	5834.807	Transducer	825.4	848.5	Regional
R-35b	01/30/12	5834.615	Transducer	825.4	848.5	Regional
R-35b	01/29/12	5834.455	Transducer	825.4	848.5	Regional
R-35b	01/28/12	5834.527	Transducer	825.4	848.5	Regional
R-35b	01/27/12	5834.813	Transducer	825.4	848.5	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35b	01/26/12	5834.626	Transducer	825.4	848.5	Regional
R-35b	01/25/12	5834.637	Transducer	825.4	848.5	Regional
R-35b	01/24/12	5834.876	Transducer	825.4	848.5	Regional
R-35b	01/23/12	5834.71	Transducer	825.4	848.5	Regional
R-35b	01/22/12	5835.163	Transducer	825.4	848.5	Regional
R-35b	01/21/12	5834.731	Transducer	825.4	848.5	Regional
R-35b	01/20/12	5834.88	Transducer	825.4	848.5	Regional
R-35b	01/19/12	5834.719	Transducer	825.4	848.5	Regional
R-35b	01/18/12	5834.629	Transducer	825.4	848.5	Regional
R-35b	01/17/12	5834.845	Transducer	825.4	848.5	Regional
R-35b	01/16/12	5834.856	Transducer	825.4	848.5	Regional
R-35b	01/15/12	5834.638	Transducer	825.4	848.5	Regional
R-35b	01/14/12	5834.556	Transducer	825.4	848.5	Regional
R-35b	01/13/12	5834.732	Transducer	825.4	848.5	Regional
R-35b	01/12/12	5834.75	Transducer	825.4	848.5	Regional
R-35b	01/11/12	5834.879	Transducer	825.4	848.5	Regional
R-35b	01/10/12	5834.683	Transducer	825.4	848.5	Regional
R-35b	01/09/12	5834.685	Transducer	825.4	848.5	Regional
R-35b	01/08/12	5834.947	Transducer	825.4	848.5	Regional
R-35b	01/07/12	5834.836	Transducer	825.4	848.5	Regional
R-35b	01/06/12	5834.845	Transducer	825.4	848.5	Regional
R-35b	01/05/12	5834.499	Transducer	825.4	848.5	Regional
R-35b	01/04/12	5834.575	Transducer	825.4	848.5	Regional
R-35b	01/03/12	5834.418	Transducer	825.4	848.5	Regional
R-35b	01/02/12	5834.311	Transducer	825.4	848.5	Regional
R-35b	01/01/12	5834.475	Transducer	825.4	848.5	Regional
R-35b	12/31/11	5834.744	Transducer	825.4	848.5	Regional
R-35b	12/30/11	5834.694	Transducer	825.4	848.5	Regional
R-35b	12/29/11	5834.613	Transducer	825.4	848.5	Regional
R-35b	12/28/11	5834.643	Transducer	825.4	848.5	Regional
R-35b	12/27/11	5834.561	Transducer	825.4	848.5	Regional
R-35b	12/26/11	5834.611	Transducer	825.4	848.5	Regional
R-35b	12/25/11	5834.414	Transducer	825.4	848.5	Regional
R-35b	12/24/11	5834.48	Transducer	825.4	848.5	Regional
R-35b	12/23/11	5834.573	Transducer	825.4	848.5	Regional
R-35b	12/22/11	5834.868	Transducer	825.4	848.5	Regional
R-35b	12/21/11	5834.873	Transducer	825.4	848.5	Regional
R-35b	12/20/11	5834.84	Transducer	825.4	848.5	Regional
R-35b	12/19/11	5834.963	Transducer	825.4	848.5	Regional
R-35b	12/18/11	5834.516	Transducer	825.4	848.5	Regional
R-35b	12/17/11	5834.391	Transducer	825.4	848.5	Regional
R-35b	12/16/11	5834.541	Transducer	825.4	848.5	Regional
R-35b	12/15/11	5834.665	Transducer	825.4	848.5	Regional
R-35b	12/14/11	5834.891	Transducer	825.4	848.5	Regional
R-35b	12/13/11	5834.776	Transducer	825.4	848.5	Regional
R-35b	12/12/11	5834.782	Transducer	825.4	848.5	Regional
R-35b	12/11/11	5834.627	Transducer	825.4	848.5	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35b	12/10/11	5834.466	Transducer	825.4	848.5	Regional
R-35b	12/09/11	5834.665	Transducer	825.4	848.5	Regional
R-35b	12/08/11	5834.689	Transducer	825.4	848.5	Regional
R-35b	12/07/11	5834.56	Transducer	825.4	848.5	Regional
R-35b	12/06/11	5834.634	Transducer	825.4	848.5	Regional
R-35b	12/05/11	5834.801	Transducer	825.4	848.5	Regional
R-35b	12/04/11	5834.76	Transducer	825.4	848.5	Regional
R-35b	12/03/11	5834.997	Transducer	825.4	848.5	Regional
R-35b	12/02/11	5834.639	Transducer	825.4	848.5	Regional
R-35b	12/01/11	5834.95	Transducer	825.4	848.5	Regional
R-35b	11/30/11	5834.6	Transducer	825.4	848.5	Regional
R-35b	11/29/11	5834.565	Transducer	825.4	848.5	Regional
R-35b	11/28/11	5834.43	Transducer	825.4	848.5	Regional
R-35b	11/27/11	5834.313	Transducer	825.4	848.5	Regional
R-35b	11/26/11	5834.758	Transducer	825.4	848.5	Regional
R-35b	11/25/11	5834.723	Transducer	825.4	848.5	Regional
R-35b	11/24/11	5834.538	Transducer	825.4	848.5	Regional
R-35b	11/23/11	5834.412	Transducer	825.4	848.5	Regional
R-35b	11/22/11	5834.568	Transducer	825.4	848.5	Regional
R-35b	11/21/11	5834.653	Transducer	825.4	848.5	Regional
R-35b	11/20/11	5834.752	Transducer	825.4	848.5	Regional
R-35b	11/19/11	5834.927	Transducer	825.4	848.5	Regional
R-35b	11/18/11	5834.724	Transducer	825.4	848.5	Regional
R-35b	11/17/11	5834.458	Transducer	825.4	848.5	Regional
R-35b	11/16/11	5834.752	Transducer	825.4	848.5	Regional
R-35b	11/15/11	5834.787	Transducer	825.4	848.5	Regional
R-35b	11/14/11	5834.876	Transducer	825.4	848.5	Regional
R-35b	11/13/11	5834.886	Transducer	825.4	848.5	Regional
R-35b	11/12/11	5834.84	Transducer	825.4	848.5	Regional
R-35b	11/11/11	5834.545	Transducer	825.4	848.5	Regional
R-35b	11/10/11	5834.33	Transducer	825.4	848.5	Regional
R-35b	11/09/11	5834.482	Transducer	825.4	848.5	Regional
R-35b	11/08/11	5834.866	Transducer	825.4	848.5	Regional
R-35b	11/07/11	5834.794	Transducer	825.4	848.5	Regional
R-35b	11/06/11	5834.868	Transducer	825.4	848.5	Regional
R-35b	11/05/11	5835.03	Transducer	825.4	848.5	Regional
R-35b	11/04/11	5834.689	Transducer	825.4	848.5	Regional
R-35b	11/03/11	5834.448	Transducer	825.4	848.5	Regional
R-35b	11/02/11	5834.935	Transducer	825.4	848.5	Regional
R-35b	11/01/11	5834.711	Transducer	825.4	848.5	Regional
R-35b	10/31/11	5834.54	Transducer	825.4	848.5	Regional
R-35b	10/30/11	5834.638	Transducer	825.4	848.5	Regional
R-35b	10/29/11	5834.554	Transducer	825.4	848.5	Regional
R-35b	10/28/11	5834.659	Transducer	825.4	848.5	Regional
R-35b	10/27/11	5834.813	Transducer	825.4	848.5	Regional
R-35b	10/26/11	5834.754	Transducer	825.4	848.5	Regional
R-35b	10/25/11	5834.686	Transducer	825.4	848.5	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35b	10/24/11	5834.567	Transducer	825.4	848.5	Regional
R-35b	10/23/11	5834.602	Transducer	825.4	848.5	Regional
R-35b	10/22/11	5834.597	Transducer	825.4	848.5	Regional
R-35b	10/21/11	5834.609	Transducer	825.4	848.5	Regional
R-35b	10/20/11	5834.734	Transducer	825.4	848.5	Regional
R-35b	10/19/11	5834.549	Transducer	825.4	848.5	Regional
R-35b	10/18/11	5834.616	Transducer	825.4	848.5	Regional
R-35b	10/17/11	5834.71	Transducer	825.4	848.5	Regional
R-35b	10/16/11	5834.589	Transducer	825.4	848.5	Regional
R-35b	10/15/11	5834.605	Transducer	825.4	848.5	Regional
R-35b	10/14/11	5834.691	Transducer	825.4	848.5	Regional
R-35b	10/13/11	5834.606	Transducer	825.4	848.5	Regional
R-35b	10/12/11	5834.74	Transducer	825.4	848.5	Regional
R-35b	10/11/11	5834.773	Transducer	825.4	848.5	Regional
R-35b	10/10/11	5834.679	Transducer	825.4	848.5	Regional
R-35b	10/09/11	5834.717	Transducer	825.4	848.5	Regional
R-35b	10/08/11	5834.907	Transducer	825.4	848.5	Regional
R-35b	10/07/11	5834.918	Transducer	825.4	848.5	Regional
R-35b	10/06/11	5834.997	Transducer	825.4	848.5	Regional
R-35b	10/05/11	5834.817	Transducer	825.4	848.5	Regional
R-35b	10/04/11	5834.673	Transducer	825.4	848.5	Regional
R-35b	10/03/11	5834.644	Transducer	825.4	848.5	Regional
R-35b	10/02/11	5834.629	Transducer	825.4	848.5	Regional
R-35b	10/01/11	5834.624	Transducer	825.4	848.5	Regional
R-35b	09/30/11	5834.492	Transducer	825.4	848.5	Regional
R-35b	09/29/11	5834.684	Transducer	825.4	848.5	Regional
R-35b	09/28/11	5834.626	Transducer	825.4	848.5	Regional
R-35b	09/27/11	5834.701	Transducer	825.4	848.5	Regional
R-35b	09/26/11	5834.825	Transducer	825.4	848.5	Regional
R-35b	09/25/11	5834.804	Transducer	825.4	848.5	Regional
R-35b	09/24/11	5834.664	Transducer	825.4	848.5	Regional
R-35b	09/23/11	5834.603	Transducer	825.4	848.5	Regional
R-35b	09/22/11	5834.594	Transducer	825.4	848.5	Regional
R-35b	09/22/11	5834.73	Transducer	825.4	848.5	Regional
R-35b	09/21/11	5834.74	Transducer	825.4	848.5	Regional
R-35b	09/20/11	5834.73	Transducer	825.4	848.5	Regional
R-35b	09/19/11	5834.64	Transducer	825.4	848.5	Regional
R-35b	09/18/11	5834.71	Transducer	825.4	848.5	Regional
R-35b	09/17/11	5834.78	Transducer	825.4	848.5	Regional
R-35b	09/16/11	5834.79	Transducer	825.4	848.5	Regional
R-35b	09/15/11	5834.76	Transducer	825.4	848.5	Regional
R-35b	09/14/11	5834.75	Transducer	825.4	848.5	Regional
R-35b	09/13/11	5834.64	Transducer	825.4	848.5	Regional
R-35b	09/12/11	5834.59	Transducer	825.4	848.5	Regional
R-35b	09/11/11	5834.61	Transducer	825.4	848.5	Regional
R-35b	09/10/11	5834.66	Transducer	825.4	848.5	Regional
R-35b	09/09/11	5834.62	Transducer	825.4	848.5	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35b	09/08/11	5834.51	Transducer	825.4	848.5	Regional
R-35b	09/07/11	5834.65	Transducer	825.4	848.5	Regional
R-35b	09/06/11	5834.66	Transducer	825.4	848.5	Regional
R-35b	09/05/11	5834.57	Transducer	825.4	848.5	Regional
R-35b	09/04/11	5834.66	Transducer	825.4	848.5	Regional
R-35b	09/03/11	5834.78	Transducer	825.4	848.5	Regional
R-35b	09/02/11	5834.69	Transducer	825.4	848.5	Regional
R-35b	09/01/11	5834.72	Transducer	825.4	848.5	Regional
R-35b	08/31/11	5834.8	Transducer	825.4	848.5	Regional
R-35b	08/30/11	5834.8	Transducer	825.4	848.5	Regional
R-35b	08/29/11	5834.78	Transducer	825.4	848.5	Regional
R-35b	08/28/11	5834.72	Transducer	825.4	848.5	Regional
R-35b	08/27/11	5834.62	Transducer	825.4	848.5	Regional
R-35b	08/26/11	5834.63	Transducer	825.4	848.5	Regional
R-35b	08/25/11	5834.65	Transducer	825.4	848.5	Regional
R-35b	08/24/11	5834.74	Transducer	825.4	848.5	Regional
R-35b	08/23/11	5834.72	Transducer	825.4	848.5	Regional
R-35b	08/22/11	5834.62	Transducer	825.4	848.5	Regional
R-35b	08/21/11	5834.72	Transducer	825.4	848.5	Regional
R-35b	08/20/11	5834.79	Transducer	825.4	848.5	Regional
R-35b	08/19/11	5834.77	Transducer	825.4	848.5	Regional
R-35b	08/18/11	5834.62	Transducer	825.4	848.5	Regional
R-35b	08/17/11	5834.66	Transducer	825.4	848.5	Regional
R-35b	08/16/11	5834.81	Transducer	825.4	848.5	Regional
R-35b	08/15/11	5834.77	Transducer	825.4	848.5	Regional
R-35b	08/14/11	5834.61	Transducer	825.4	848.5	Regional
R-35b	08/13/11	5834.74	Transducer	825.4	848.5	Regional
R-35b	08/12/11	5834.8	Transducer	825.4	848.5	Regional
R-35b	08/11/11	5834.82	Transducer	825.4	848.5	Regional
R-35b	08/10/11	5834.9	Transducer	825.4	848.5	Regional
R-35b	08/09/11	5834.86	Transducer	825.4	848.5	Regional
R-35b	08/08/11	5834.87	Transducer	825.4	848.5	Regional
R-35b	08/07/11	5834.84	Transducer	825.4	848.5	Regional
R-35b	08/06/11	5834.81	Transducer	825.4	848.5	Regional
R-35b	08/05/11	5834.82	Transducer	825.4	848.5	Regional
R-35b	08/04/11	5834.83	Transducer	825.4	848.5	Regional
R-35b	08/03/11	5834.8	Transducer	825.4	848.5	Regional
R-35b	08/02/11	5834.78	Transducer	825.4	848.5	Regional
R-35b	08/01/11	5834.7	Transducer	825.4	848.5	Regional
R-35b	07/31/11	5834.68	Transducer	825.4	848.5	Regional
R-35b	07/30/11	5834.68	Transducer	825.4	848.5	Regional
R-35b	07/29/11	5834.78	Transducer	825.4	848.5	Regional
R-35b	07/28/11	5834.9	Transducer	825.4	848.5	Regional
R-35b	07/27/11	5834.92	Transducer	825.4	848.5	Regional
R-35b	07/26/11	5834.86	Transducer	825.4	848.5	Regional
R-35b	07/25/11	5834.73	Transducer	825.4	848.5	Regional
R-35b	07/24/11	5834.79	Transducer	825.4	848.5	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35b	07/23/11	5834.9	Transducer	825.4	848.5	Regional
R-35b	07/22/11	5834.94	Transducer	825.4	848.5	Regional
R-35b	07/21/11	5834.92	Transducer	825.4	848.5	Regional
R-35b	07/20/11	5834.87	Transducer	825.4	848.5	Regional
R-35b	07/19/11	5834.77	Transducer	825.4	848.5	Regional
R-35b	07/18/11	5834.7	Transducer	825.4	848.5	Regional
R-35b	07/17/11	5834.79	Transducer	825.4	848.5	Regional
R-35b	07/16/11	5834.93	Transducer	825.4	848.5	Regional
R-35b	07/15/11	5834.98	Transducer	825.4	848.5	Regional
R-35b	07/14/11	5834.95	Transducer	825.4	848.5	Regional
R-35b	07/13/11	5834.9	Transducer	825.4	848.5	Regional
R-35b	07/12/11	5834.88	Transducer	825.4	848.5	Regional
R-35b	07/11/11	5834.87	Transducer	825.4	848.5	Regional
R-35b	07/10/11	5834.91	Transducer	825.4	848.5	Regional
R-35b	07/09/11	5834.96	Transducer	825.4	848.5	Regional
R-35b	07/08/11	5834.92	Transducer	825.4	848.5	Regional
R-35b	07/07/11	5834.85	Transducer	825.4	848.5	Regional
R-35b	07/06/11	5834.84	Transducer	825.4	848.5	Regional
R-35b	07/05/11	5834.84	Transducer	825.4	848.5	Regional
R-35b	07/04/11	5834.84	Transducer	825.4	848.5	Regional
R-35b	07/03/11	5834.77	Transducer	825.4	848.5	Regional
R-35b	07/02/11	5834.85	Transducer	825.4	848.5	Regional
R-35b	07/01/11	5834.9	Transducer	825.4	848.5	Regional
R-35b	06/30/11	5834.89	Transducer	825.4	848.5	Regional
R-35b	06/29/11	5834.81	Transducer	825.4	848.5	Regional
R-35b	06/28/11	5834.76	Transducer	825.4	848.5	Regional
R-35b	06/27/11	5834.93	Transducer	825.4	848.5	Regional
R-35b	06/26/11	5834.93	Transducer	825.4	848.5	Regional
R-35b	06/25/11	5834.92	Transducer	825.4	848.5	Regional
R-35b	06/22/11	5834.89	Transducer	825.4	848.5	Regional
R-35b	06/21/11	5835.01	Transducer	825.4	848.5	Regional
R-35b	06/20/11	5835.18	Transducer	825.4	848.5	Regional
R-35b	06/19/11	5835.07	Transducer	825.4	848.5	Regional
R-35b	06/18/11	5835.01	Transducer	825.4	848.5	Regional
R-35b	06/17/11	5835.16	Transducer	825.4	848.5	Regional
R-35b	06/16/11	5835.12	Transducer	825.4	848.5	Regional
R-35b	06/15/11	5834.94	Transducer	825.4	848.5	Regional
R-35b	06/14/11	5834.97	Transducer	825.4	848.5	Regional
R-35b	06/13/11	5835.02	Transducer	825.4	848.5	Regional
R-35b	06/12/11	5835.09	Transducer	825.4	848.5	Regional
R-35b	06/11/11	5835.01	Transducer	825.4	848.5	Regional
R-35b	06/10/11	5835.05	Transducer	825.4	848.5	Regional
R-35b	06/09/11	5835.1	Transducer	825.4	848.5	Regional
R-35b	06/08/11	5835.07	Transducer	825.4	848.5	Regional
R-35b	06/07/11	5835.09	Transducer	825.4	848.5	Regional
R-35b	06/06/11	5834.89	Transducer	825.4	848.5	Regional
R-35b	06/05/11	5834.75	Transducer	825.4	848.5	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35b	06/04/11	5834.93	Transducer	825.4	848.5	Regional
R-35b	06/03/11	5835.03	Transducer	825.4	848.5	Regional
R-35b	06/02/11	5834.94	Transducer	825.4	848.5	Regional
R-35b	06/01/11	5834.71	Transducer	825.4	848.5	Regional
R-35b	05/31/11	5834.81	Transducer	825.4	848.5	Regional
R-35b	05/30/11	5835.28	Transducer	825.4	848.5	Regional
R-35b	05/29/11	5835.28	Transducer	825.4	848.5	Regional
R-35b	05/28/11	5835.18	Transducer	825.4	848.5	Regional
R-35b	05/27/11	5835.13	Transducer	825.4	848.5	Regional
R-35b	05/26/11	5834.95	Transducer	825.4	848.5	Regional
R-35b	05/25/11	5835.06	Transducer	825.4	848.5	Regional
R-35b	05/24/11	5835.22	Transducer	825.4	848.5	Regional
R-35b	05/23/11	5835.1	Transducer	825.4	848.5	Regional
R-35b	05/22/11	5835.06	Transducer	825.4	848.5	Regional
R-35b	05/21/11	5835.08	Transducer	825.4	848.5	Regional
R-35b	05/20/11	5835.17	Transducer	825.4	848.5	Regional
R-35b	05/19/11	5835.37	Transducer	825.4	848.5	Regional
R-35b	05/18/11	5835.35	Transducer	825.4	848.5	Regional
R-35b	05/17/11	5835.26	Transducer	825.4	848.5	Regional
R-35b	05/16/11	5835.09	Transducer	825.4	848.5	Regional
R-35b	05/15/11	5835.09	Transducer	825.4	848.5	Regional
R-35b	05/14/11	5834.94	Transducer	825.4	848.5	Regional
R-35b	05/13/11	5834.91	Transducer	825.4	848.5	Regional
R-35b	05/12/11	5835.12	Transducer	825.4	848.5	Regional
R-35b	05/11/11	5835.4	Transducer	825.4	848.5	Regional
R-35b	05/10/11	5835.38	Transducer	825.4	848.5	Regional
R-35b	05/09/11	5835.37	Transducer	825.4	848.5	Regional
R-35b	05/08/11	5835.27	Transducer	825.4	848.5	Regional
R-35b	05/07/11	5835.23	Transducer	825.4	848.5	Regional
R-35b	05/06/11	5835.07	Transducer	825.4	848.5	Regional
R-35b	05/05/11	5835.03	Transducer	825.4	848.5	Regional
R-35b	05/04/11	5834.98	Transducer	825.4	848.5	Regional
R-35b	05/03/11	5834.81	Transducer	825.4	848.5	Regional
R-35b	05/02/11	5834.95	Transducer	825.4	848.5	Regional
R-35b	05/01/11	5835.24	Transducer	825.4	848.5	Regional
R-35b	04/30/11	5835.34	Transducer	825.4	848.5	Regional
R-35b	04/29/11	5835.22	Transducer	825.4	848.5	Regional
R-35b	04/28/11	5834.96	Transducer	825.4	848.5	Regional
R-35b	04/27/11	5835.35	Transducer	825.4	848.5	Regional
R-35b	04/26/11	5835.42	Transducer	825.4	848.5	Regional
R-35b	04/25/11	5835.31	Transducer	825.4	848.5	Regional
R-35b	04/24/11	5835.27	Transducer	825.4	848.5	Regional
R-35b	04/23/11	5835.32	Transducer	825.4	848.5	Regional
R-35b	04/22/11	5835.32	Transducer	825.4	848.5	Regional
R-35b	04/21/11	5835.34	Transducer	825.4	848.5	Regional
R-35b	04/20/11	5835.35	Transducer	825.4	848.5	Regional
R-35b	04/19/11	5835.57	Transducer	825.4	848.5	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35b	04/18/11	5835.46	Transducer	825.4	848.5	Regional
R-35b	04/17/11	5835.4	Transducer	825.4	848.5	Regional
R-35b	04/16/11	5835.29	Transducer	825.4	848.5	Regional
R-35b	04/15/11	5835.35	Transducer	825.4	848.5	Regional
R-35b	04/14/11	5835.52	Transducer	825.4	848.5	Regional
R-35b	04/13/11	5835.4	Transducer	825.4	848.5	Regional
R-35b	04/12/11	5835.2	Transducer	825.4	848.5	Regional
R-35b	04/11/11	5835.21	Transducer	825.4	848.5	Regional
R-35b	04/10/11	5835.47	Transducer	825.4	848.5	Regional
R-35b	04/09/11	5835.57	Transducer	825.4	848.5	Regional
R-35b	04/08/11	5835.58	Transducer	825.4	848.5	Regional
R-35b	04/07/11	5835.46	Transducer	825.4	848.5	Regional
R-35b	04/06/11	5835.49	Transducer	825.4	848.5	Regional
R-35b	04/05/11	5835.22	Transducer	825.4	848.5	Regional
R-35b	04/04/11	5835.41	Transducer	825.4	848.5	Regional
R-35b	04/03/11	5835.51	Transducer	825.4	848.5	Regional
R-35b	04/02/11	5835.34	Transducer	825.4	848.5	Regional
R-35b	04/01/11	5835.41	Transducer	825.4	848.5	Regional
R-35b	03/31/11	5835.39	Transducer	825.4	848.5	Regional
R-35b	03/30/11	5835.33	Transducer	825.4	848.5	Regional
R-35b	03/29/11	5835.49	Transducer	825.4	848.5	Regional
R-35b	03/28/11	5835.53	Transducer	825.4	848.5	Regional
R-35b	03/27/11	5835.63	Transducer	825.4	848.5	Regional
R-35b	03/26/11	5835.6	Transducer	825.4	848.5	Regional
R-35b	03/25/11	5835.48	Transducer	825.4	848.5	Regional
R-35b	03/24/11	5835.48	Transducer	825.4	848.5	Regional
R-35b	03/23/11	5835.47	Transducer	825.4	848.5	Regional
R-35b	03/22/11	5835.7	Transducer	825.4	848.5	Regional
R-35b	03/21/11	5835.47	Transducer	825.4	848.5	Regional
R-35b	03/20/11	5835.45	Transducer	825.4	848.5	Regional
R-35b	03/19/11	5835.33	Transducer	825.4	848.5	Regional
R-35b	03/18/11	5835.38	Transducer	825.4	848.5	Regional
R-35b	03/17/11	5835.44	Transducer	825.4	848.5	Regional
R-35b	03/16/11	5835.37	Transducer	825.4	848.5	Regional
R-35b	03/15/11	5835.37	Transducer	825.4	848.5	Regional
R-35b	03/14/11	5835.2	Transducer	825.4	848.5	Regional
R-35b	03/13/11	5835.43	Transducer	825.4	848.5	Regional
R-35b	03/12/11	5835.42	Transducer	825.4	848.5	Regional
R-35b	03/11/11	5835.29	Transducer	825.4	848.5	Regional
R-35b	03/10/11	5835.06	Transducer	825.4	848.5	Regional
R-35b	03/09/11	5835.29	Transducer	825.4	848.5	Regional
R-35b	03/08/11	5835.78	Transducer	825.4	848.5	Regional
R-35b	03/07/11	5835.69	Transducer	825.4	848.5	Regional
R-35b	03/06/11	5835.32	Transducer	825.4	848.5	Regional
R-35b	03/05/11	5835.14	Transducer	825.4	848.5	Regional
R-35b	03/04/11	5835.45	Transducer	825.4	848.5	Regional
R-35b	03/03/11	5835.31	Transducer	825.4	848.5	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35b	03/02/11	5835.24	Transducer	825.4	848.5	Regional
R-35b	03/01/11	5835.1	Transducer	825.4	848.5	Regional
R-35b	02/28/11	5835.35	Transducer	825.4	848.5	Regional
R-35b	02/27/11	5835.69	Transducer	825.4	848.5	Regional
R-35b	02/26/11	5835.56	Transducer	825.4	848.5	Regional
R-35b	02/25/11	5835.41	Transducer	825.4	848.5	Regional
R-35b	02/24/11	5835.58	Transducer	825.4	848.5	Regional
R-35b	02/23/11	5835.48	Transducer	825.4	848.5	Regional
R-35b	02/22/11	5835.48	Transducer	825.4	848.5	Regional
R-35b	02/21/11	5835.6	Transducer	825.4	848.5	Regional
R-35b	02/20/11	5835.69	Transducer	825.4	848.5	Regional
R-35b	02/19/11	5835.33	Transducer	825.4	848.5	Regional
R-35b	02/18/11	5835.38	Transducer	825.4	848.5	Regional
R-35b	02/17/11	5835.62	Transducer	825.4	848.5	Regional
R-35b	02/16/11	5835.43	Transducer	825.4	848.5	Regional
R-35b	02/15/11	5835.36	Transducer	825.4	848.5	Regional
R-35b	02/14/11	5835.23	Transducer	825.4	848.5	Regional
R-35b	02/13/11	5835.12	Transducer	825.4	848.5	Regional
R-35b	02/12/11	5835.08	Transducer	825.4	848.5	Regional
R-35b	02/11/11	5835.32	Transducer	825.4	848.5	Regional
R-35b	02/10/11	5835.35	Transducer	825.4	848.5	Regional
R-35b	02/09/11	5835.44	Transducer	825.4	848.5	Regional
R-35b	02/08/11	5835.64	Transducer	825.4	848.5	Regional
R-35b	02/07/11	5835.23	Transducer	825.4	848.5	Regional
R-35b	02/06/11	5835.58	Transducer	825.4	848.5	Regional
R-35b	02/05/11	5835.45	Transducer	825.4	848.5	Regional
R-35b	02/04/11	5835.35	Transducer	825.4	848.5	Regional
R-35b	02/03/11	5835.22	Transducer	825.4	848.5	Regional
R-35b	02/02/11	5835.45	Transducer	825.4	848.5	Regional
R-35b	02/01/11	5835.64	Transducer	825.4	848.5	Regional
R-35b	01/31/11	5835.55	Transducer	825.4	848.5	Regional
R-35b	01/30/11	5835.44	Transducer	825.4	848.5	Regional
R-35b	01/29/11	5835.44	Transducer	825.4	848.5	Regional
R-35b	01/28/11	5835.27	Transducer	825.4	848.5	Regional
R-35b	01/27/11	5835.22	Transducer	825.4	848.5	Regional
R-35b	01/26/11	5835.39	Transducer	825.4	848.5	Regional
R-35b	01/25/11	5835.27	Transducer	825.4	848.5	Regional
R-35b	01/24/11	5835.44	Transducer	825.4	848.5	Regional
R-35b	01/23/11	5835.5	Transducer	825.4	848.5	Regional
R-35b	01/22/11	5835.38	Transducer	825.4	848.5	Regional
R-35b	01/21/11	5835.37	Transducer	825.4	848.5	Regional
R-35b	01/20/11	5835.52	Transducer	825.4	848.5	Regional
R-35b	01/19/11	5835.47	Transducer	825.4	848.5	Regional
R-35b	01/18/11	5835.53	Transducer	825.4	848.5	Regional
R-35b	01/17/11	5835.44	Transducer	825.4	848.5	Regional
R-35b	01/16/11	5835.36	Transducer	825.4	848.5	Regional
R-35b	01/15/11	5835.19	Transducer	825.4	848.5	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35b	01/14/11	5835.28	Transducer	825.4	848.5	Regional
R-35b	01/13/11	5835.13	Transducer	825.4	848.5	Regional
R-35b	01/12/11	5835.11	Transducer	825.4	848.5	Regional
R-35b	01/11/11	5835.17	Transducer	825.4	848.5	Regional
R-35b	01/10/11	5835.65	Transducer	825.4	848.5	Regional
R-35b	01/09/11	5835.7	Transducer	825.4	848.5	Regional
R-35b	01/08/11	5835.5	Transducer	825.4	848.5	Regional
R-35b	01/07/11	5835.32	Transducer	825.4	848.5	Regional
R-35b	01/06/11	5835.19	Transducer	825.4	848.5	Regional
R-35b	01/05/11	5835.25	Transducer	825.4	848.5	Regional
R-35b	01/04/11	5835.32	Transducer	825.4	848.5	Regional
R-35b	01/03/11	5835.29	Transducer	825.4	848.5	Regional
R-35b	01/02/11	5835.13	Transducer	825.4	848.5	Regional
R-35b	01/01/11	5835.46	Transducer	825.4	848.5	Regional
R-35b	12/31/10	5836.01	Transducer	825.4	848.5	Regional
R-35b	12/30/10	5836.01	Transducer	825.4	848.5	Regional
R-35b	12/29/10	5835.59	Transducer	825.4	848.5	Regional
R-35b	12/28/10	5835.41	Transducer	825.4	848.5	Regional
R-35b	12/27/10	5835.43	Transducer	825.4	848.5	Regional
R-35b	12/26/10	5835.21	Transducer	825.4	848.5	Regional
R-35b	12/25/10	5835.15	Transducer	825.4	848.5	Regional
R-35b	12/24/10	5835.35	Transducer	825.4	848.5	Regional
R-35b	12/23/10	5835.34	Transducer	825.4	848.5	Regional
R-35b	12/22/10	5835.23	Transducer	825.4	848.5	Regional
R-35b	12/21/10	5835.41	Transducer	825.4	848.5	Regional
R-35b	12/20/10	5835.52	Transducer	825.4	848.5	Regional
R-35b	12/19/10	5835.48	Transducer	825.4	848.5	Regional
R-35b	12/18/10	5835.44	Transducer	825.4	848.5	Regional
R-35b	12/17/10	5835.57	Transducer	825.4	848.5	Regional
R-35b	12/16/10	5835.61	Transducer	825.4	848.5	Regional
R-35b	12/15/10	5835.64	Transducer	825.4	848.5	Regional
R-35b	12/14/10	5835.37	Transducer	825.4	848.5	Regional
R-35b	12/13/10	5835.2	Transducer	825.4	848.5	Regional
R-35b	12/12/10	5835.21	Transducer	825.4	848.5	Regional
R-35b	12/11/10	5835.46	Transducer	825.4	848.5	Regional
R-35b	12/10/10	5835.42	Transducer	825.4	848.5	Regional
R-35b	12/09/10	5835.32	Transducer	825.4	848.5	Regional
R-35b	12/08/10	5835.16	Transducer	825.4	848.5	Regional
R-35b	12/07/10	5835.32	Transducer	825.4	848.5	Regional
R-35b	12/06/10	5835.15	Transducer	825.4	848.5	Regional
R-35b	12/05/10	5835.21	Transducer	825.4	848.5	Regional
R-35b	12/04/10	5835.26	Transducer	825.4	848.5	Regional
R-35b	12/03/10	5835.21	Transducer	825.4	848.5	Regional
R-35b	12/02/10	5835.19	Transducer	825.4	848.5	Regional
R-35b	12/01/10	5835.06	Transducer	825.4	848.5	Regional
R-35b	11/30/10	5835.2	Transducer	825.4	848.5	Regional
R-35b	11/29/10	5835.73	Transducer	825.4	848.5	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-35b	11/28/10	5835.6	Transducer	825.4	848.5	Regional
R-35b	11/27/10	5835.2	Transducer	825.4	848.5	Regional
R-35b	11/26/10	5835.2	Transducer	825.4	848.5	Regional
R-35b	11/25/10	5835.58	Transducer	825.4	848.5	Regional
R-35b	11/24/10	5835.63	Transducer	825.4	848.5	Regional
R-35b	11/23/10	5835.3	Transducer	825.4	848.5	Regional
R-35b	11/22/10	5835.6	Transducer	825.4	848.5	Regional
R-35b	11/21/10	5835.51	Transducer	825.4	848.5	Regional
R-35b	11/20/10	5835.41	Transducer	825.4	848.5	Regional
R-35b	11/19/10	5835.25	Transducer	825.4	848.5	Regional
R-35b	11/18/10	5835.06	Transducer	825.4	848.5	Regional
R-35b	11/17/10	5835.55	Transducer	825.4	848.5	Regional
R-35b	11/16/10	5835.44	Transducer	825.4	848.5	Regional
R-35b	11/15/10	5835.64	Transducer	825.4	848.5	Regional
R-35b	11/14/10	5835.44	Transducer	825.4	848.5	Regional
R-35b	11/13/10	5835.19	Transducer	825.4	848.5	Regional
R-35b	11/12/10	5835.26	Transducer	825.4	848.5	Regional
R-35b	11/11/10	5835.52	Transducer	825.4	848.5	Regional
R-35b	11/10/10	5835.55	Transducer	825.4	848.5	Regional
R-35b	11/09/10	5835.69	Transducer	825.4	848.5	Regional
R-35b	11/08/10	5835.41	Transducer	825.4	848.5	Regional
R-35b	11/07/10	5835.31	Transducer	825.4	848.5	Regional
R-35b	11/06/10	5835.3	Transducer	825.4	848.5	Regional
R-35b	11/05/10	5835.23	Transducer	825.4	848.5	Regional
R-35b	11/04/10	5835.05	Transducer	825.4	848.5	Regional
R-35b	11/03/10	5835.07	Transducer	825.4	848.5	Regional
R-35b	11/02/10	5835.01	Transducer	825.4	848.5	Regional
R-35b	11/01/10	5835.25	Transducer	825.4	848.5	Regional
R-35b	10/31/10	5835.36	Transducer	825.4	848.5	Regional
R-35b	10/30/10	5835.21	Transducer	825.4	848.5	Regional
R-36	11/15/12	5838.52	Transducer	766.9	789.9	Regional
R-36	11/14/12	5838.43	Transducer	766.9	789.9	Regional
R-36	11/13/12	5838.42	Transducer	766.9	789.9	Regional
R-36	11/12/12	5838.45	Transducer	766.9	789.9	Regional
R-36	11/11/12	5838.92	Transducer	766.9	789.9	Regional
R-36	11/10/12	5838.95	Transducer	766.9	789.9	Regional
R-36	11/09/12	5838.8	Transducer	766.9	789.9	Regional
R-36	11/08/12	5838.67	Transducer	766.9	789.9	Regional
R-36	11/07/12	5838.5	Transducer	766.9	789.9	Regional
R-36	11/06/12	5838.52	Transducer	766.9	789.9	Regional
R-36	11/05/12	5838.47	Transducer	766.9	789.9	Regional
R-36	11/04/12	5838.51	Transducer	766.9	789.9	Regional
R-36	11/03/12	5838.62	Transducer	766.9	789.9	Regional
R-36	11/02/12	5838.66	Transducer	766.9	789.9	Regional
R-36	11/01/12	5838.54	Transducer	766.9	789.9	Regional
R-36	10/31/12	5838.56	Transducer	766.9	789.9	Regional
R-36	10/30/12	5838.53	Transducer	766.9	789.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-36	10/29/12	5838.52	Transducer	766.9	789.9	Regional
R-36	10/28/12	5838.57	Transducer	766.9	789.9	Regional
R-36	10/27/12	5838.47	Transducer	766.9	789.9	Regional
R-36	10/26/12	5838.54	Transducer	766.9	789.9	Regional
R-36	10/25/12	5838.76	Transducer	766.9	789.9	Regional
R-36	10/24/12	5838.73	Transducer	766.9	789.9	Regional
R-36	10/23/12	5838.71	Transducer	766.9	789.9	Regional
R-36	10/22/12	5838.76	Transducer	766.9	789.9	Regional
R-36	10/21/12	5838.81	Transducer	766.9	789.9	Regional
R-36	10/20/12	5838.71	Transducer	766.9	789.9	Regional
R-36	10/19/12	5838.62	Transducer	766.9	789.9	Regional
R-36	10/18/12	5838.71	Transducer	766.9	789.9	Regional
R-36	10/17/12	5838.88	Transducer	766.9	789.9	Regional
R-36	10/16/12	5838.71	Transducer	766.9	789.9	Regional
R-36	10/15/12	5838.52	Transducer	766.9	789.9	Regional
R-36	10/14/12	5838.56	Transducer	766.9	789.9	Regional
R-36	10/13/12	5838.72	Transducer	766.9	789.9	Regional
R-36	10/12/12	5838.62	Transducer	766.9	789.9	Regional
R-36	10/11/12	5838.67	Transducer	766.9	789.9	Regional
R-36	10/10/12	5838.64	Transducer	766.9	789.9	Regional
R-36	10/09/12	5838.73	Transducer	766.9	789.9	Regional
R-36	10/08/12	5838.71	Transducer	766.9	789.9	Regional
R-36	10/07/12	5838.7	Transducer	766.9	789.9	Regional
R-36	10/06/12	5838.74	Transducer	766.9	789.9	Regional
R-36	10/05/12	5838.69	Transducer	766.9	789.9	Regional
R-36	10/04/12	5838.68	Transducer	766.9	789.9	Regional
R-36	10/03/12	5838.78	Transducer	766.9	789.9	Regional
R-36	10/02/12	5838.61	Transducer	766.9	789.9	Regional
R-36	10/01/12	5838.64	Transducer	766.9	789.9	Regional
R-36	09/30/12	5838.64	Transducer	766.9	789.9	Regional
R-36	09/29/12	5838.64	Transducer	766.9	789.9	Regional
R-36	09/28/12	5838.67	Transducer	766.9	789.9	Regional
R-36	09/27/12	5838.7	Transducer	766.9	789.9	Regional
R-36	09/26/12	5838.79	Transducer	766.9	789.9	Regional
R-36	09/25/12	5838.73	Transducer	766.9	789.9	Regional
R-36	09/24/12	5838.65	Transducer	766.9	789.9	Regional
R-36	09/23/12	5838.62	Transducer	766.9	789.9	Regional
R-36	09/22/12	5838.66	Transducer	766.9	789.9	Regional
R-36	09/21/12	5838.69	Transducer	766.9	789.9	Regional
R-36	09/20/12	5838.67	Transducer	766.9	789.9	Regional
R-36	09/19/12	5838.66	Transducer	766.9	789.9	Regional
R-36	09/18/12	5838.65	Transducer	766.9	789.9	Regional
R-36	09/17/12	5838.77	Transducer	766.9	789.9	Regional
R-36	09/16/12	5838.66	Transducer	766.9	789.9	Regional
R-36	09/15/12	5838.48	Transducer	766.9	789.9	Regional
R-36	09/14/12	5838.41	Transducer	766.9	789.9	Regional
R-36	09/13/12	5838.59	Transducer	766.9	789.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-36	09/12/12	5838.74	Transducer	766.9	789.9	Regional
R-36	09/11/12	5838.71	Transducer	766.9	789.9	Regional
R-36	09/10/12	5838.6	Transducer	766.9	789.9	Regional
R-36	09/09/12	5838.52	Transducer	766.9	789.9	Regional
R-36	09/08/12	5838.53	Transducer	766.9	789.9	Regional
R-36	09/07/12	5838.72	Transducer	766.9	789.9	Regional
R-36	09/06/12	5838.69	Transducer	766.9	789.9	Regional
R-36	09/05/12	5838.73	Transducer	766.9	789.9	Regional
R-36	09/04/12	5838.66	Transducer	766.9	789.9	Regional
R-36	09/03/12	5838.69	Transducer	766.9	789.9	Regional
R-36	09/02/12	5838.66	Transducer	766.9	789.9	Regional
R-36	09/01/12	5838.65	Transducer	766.9	789.9	Regional
R-36	08/31/12	5838.7	Transducer	766.9	789.9	Regional
R-36	08/30/12	5838.68	Transducer	766.9	789.9	Regional
R-36	08/29/12	5838.58	Transducer	766.9	789.9	Regional
R-36	08/28/12	5838.51	Transducer	766.9	789.9	Regional
R-36	08/27/12	5838.57	Transducer	766.9	789.9	Regional
R-36	08/26/12	5838.71	Transducer	766.9	789.9	Regional
R-36	08/25/12	5838.83	Transducer	766.9	789.9	Regional
R-36	08/24/12	5838.8	Transducer	766.9	789.9	Regional
R-36	08/23/12	5838.72	Transducer	766.9	789.9	Regional
R-36	08/22/12	5838.68	Transducer	766.9	789.9	Regional
R-36	08/21/12	5838.72	Transducer	766.9	789.9	Regional
R-36	08/20/12	5838.71	Transducer	766.9	789.9	Regional
R-36	08/19/12	5838.74	Transducer	766.9	789.9	Regional
R-36	08/18/12	5838.7	Transducer	766.9	789.9	Regional
R-36	08/17/12	5838.65	Transducer	766.9	789.9	Regional
R-36	08/16/12	5838.79	Transducer	766.9	789.9	Regional
R-36	08/15/12	5838.81	Transducer	766.9	789.9	Regional
R-36	08/14/12	5838.72	Transducer	766.9	789.9	Regional
R-36	08/13/12	5838.62	Transducer	766.9	789.9	Regional
R-36	08/12/12	5838.76	Transducer	766.9	789.9	Regional
R-36	08/11/12	5838.74	Transducer	766.9	789.9	Regional
R-36	08/10/12	5838.67	Transducer	766.9	789.9	Regional
R-36	08/09/12	5838.62	Transducer	766.9	789.9	Regional
R-36	08/08/12	5838.66	Transducer	766.9	789.9	Regional
R-36	08/07/12	5838.66	Transducer	766.9	789.9	Regional
R-36	08/06/12	5838.48	Transducer	766.9	789.9	Regional
R-36	08/05/12	5838.58	Transducer	766.9	789.9	Regional
R-36	08/04/12	5838.78	Transducer	766.9	789.9	Regional
R-36	08/03/12	5838.7	Transducer	766.9	789.9	Regional
R-36	08/02/12	5838.73	Transducer	766.9	789.9	Regional
R-36	08/01/12	5838.65	Transducer	766.9	789.9	Regional
R-36	07/31/12	5838.71	Transducer	766.9	789.9	Regional
R-36	07/30/12	5838.7	Transducer	766.9	789.9	Regional
R-36	07/29/12	5838.63	Transducer	766.9	789.9	Regional
R-36	07/28/12	5838.62	Transducer	766.9	789.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-36	07/27/12	5838.68	Transducer	766.9	789.9	Regional
R-36	07/26/12	5838.81	Transducer	766.9	789.9	Regional
R-36	07/25/12	5838.81	Transducer	766.9	789.9	Regional
R-36	07/24/12	5838.69	Transducer	766.9	789.9	Regional
R-36	07/23/12	5838.65	Transducer	766.9	789.9	Regional
R-36	07/22/12	5838.63	Transducer	766.9	789.9	Regional
R-36	07/21/12	5838.59	Transducer	766.9	789.9	Regional
R-36	07/20/12	5838.58	Transducer	766.9	789.9	Regional
R-36	07/19/12	5838.64	Transducer	766.9	789.9	Regional
R-36	07/18/12	5838.77	Transducer	766.9	789.9	Regional
R-36	07/17/12	5838.82	Transducer	766.9	789.9	Regional
R-36	07/16/12	5838.76	Manual	766.9	789.9	Regional
R-36	07/16/12	5838.78	Transducer	766.9	789.9	Regional
R-36	07/15/12	5838.73	Transducer	766.9	789.9	Regional
R-36	07/14/12	5838.69	Transducer	766.9	789.9	Regional
R-36	07/13/12	5838.69	Transducer	766.9	789.9	Regional
R-36	07/12/12	5838.67	Transducer	766.9	789.9	Regional
R-36	07/11/12	5838.61	Transducer	766.9	789.9	Regional
R-36	07/10/12	5838.6	Transducer	766.9	789.9	Regional
R-36	07/09/12	5838.6	Transducer	766.9	789.9	Regional
R-36	07/08/12	5838.56	Transducer	766.9	789.9	Regional
R-36	07/07/12	5838.61	Transducer	766.9	789.9	Regional
R-36	07/06/12	5838.68	Transducer	766.9	789.9	Regional
R-36	07/05/12	5838.75	Transducer	766.9	789.9	Regional
R-36	07/04/12	5838.76	Transducer	766.9	789.9	Regional
R-36	07/03/12	5838.75	Transducer	766.9	789.9	Regional
R-36	07/02/12	5838.76	Transducer	766.9	789.9	Regional
R-36	07/01/12	5838.79	Transducer	766.9	789.9	Regional
R-36	06/30/12	5838.76	Transducer	766.9	789.9	Regional
R-36	06/29/12	5838.62	Transducer	766.9	789.9	Regional
R-36	06/28/12	5838.65	Transducer	766.9	789.9	Regional
R-36	06/27/12	5838.76	Transducer	766.9	789.9	Regional
R-36	06/26/12	5838.7	Transducer	766.9	789.9	Regional
R-36	06/25/12	5838.61	Transducer	766.9	789.9	Regional
R-36	06/24/12	5838.68	Transducer	766.9	789.9	Regional
R-36	06/23/12	5838.79	Transducer	766.9	789.9	Regional
R-36	06/22/12	5838.64	Transducer	766.9	789.9	Regional
R-36	06/21/12	5838.71	Transducer	766.9	789.9	Regional
R-36	06/20/12	5838.94	Transducer	766.9	789.9	Regional
R-36	06/19/12	5838.93	Transducer	766.9	789.9	Regional
R-36	06/18/12	5838.87	Transducer	766.9	789.9	Regional
R-36	06/17/12	5838.58	Transducer	766.9	789.9	Regional
R-36	06/16/12	5838.74	Transducer	766.9	789.9	Regional
R-36	06/15/12	5838.86	Transducer	766.9	789.9	Regional
R-36	06/14/12	5838.87	Transducer	766.9	789.9	Regional
R-36	06/13/12	5838.76	Transducer	766.9	789.9	Regional
R-36	06/12/12	5838.64	Transducer	766.9	789.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-36	06/11/12	5838.65	Transducer	766.9	789.9	Regional
R-36	06/10/12	5838.95	Transducer	766.9	789.9	Regional
R-36	06/09/12	5838.9	Transducer	766.9	789.9	Regional
R-36	06/08/12	5838.78	Transducer	766.9	789.9	Regional
R-36	06/07/12	5838.88	Transducer	766.9	789.9	Regional
R-36	06/06/12	5838.84	Transducer	766.9	789.9	Regional
R-36	06/06/12	5838.639	Transducer	766.9	789.9	Regional
R-36	06/05/12	5838.547	Transducer	766.9	789.9	Regional
R-36	06/04/12	5838.521	Transducer	766.9	789.9	Regional
R-36	06/03/12	5838.606	Transducer	766.9	789.9	Regional
R-36	06/02/12	5838.63	Transducer	766.9	789.9	Regional
R-36	06/01/12	5838.564	Transducer	766.9	789.9	Regional
R-36	05/31/12	5838.613	Transducer	766.9	789.9	Regional
R-36	05/30/12	5838.589	Transducer	766.9	789.9	Regional
R-36	05/29/12	5838.535	Transducer	766.9	789.9	Regional
R-36	05/28/12	5838.574	Transducer	766.9	789.9	Regional
R-36	05/27/12	5838.7	Transducer	766.9	789.9	Regional
R-36	05/26/12	5838.747	Transducer	766.9	789.9	Regional
R-36	05/25/12	5838.88	Transducer	766.9	789.9	Regional
R-36	05/24/12	5839.021	Transducer	766.9	789.9	Regional
R-36	05/23/12	5838.839	Transducer	766.9	789.9	Regional
R-36	05/22/12	5838.54	Transducer	766.9	789.9	Regional
R-36	05/21/12	5838.429	Transducer	766.9	789.9	Regional
R-36	05/20/12	5838.602	Transducer	766.9	789.9	Regional
R-36	05/19/12	5838.836	Transducer	766.9	789.9	Regional
R-36	05/18/12	5838.842	Transducer	766.9	789.9	Regional
R-36	05/17/12	5838.653	Transducer	766.9	789.9	Regional
R-36	05/16/12	5838.482	Transducer	766.9	789.9	Regional
R-36	05/15/12	5838.448	Transducer	766.9	789.9	Regional
R-36	05/14/12	5838.447	Transducer	766.9	789.9	Regional
R-36	05/13/12	5838.373	Transducer	766.9	789.9	Regional
R-36	05/12/12	5838.44	Transducer	766.9	789.9	Regional
R-36	05/11/12	5838.737	Transducer	766.9	789.9	Regional
R-36	05/10/12	5838.627	Transducer	766.9	789.9	Regional
R-36	05/09/12	5838.471	Transducer	766.9	789.9	Regional
R-36	05/08/12	5838.504	Transducer	766.9	789.9	Regional
R-36	05/07/12	5838.609	Transducer	766.9	789.9	Regional
R-36	05/06/12	5838.669	Transducer	766.9	789.9	Regional
R-36	05/05/12	5838.632	Transducer	766.9	789.9	Regional
R-36	05/04/12	5838.611	Transducer	766.9	789.9	Regional
R-36	05/03/12	5838.684	Transducer	766.9	789.9	Regional
R-36	05/02/12	5838.766	Transducer	766.9	789.9	Regional
R-36	05/01/12	5838.752	Transducer	766.9	789.9	Regional
R-36	04/30/12	5838.642	Transducer	766.9	789.9	Regional
R-36	04/29/12	5838.73	Transducer	766.9	789.9	Regional
R-36	04/28/12	5838.755	Transducer	766.9	789.9	Regional
R-36	04/27/12	5838.794	Transducer	766.9	789.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-36	04/26/12	5838.596	Transducer	766.9	789.9	Regional
R-36	04/25/12	5838.658	Transducer	766.9	789.9	Regional
R-36	04/24/12	5838.563	Transducer	766.9	789.9	Regional
R-36	04/23/12	5838.419	Transducer	766.9	789.9	Regional
R-36	04/22/12	5838.461	Transducer	766.9	789.9	Regional
R-36	04/21/12	5838.511	Transducer	766.9	789.9	Regional
R-36	04/20/12	5838.588	Transducer	766.9	789.9	Regional
R-36	04/19/12	5838.667	Transducer	766.9	789.9	Regional
R-36	04/18/12	5838.519	Transducer	766.9	789.9	Regional
R-36	04/17/12	5838.437	Transducer	766.9	789.9	Regional
R-36	04/16/12	5838.583	Transducer	766.9	789.9	Regional
R-36	04/15/12	5838.948	Transducer	766.9	789.9	Regional
R-36	04/14/12	5838.979	Transducer	766.9	789.9	Regional
R-36	04/13/12	5838.765	Transducer	766.9	789.9	Regional
R-36	04/12/12	5838.792	Transducer	766.9	789.9	Regional
R-36	04/11/12	5838.58	Transducer	766.9	789.9	Regional
R-36	04/10/12	5838.524	Transducer	766.9	789.9	Regional
R-36	04/09/12	5838.441	Transducer	766.9	789.9	Regional
R-36	04/08/12	5838.269	Transducer	766.9	789.9	Regional
R-36	04/07/12	5838.53	Transducer	766.9	789.9	Regional
R-36	04/06/12	5838.698	Transducer	766.9	789.9	Regional
R-36	04/05/12	5838.679	Transducer	766.9	789.9	Regional
R-36	04/04/12	5838.646	Transducer	766.9	789.9	Regional
R-36	04/03/12	5838.834	Transducer	766.9	789.9	Regional
R-36	04/02/12	5838.977	Transducer	766.9	789.9	Regional
R-36	04/01/12	5838.752	Transducer	766.9	789.9	Regional
R-36	03/31/12	5838.639	Transducer	766.9	789.9	Regional
R-36	03/30/12	5838.661	Transducer	766.9	789.9	Regional
R-36	03/29/12	5838.676	Transducer	766.9	789.9	Regional
R-36	03/28/12	5838.602	Transducer	766.9	789.9	Regional
R-36	03/27/12	5838.637	Transducer	766.9	789.9	Regional
R-36	03/26/12	5838.661	Transducer	766.9	789.9	Regional
R-36	03/25/12	5838.524	Transducer	766.9	789.9	Regional
R-36	03/24/12	5838.533	Transducer	766.9	789.9	Regional
R-36	03/23/12	5838.622	Transducer	766.9	789.9	Regional
R-36	03/22/12	5838.699	Transducer	766.9	789.9	Regional
R-36	03/21/12	5838.706	Transducer	766.9	789.9	Regional
R-36	03/20/12	5839.016	Transducer	766.9	789.9	Regional
R-36	03/19/12	5839.041	Transducer	766.9	789.9	Regional
R-36	03/18/12	5838.93	Transducer	766.9	789.9	Regional
R-36	03/17/12	5838.765	Transducer	766.9	789.9	Regional
R-36	03/16/12	5838.63	Transducer	766.9	789.9	Regional
R-36	03/15/12	5838.58	Transducer	766.9	789.9	Regional
R-36	03/14/12	5838.654	Transducer	766.9	789.9	Regional
R-36	03/13/12	5838.604	Transducer	766.9	789.9	Regional
R-36	03/12/12	5838.763	Transducer	766.9	789.9	Regional
R-36	03/11/12	5838.825	Transducer	766.9	789.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-36	03/10/12	5838.477	Transducer	766.9	789.9	Regional
R-36	03/09/12	5838.287	Transducer	766.9	789.9	Regional
R-36	03/08/12	5838.792	Transducer	766.9	789.9	Regional
R-36	03/07/12	5839.005	Transducer	766.9	789.9	Regional
R-36	03/06/12	5838.788	Transducer	766.9	789.9	Regional
R-36	03/06/12	5838.657	Transducer	766.9	789.9	Regional
R-36	03/05/12	5838.458	Transducer	766.9	789.9	Regional
R-36	03/04/12	5838.465	Transducer	766.9	789.9	Regional
R-36	03/03/12	5838.641	Transducer	766.9	789.9	Regional
R-36	03/02/12	5838.914	Transducer	766.9	789.9	Regional
R-36	03/01/12	5838.782	Transducer	766.9	789.9	Regional
R-36	02/29/12	5838.666	Transducer	766.9	789.9	Regional
R-36	02/28/12	5838.831	Transducer	766.9	789.9	Regional
R-36	02/27/12	5838.669	Transducer	766.9	789.9	Regional
R-36	02/26/12	5838.8	Transducer	766.9	789.9	Regional
R-36	02/25/12	5838.518	Transducer	766.9	789.9	Regional
R-36	02/24/12	5838.687	Transducer	766.9	789.9	Regional
R-36	02/23/12	5838.93	Transducer	766.9	789.9	Regional
R-36	02/22/12	5838.643	Transducer	766.9	789.9	Regional
R-36	02/21/12	5838.642	Transducer	766.9	789.9	Regional
R-36	02/20/12	5838.973	Transducer	766.9	789.9	Regional
R-36	02/19/12	5838.775	Transducer	766.9	789.9	Regional
R-36	02/18/12	5838.776	Transducer	766.9	789.9	Regional
R-36	02/17/12	5838.695	Transducer	766.9	789.9	Regional
R-36	02/16/12	5838.706	Transducer	766.9	789.9	Regional
R-36	02/15/12	5839.046	Transducer	766.9	789.9	Regional
R-36	02/14/12	5838.973	Transducer	766.9	789.9	Regional
R-36	02/13/12	5839.043	Transducer	766.9	789.9	Regional
R-36	02/12/12	5838.685	Transducer	766.9	789.9	Regional
R-36	02/11/12	5838.664	Transducer	766.9	789.9	Regional
R-36	02/10/12	5838.661	Transducer	766.9	789.9	Regional
R-36	02/09/12	5838.665	Transducer	766.9	789.9	Regional
R-36	02/08/12	5838.551	Transducer	766.9	789.9	Regional
R-36	02/07/12	5838.75	Transducer	766.9	789.9	Regional
R-36	02/06/12	5838.653	Transducer	766.9	789.9	Regional
R-36	02/05/12	5838.516	Transducer	766.9	789.9	Regional
R-36	02/04/12	5838.637	Transducer	766.9	789.9	Regional
R-36	02/03/12	5838.958	Transducer	766.9	789.9	Regional
R-36	02/02/12	5838.762	Transducer	766.9	789.9	Regional
R-36	02/01/12	5838.663	Transducer	766.9	789.9	Regional
R-36	01/31/12	5838.809	Transducer	766.9	789.9	Regional
R-36	01/30/12	5838.61	Transducer	766.9	789.9	Regional
R-36	01/29/12	5838.457	Transducer	766.9	789.9	Regional
R-36	01/28/12	5838.54	Transducer	766.9	789.9	Regional
R-36	01/27/12	5838.811	Transducer	766.9	789.9	Regional
R-36	01/26/12	5838.649	Transducer	766.9	789.9	Regional
R-36	01/25/12	5838.674	Transducer	766.9	789.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-36	01/24/12	5838.92	Transducer	766.9	789.9	Regional
R-36	01/23/12	5838.765	Transducer	766.9	789.9	Regional
R-36	01/22/12	5839.205	Transducer	766.9	789.9	Regional
R-36	01/21/12	5838.776	Transducer	766.9	789.9	Regional
R-36	01/20/12	5838.93	Transducer	766.9	789.9	Regional
R-36	01/19/12	5838.762	Transducer	766.9	789.9	Regional
R-36	01/18/12	5838.677	Transducer	766.9	789.9	Regional
R-36	01/17/12	5838.896	Transducer	766.9	789.9	Regional
R-36	01/16/12	5838.895	Transducer	766.9	789.9	Regional
R-36	01/15/12	5838.678	Transducer	766.9	789.9	Regional
R-36	01/14/12	5838.612	Transducer	766.9	789.9	Regional
R-36	01/13/12	5838.802	Transducer	766.9	789.9	Regional
R-36	01/12/12	5838.822	Transducer	766.9	789.9	Regional
R-36	01/11/12	5838.942	Transducer	766.9	789.9	Regional
R-36	01/10/12	5838.755	Transducer	766.9	789.9	Regional
R-36	01/09/12	5838.767	Transducer	766.9	789.9	Regional
R-36	01/08/12	5839.019	Transducer	766.9	789.9	Regional
R-36	01/07/12	5838.902	Transducer	766.9	789.9	Regional
R-36	01/06/12	5838.895	Transducer	766.9	789.9	Regional
R-36	01/05/12	5838.541	Transducer	766.9	789.9	Regional
R-36	01/04/12	5838.624	Transducer	766.9	789.9	Regional
R-36	01/03/12	5838.467	Transducer	766.9	789.9	Regional
R-36	01/02/12	5838.381	Transducer	766.9	789.9	Regional
R-36	01/01/12	5838.541	Transducer	766.9	789.9	Regional
R-36	12/31/11	5838.815	Transducer	766.9	789.9	Regional
R-36	12/30/11	5838.77	Transducer	766.9	789.9	Regional
R-36	12/29/11	5838.678	Transducer	766.9	789.9	Regional
R-36	12/28/11	5838.709	Transducer	766.9	789.9	Regional
R-36	12/27/11	5838.623	Transducer	766.9	789.9	Regional
R-36	12/26/11	5838.664	Transducer	766.9	789.9	Regional
R-36	12/25/11	5838.483	Transducer	766.9	789.9	Regional
R-36	12/24/11	5838.556	Transducer	766.9	789.9	Regional
R-36	12/23/11	5838.665	Transducer	766.9	789.9	Regional
R-36	12/22/11	5838.976	Transducer	766.9	789.9	Regional
R-36	12/21/11	5838.972	Transducer	766.9	789.9	Regional
R-36	12/20/11	5838.924	Transducer	766.9	789.9	Regional
R-36	12/19/11	5839.032	Transducer	766.9	789.9	Regional
R-36	12/18/11	5838.581	Transducer	766.9	789.9	Regional
R-36	12/17/11	5838.47	Transducer	766.9	789.9	Regional
R-36	12/16/11	5838.631	Transducer	766.9	789.9	Regional
R-36	12/15/11	5838.758	Transducer	766.9	789.9	Regional
R-36	12/14/11	5838.986	Transducer	766.9	789.9	Regional
R-36	12/13/11	5838.87	Transducer	766.9	789.9	Regional
R-36	12/12/11	5838.866	Transducer	766.9	789.9	Regional
R-36	12/11/11	5838.709	Transducer	766.9	789.9	Regional
R-36	12/10/11	5838.563	Transducer	766.9	789.9	Regional
R-36	12/09/11	5838.755	Transducer	766.9	789.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-36	12/08/11	5838.786	Transducer	766.9	789.9	Regional
R-36	12/07/11	5838.657	Transducer	766.9	789.9	Regional
R-36	12/06/11	5838.741	Transducer	766.9	789.9	Regional
R-36	12/05/11	5838.924	Transducer	766.9	789.9	Regional
R-36	12/04/11	5838.888	Transducer	766.9	789.9	Regional
R-36	12/03/11	5839.114	Transducer	766.9	789.9	Regional
R-36	12/02/11	5838.75	Transducer	766.9	789.9	Regional
R-36	12/01/11	5839.049	Transducer	766.9	789.9	Regional
R-36	11/30/11	5838.687	Transducer	766.9	789.9	Regional
R-36	11/29/11	5838.656	Transducer	766.9	789.9	Regional
R-36	11/28/11	5838.53	Transducer	766.9	789.9	Regional
R-36	11/27/11	5838.417	Transducer	766.9	789.9	Regional
R-36	11/26/11	5838.868	Transducer	766.9	789.9	Regional
R-36	11/25/11	5838.825	Transducer	766.9	789.9	Regional
R-36	11/24/11	5838.642	Transducer	766.9	789.9	Regional
R-36	11/23/11	5838.519	Transducer	766.9	789.9	Regional
R-36	11/22/11	5838.682	Transducer	766.9	789.9	Regional
R-36	11/21/11	5838.787	Transducer	766.9	789.9	Regional
R-36	11/20/11	5838.884	Transducer	766.9	789.9	Regional
R-36	11/19/11	5839.059	Transducer	766.9	789.9	Regional
R-36	11/18/11	5838.851	Transducer	766.9	789.9	Regional
R-36	11/17/11	5838.599	Transducer	766.9	789.9	Regional
R-36	11/16/11	5838.898	Transducer	766.9	789.9	Regional
R-36	11/15/11	5838.938	Transducer	766.9	789.9	Regional
R-36	11/14/11	5839.006	Transducer	766.9	789.9	Regional
R-36	11/13/11	5839.015	Transducer	766.9	789.9	Regional
R-36	11/12/11	5838.959	Transducer	766.9	789.9	Regional
R-36	11/11/11	5838.658	Transducer	766.9	789.9	Regional
R-36	11/10/11	5838.463	Transducer	766.9	789.9	Regional
R-36	11/09/11	5838.644	Transducer	766.9	789.9	Regional
R-36	11/08/11	5839.023	Transducer	766.9	789.9	Regional
R-36	11/07/11	5838.953	Transducer	766.9	789.9	Regional
R-36	11/06/11	5839.034	Transducer	766.9	789.9	Regional
R-36	11/05/11	5839.177	Transducer	766.9	789.9	Regional
R-36	11/04/11	5838.84	Transducer	766.9	789.9	Regional
R-36	11/03/11	5838.606	Transducer	766.9	789.9	Regional
R-36	11/02/11	5839.084	Transducer	766.9	789.9	Regional
R-36	11/01/11	5838.858	Transducer	766.9	789.9	Regional
R-36	10/31/11	5838.699	Transducer	766.9	789.9	Regional
R-36	10/30/11	5838.806	Transducer	766.9	789.9	Regional
R-36	10/29/11	5838.707	Transducer	766.9	789.9	Regional
R-36	10/28/11	5838.827	Transducer	766.9	789.9	Regional
R-36	10/27/11	5838.986	Transducer	766.9	789.9	Regional
R-36	10/26/11	5838.919	Transducer	766.9	789.9	Regional
R-36	10/25/11	5838.84	Transducer	766.9	789.9	Regional
R-36	10/24/11	5838.73	Transducer	766.9	789.9	Regional
R-36	10/23/11	5838.763	Transducer	766.9	789.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-36	10/22/11	5838.763	Transducer	766.9	789.9	Regional
R-36	10/21/11	5838.778	Transducer	766.9	789.9	Regional
R-36	10/20/11	5838.899	Transducer	766.9	789.9	Regional
R-36	10/19/11	5838.715	Transducer	766.9	789.9	Regional
R-36	10/18/11	5838.78	Transducer	766.9	789.9	Regional
R-36	10/17/11	5838.866	Transducer	766.9	789.9	Regional
R-36	10/16/11	5838.758	Transducer	766.9	789.9	Regional
R-36	10/15/11	5838.78	Transducer	766.9	789.9	Regional
R-36	10/14/11	5838.857	Transducer	766.9	789.9	Regional
R-36	10/13/11	5838.776	Transducer	766.9	789.9	Regional
R-36	10/12/11	5838.918	Transducer	766.9	789.9	Regional
R-36	10/11/11	5838.95	Transducer	766.9	789.9	Regional
R-36	10/10/11	5838.869	Transducer	766.9	789.9	Regional
R-36	10/09/11	5838.912	Transducer	766.9	789.9	Regional
R-36	10/08/11	5839.096	Transducer	766.9	789.9	Regional
R-36	10/07/11	5839.108	Transducer	766.9	789.9	Regional
R-36	10/06/11	5839.159	Transducer	766.9	789.9	Regional
R-36	10/05/11	5838.979	Transducer	766.9	789.9	Regional
R-36	10/04/11	5838.843	Transducer	766.9	789.9	Regional
R-36	10/03/11	5838.808	Transducer	766.9	789.9	Regional
R-36	10/02/11	5838.785	Transducer	766.9	789.9	Regional
R-36	10/01/11	5838.782	Transducer	766.9	789.9	Regional
R-36	09/30/11	5838.668	Transducer	766.9	789.9	Regional
R-36	09/29/11	5838.865	Transducer	766.9	789.9	Regional
R-36	09/28/11	5838.796	Transducer	766.9	789.9	Regional
R-36	09/27/11	5838.887	Transducer	766.9	789.9	Regional
R-36	09/26/11	5839.006	Transducer	766.9	789.9	Regional
R-36	09/25/11	5838.968	Transducer	766.9	789.9	Regional
R-36	09/24/11	5838.82	Transducer	766.9	789.9	Regional
R-36	09/23/11	5838.772	Transducer	766.9	789.9	Regional
R-36	09/22/11	5838.886	Transducer	766.9	789.9	Regional
R-36	09/21/11	5838.898	Transducer	766.9	789.9	Regional
R-36	09/20/11	5838.889	Transducer	766.9	789.9	Regional
R-36	09/19/11	5838.795	Transducer	766.9	789.9	Regional
R-36	09/18/11	5838.873	Transducer	766.9	789.9	Regional
R-36	09/17/11	5838.942	Transducer	766.9	789.9	Regional
R-36	09/16/11	5838.963	Transducer	766.9	789.9	Regional
R-36	09/15/11	5838.926	Transducer	766.9	789.9	Regional
R-36	09/14/11	5838.898	Transducer	766.9	789.9	Regional
R-36	09/13/11	5838.808	Transducer	766.9	789.9	Regional
R-36	09/12/11	5838.754	Transducer	766.9	789.9	Regional
R-36	09/11/11	5838.784	Transducer	766.9	789.9	Regional
R-36	09/10/11	5838.813	Transducer	766.9	789.9	Regional
R-36	09/09/11	5838.779	Transducer	766.9	789.9	Regional
R-36	09/08/11	5838.67	Transducer	766.9	789.9	Regional
R-36	09/07/11	5838.832	Transducer	766.9	789.9	Regional
R-36	09/06/11	5838.833	Transducer	766.9	789.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-36	09/05/11	5838.754	Transducer	766.9	789.9	Regional
R-36	09/04/11	5838.84	Transducer	766.9	789.9	Regional
R-36	09/03/11	5838.958	Transducer	766.9	789.9	Regional
R-36	09/02/11	5838.871	Transducer	766.9	789.9	Regional
R-36	09/01/11	5838.902	Transducer	766.9	789.9	Regional
R-36	08/31/11	5838.977	Transducer	766.9	789.9	Regional
R-36	08/30/11	5838.968	Transducer	766.9	789.9	Regional
R-36	08/29/11	5838.937	Transducer	766.9	789.9	Regional
R-36	08/28/11	5838.864	Transducer	766.9	789.9	Regional
R-36	08/27/11	5838.777	Transducer	766.9	789.9	Regional
R-36	08/26/11	5838.783	Transducer	766.9	789.9	Regional
R-36	08/25/11	5838.809	Transducer	766.9	789.9	Regional
R-36	08/24/11	5838.89	Transducer	766.9	789.9	Regional
R-36	08/24/11	5838.895	Transducer	766.9	789.9	Regional
R-36	08/23/11	5838.86	Transducer	766.9	789.9	Regional
R-36	08/22/11	5838.78	Transducer	766.9	789.9	Regional
R-36	08/21/11	5838.86	Transducer	766.9	789.9	Regional
R-36	08/20/11	5838.94	Transducer	766.9	789.9	Regional
R-36	08/19/11	5838.9	Transducer	766.9	789.9	Regional
R-36	08/18/11	5838.76	Transducer	766.9	789.9	Regional
R-36	08/17/11	5838.81	Transducer	766.9	789.9	Regional
R-36	08/16/11	5838.94	Transducer	766.9	789.9	Regional
R-36	08/15/11	5838.9	Transducer	766.9	789.9	Regional
R-36	08/14/11	5838.75	Transducer	766.9	789.9	Regional
R-36	08/13/11	5838.89	Transducer	766.9	789.9	Regional
R-36	08/12/11	5838.95	Transducer	766.9	789.9	Regional
R-36	08/11/11	5838.96	Transducer	766.9	789.9	Regional
R-36	08/10/11	5839.03	Transducer	766.9	789.9	Regional
R-36	08/09/11	5838.99	Transducer	766.9	789.9	Regional
R-36	08/08/11	5839	Transducer	766.9	789.9	Regional
R-36	08/07/11	5838.96	Transducer	766.9	789.9	Regional
R-36	08/06/11	5838.92	Transducer	766.9	789.9	Regional
R-36	08/05/11	5838.94	Transducer	766.9	789.9	Regional
R-36	08/04/11	5838.93	Transducer	766.9	789.9	Regional
R-36	08/03/11	5838.9	Transducer	766.9	789.9	Regional
R-36	08/02/11	5838.87	Transducer	766.9	789.9	Regional
R-36	08/01/11	5838.79	Transducer	766.9	789.9	Regional
R-36	07/31/11	5838.77	Transducer	766.9	789.9	Regional
R-36	07/30/11	5838.78	Transducer	766.9	789.9	Regional
R-36	07/29/11	5838.88	Transducer	766.9	789.9	Regional
R-36	07/28/11	5838.98	Transducer	766.9	789.9	Regional
R-36	07/27/11	5839	Transducer	766.9	789.9	Regional
R-36	07/26/11	5838.93	Transducer	766.9	789.9	Regional
R-36	07/25/11	5838.81	Transducer	766.9	789.9	Regional
R-36	07/24/11	5838.87	Transducer	766.9	789.9	Regional
R-36	07/23/11	5838.97	Transducer	766.9	789.9	Regional
R-36	07/22/11	5839	Transducer	766.9	789.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-36	07/21/11	5838.98	Transducer	766.9	789.9	Regional
R-36	07/20/11	5838.92	Transducer	766.9	789.9	Regional
R-36	07/19/11	5838.82	Transducer	766.9	789.9	Regional
R-36	07/18/11	5838.76	Transducer	766.9	789.9	Regional
R-36	07/17/11	5838.85	Transducer	766.9	789.9	Regional
R-36	07/16/11	5838.99	Transducer	766.9	789.9	Regional
R-36	07/15/11	5839.03	Transducer	766.9	789.9	Regional
R-36	07/14/11	5839	Transducer	766.9	789.9	Regional
R-36	07/13/11	5838.95	Transducer	766.9	789.9	Regional
R-36	07/12/11	5838.92	Transducer	766.9	789.9	Regional
R-36	07/11/11	5838.94	Transducer	766.9	789.9	Regional
R-36	07/10/11	5838.96	Transducer	766.9	789.9	Regional
R-36	07/09/11	5839.01	Transducer	766.9	789.9	Regional
R-36	07/08/11	5838.95	Transducer	766.9	789.9	Regional
R-36	07/07/11	5838.89	Transducer	766.9	789.9	Regional
R-36	07/06/11	5838.87	Transducer	766.9	789.9	Regional
R-36	07/05/11	5838.87	Transducer	766.9	789.9	Regional
R-36	07/04/11	5838.86	Transducer	766.9	789.9	Regional
R-36	07/03/11	5838.81	Transducer	766.9	789.9	Regional
R-36	07/02/11	5838.88	Transducer	766.9	789.9	Regional
R-36	07/01/11	5838.93	Transducer	766.9	789.9	Regional
R-36	06/30/11	5838.92	Transducer	766.9	789.9	Regional
R-36	06/29/11	5838.83	Transducer	766.9	789.9	Regional
R-36	06/28/11	5838.8	Transducer	766.9	789.9	Regional
R-36	06/27/11	5838.96	Transducer	766.9	789.9	Regional
R-36	06/26/11	5838.97	Transducer	766.9	789.9	Regional
R-36	06/25/11	5839.01	Transducer	766.9	789.9	Regional
R-36	06/24/11	5839	Transducer	766.9	789.9	Regional
R-36	06/23/11	5838.9	Transducer	766.9	789.9	Regional
R-36	06/22/11	5838.92	Transducer	766.9	789.9	Regional
R-36	06/21/11	5839.04	Transducer	766.9	789.9	Regional
R-36	06/20/11	5839.19	Transducer	766.9	789.9	Regional
R-36	06/19/11	5839.08	Transducer	766.9	789.9	Regional
R-36	06/18/11	5839.02	Transducer	766.9	789.9	Regional
R-36	06/17/11	5839.16	Transducer	766.9	789.9	Regional
R-36	06/16/11	5839.11	Transducer	766.9	789.9	Regional
R-36	06/15/11	5838.94	Transducer	766.9	789.9	Regional
R-36	06/14/11	5838.97	Transducer	766.9	789.9	Regional
R-36	06/13/11	5839.01	Transducer	766.9	789.9	Regional
R-36	06/12/11	5839.08	Transducer	766.9	789.9	Regional
R-36	06/11/11	5839.01	Transducer	766.9	789.9	Regional
R-36	06/10/11	5839.03	Transducer	766.9	789.9	Regional
R-36	06/09/11	5839.07	Transducer	766.9	789.9	Regional
R-36	06/08/11	5839.05	Transducer	766.9	789.9	Regional
R-36	06/07/11	5839.05	Transducer	766.9	789.9	Regional
R-36	06/06/11	5838.83	Transducer	766.9	789.9	Regional
R-36	06/05/11	5838.71	Transducer	766.9	789.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-36	06/04/11	5838.89	Transducer	766.9	789.9	Regional
R-36	06/03/11	5838.98	Transducer	766.9	789.9	Regional
R-36	06/02/11	5838.89	Transducer	766.9	789.9	Regional
R-36	06/01/11	5838.68	Transducer	766.9	789.9	Regional
R-36	05/31/11	5838.78	Transducer	766.9	789.9	Regional
R-36	05/30/11	5839.26	Transducer	766.9	789.9	Regional
R-36	05/29/11	5839.24	Transducer	766.9	789.9	Regional
R-36	05/28/11	5839.13	Transducer	766.9	789.9	Regional
R-36	05/27/11	5839.06	Transducer	766.9	789.9	Regional
R-36	05/26/11	5838.89	Transducer	766.9	789.9	Regional
R-36	05/25/11	5839	Transducer	766.9	789.9	Regional
R-36	05/24/11	5839.16	Transducer	766.9	789.9	Regional
R-36	05/23/11	5839.04	Transducer	766.9	789.9	Regional
R-36	05/22/11	5839.01	Transducer	766.9	789.9	Regional
R-36	05/21/11	5839.03	Transducer	766.9	789.9	Regional
R-36	05/20/11	5839.12	Transducer	766.9	789.9	Regional
R-36	05/19/11	5839.31	Transducer	766.9	789.9	Regional
R-36	05/18/11	5839.28	Transducer	766.9	789.9	Regional
R-36	05/17/11	5839.18	Transducer	766.9	789.9	Regional
R-36	05/16/11	5839.01	Transducer	766.9	789.9	Regional
R-36	05/15/11	5839.01	Transducer	766.9	789.9	Regional
R-36	05/14/11	5838.86	Transducer	766.9	789.9	Regional
R-36	05/13/11	5838.86	Transducer	766.9	789.9	Regional
R-36	05/12/11	5839.07	Transducer	766.9	789.9	Regional
R-36	05/11/11	5839.33	Transducer	766.9	789.9	Regional
R-36	05/10/11	5839.3	Transducer	766.9	789.9	Regional
R-36	05/09/11	5839.3	Transducer	766.9	789.9	Regional
R-36	05/08/11	5839.17	Transducer	766.9	789.9	Regional
R-36	05/07/11	5839.11	Transducer	766.9	789.9	Regional
R-36	05/06/11	5838.94	Transducer	766.9	789.9	Regional
R-36	05/05/11	5838.89	Transducer	766.9	789.9	Regional
R-36	05/04/11	5838.83	Transducer	766.9	789.9	Regional
R-36	05/03/11	5838.69	Transducer	766.9	789.9	Regional
R-36	05/02/11	5838.84	Transducer	766.9	789.9	Regional
R-36	05/01/11	5839.11	Transducer	766.9	789.9	Regional
R-36	04/30/11	5839.21	Transducer	766.9	789.9	Regional
R-36	04/29/11	5839.08	Transducer	766.9	789.9	Regional
R-36	04/28/11	5838.83	Transducer	766.9	789.9	Regional
R-36	04/27/11	5839.22	Transducer	766.9	789.9	Regional
R-36	04/26/11	5839.29	Transducer	766.9	789.9	Regional
R-36	04/25/11	5839.18	Transducer	766.9	789.9	Regional
R-36	04/24/11	5839.14	Transducer	766.9	789.9	Regional
R-36	04/23/11	5839.18	Transducer	766.9	789.9	Regional
R-36	04/22/11	5839.17	Transducer	766.9	789.9	Regional
R-36	04/21/11	5839.23	Transducer	766.9	789.9	Regional
R-36	04/20/11	5839.25	Transducer	766.9	789.9	Regional
R-36	04/19/11	5839.46	Transducer	766.9	789.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-36	04/18/11	5839.35	Transducer	766.9	789.9	Regional
R-36	04/17/11	5839.27	Transducer	766.9	789.9	Regional
R-36	04/16/11	5839.17	Transducer	766.9	789.9	Regional
R-36	04/15/11	5839.22	Transducer	766.9	789.9	Regional
R-36	04/14/11	5839.37	Transducer	766.9	789.9	Regional
R-36	04/13/11	5839.27	Transducer	766.9	789.9	Regional
R-36	04/12/11	5839.08	Transducer	766.9	789.9	Regional
R-36	04/11/11	5839.1	Transducer	766.9	789.9	Regional
R-36	04/10/11	5839.36	Transducer	766.9	789.9	Regional
R-36	04/09/11	5839.45	Transducer	766.9	789.9	Regional
R-36	04/08/11	5839.46	Transducer	766.9	789.9	Regional
R-36	04/07/11	5839.34	Transducer	766.9	789.9	Regional
R-36	04/06/11	5839.36	Transducer	766.9	789.9	Regional
R-36	04/05/11	5839.1	Transducer	766.9	789.9	Regional
R-36	04/04/11	5839.29	Transducer	766.9	789.9	Regional
R-36	04/03/11	5839.38	Transducer	766.9	789.9	Regional
R-36	04/02/11	5839.21	Transducer	766.9	789.9	Regional
R-36	04/01/11	5839.29	Transducer	766.9	789.9	Regional
R-36	03/31/11	5839.27	Transducer	766.9	789.9	Regional
R-36	03/30/11	5839.21	Transducer	766.9	789.9	Regional
R-36	03/29/11	5839.39	Transducer	766.9	789.9	Regional
R-36	03/28/11	5839.43	Transducer	766.9	789.9	Regional
R-36	03/27/11	5839.53	Transducer	766.9	789.9	Regional
R-36	03/26/11	5839.5	Transducer	766.9	789.9	Regional
R-36	03/25/11	5839.38	Transducer	766.9	789.9	Regional
R-36	03/24/11	5839.38	Transducer	766.9	789.9	Regional
R-36	03/23/11	5839.38	Transducer	766.9	789.9	Regional
R-36	03/22/11	5839.6	Transducer	766.9	789.9	Regional
R-36	03/21/11	5839.37	Transducer	766.9	789.9	Regional
R-36	03/20/11	5839.35	Transducer	766.9	789.9	Regional
R-36	03/19/11	5839.22	Transducer	766.9	789.9	Regional
R-36	03/18/11	5839.26	Transducer	766.9	789.9	Regional
R-36	03/17/11	5839.33	Transducer	766.9	789.9	Regional
R-36	03/16/11	5839.25	Transducer	766.9	789.9	Regional
R-36	03/15/11	5839.26	Transducer	766.9	789.9	Regional
R-36	03/14/11	5839.09	Transducer	766.9	789.9	Regional
R-36	03/13/11	5839.31	Transducer	766.9	789.9	Regional
R-36	03/12/11	5839.29	Transducer	766.9	789.9	Regional
R-36	03/11/11	5839.16	Transducer	766.9	789.9	Regional
R-36	03/10/11	5838.96	Transducer	766.9	789.9	Regional
R-36	03/09/11	5839.21	Transducer	766.9	789.9	Regional
R-36	03/08/11	5839.69	Transducer	766.9	789.9	Regional
R-36	03/07/11	5839.57	Transducer	766.9	789.9	Regional
R-36	03/06/11	5839.2	Transducer	766.9	789.9	Regional
R-36	03/05/11	5839.03	Transducer	766.9	789.9	Regional
R-36	03/04/11	5839.35	Transducer	766.9	789.9	Regional
R-36	03/03/11	5839.2	Transducer	766.9	789.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-36	03/02/11	5839.14	Transducer	766.9	789.9	Regional
R-36	03/01/11	5839.03	Transducer	766.9	789.9	Regional
R-36	02/28/11	5839.3	Transducer	766.9	789.9	Regional
R-36	02/27/11	5839.63	Transducer	766.9	789.9	Regional
R-36	02/26/11	5839.5	Transducer	766.9	789.9	Regional
R-36	02/25/11	5839.35	Transducer	766.9	789.9	Regional
R-36	02/24/11	5839.53	Transducer	766.9	789.9	Regional
R-36	02/23/11	5839.42	Transducer	766.9	789.9	Regional
R-36	02/22/11	5839.44	Transducer	766.9	789.9	Regional
R-36	02/21/11	5839.56	Transducer	766.9	789.9	Regional
R-36	02/20/11	5839.64	Transducer	766.9	789.9	Regional
R-36	02/19/11	5839.28	Transducer	766.9	789.9	Regional
R-36	02/18/11	5839.34	Transducer	766.9	789.9	Regional
R-36	02/17/11	5839.56	Transducer	766.9	789.9	Regional
R-36	02/16/11	5839.36	Transducer	766.9	789.9	Regional
R-36	02/15/11	5839.29	Transducer	766.9	789.9	Regional
R-36	02/14/11	5839.16	Transducer	766.9	789.9	Regional
R-36	02/13/11	5839.05	Transducer	766.9	789.9	Regional
R-36	02/12/11	5839.02	Transducer	766.9	789.9	Regional
R-36	02/11/11	5839.27	Transducer	766.9	789.9	Regional
R-36	02/10/11	5839.3	Transducer	766.9	789.9	Regional
R-36	02/09/11	5839.4	Transducer	766.9	789.9	Regional
R-36	02/08/11	5839.59	Transducer	766.9	789.9	Regional
R-36	02/07/11	5839.18	Transducer	766.9	789.9	Regional
R-36	02/06/11	5839.54	Transducer	766.9	789.9	Regional
R-36	02/05/11	5839.4	Transducer	766.9	789.9	Regional
R-36	02/04/11	5839.31	Transducer	766.9	789.9	Regional
R-36	02/03/11	5839.18	Transducer	766.9	789.9	Regional
R-36	02/02/11	5839.41	Transducer	766.9	789.9	Regional
R-36	02/01/11	5839.6	Transducer	766.9	789.9	Regional
R-36	01/31/11	5839.5	Transducer	766.9	789.9	Regional
R-36	01/30/11	5839.39	Transducer	766.9	789.9	Regional
R-36	01/29/11	5839.39	Transducer	766.9	789.9	Regional
R-36	01/28/11	5839.22	Transducer	766.9	789.9	Regional
R-36	01/27/11	5839.18	Transducer	766.9	789.9	Regional
R-36	01/26/11	5839.35	Transducer	766.9	789.9	Regional
R-36	01/25/11	5839.25	Transducer	766.9	789.9	Regional
R-36	01/24/11	5839.41	Transducer	766.9	789.9	Regional
R-36	01/23/11	5839.48	Transducer	766.9	789.9	Regional
R-36	01/22/11	5839.36	Transducer	766.9	789.9	Regional
R-36	01/21/11	5839.35	Transducer	766.9	789.9	Regional
R-36	01/20/11	5839.51	Transducer	766.9	789.9	Regional
R-36	01/19/11	5839.46	Transducer	766.9	789.9	Regional
R-36	01/18/11	5839.52	Transducer	766.9	789.9	Regional
R-36	01/17/11	5839.42	Transducer	766.9	789.9	Regional
R-36	01/16/11	5839.34	Transducer	766.9	789.9	Regional
R-36	01/15/11	5839.15	Transducer	766.9	789.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-36	01/14/11	5839.23	Transducer	766.9	789.9	Regional
R-36	01/13/11	5839.09	Transducer	766.9	789.9	Regional
R-36	01/12/11	5839.1	Transducer	766.9	789.9	Regional
R-36	01/11/11	5839.18	Transducer	766.9	789.9	Regional
R-36	01/10/11	5839.66	Transducer	766.9	789.9	Regional
R-36	01/09/11	5839.69	Transducer	766.9	789.9	Regional
R-36	01/08/11	5839.48	Transducer	766.9	789.9	Regional
R-36	01/07/11	5839.29	Transducer	766.9	789.9	Regional
R-36	01/06/11	5839.17	Transducer	766.9	789.9	Regional
R-36	01/05/11	5839.24	Transducer	766.9	789.9	Regional
R-36	01/04/11	5839.32	Transducer	766.9	789.9	Regional
R-36	01/03/11	5839.29	Transducer	766.9	789.9	Regional
R-36	01/02/11	5839.18	Transducer	766.9	789.9	Regional
R-36	01/01/11	5839.52	Transducer	766.9	789.9	Regional
R-36	12/31/10	5840.06	Transducer	766.9	789.9	Regional
R-36	12/30/10	5840.05	Transducer	766.9	789.9	Regional
R-36	12/29/10	5839.61	Transducer	766.9	789.9	Regional
R-36	12/28/10	5839.43	Transducer	766.9	789.9	Regional
R-36	12/27/10	5839.44	Transducer	766.9	789.9	Regional
R-36	12/26/10	5839.22	Transducer	766.9	789.9	Regional
R-36	12/25/10	5839.17	Transducer	766.9	789.9	Regional
R-36	12/24/10	5839.38	Transducer	766.9	789.9	Regional
R-36	12/23/10	5839.37	Transducer	766.9	789.9	Regional
R-36	12/22/10	5839.28	Transducer	766.9	789.9	Regional
R-36	12/21/10	5839.46	Transducer	766.9	789.9	Regional
R-36	12/20/10	5839.58	Transducer	766.9	789.9	Regional
R-36	12/19/10	5839.53	Transducer	766.9	789.9	Regional
R-36	12/18/10	5839.51	Transducer	766.9	789.9	Regional
R-36	12/17/10	5839.64	Transducer	766.9	789.9	Regional
R-36	12/16/10	5839.68	Transducer	766.9	789.9	Regional
R-36	12/15/10	5839.71	Transducer	766.9	789.9	Regional
R-36	12/14/10	5839.44	Transducer	766.9	789.9	Regional
R-36	12/13/10	5839.27	Transducer	766.9	789.9	Regional
R-36	12/12/10	5839.28	Transducer	766.9	789.9	Regional
R-36	12/11/10	5839.53	Transducer	766.9	789.9	Regional
R-36	12/10/10	5839.48	Transducer	766.9	789.9	Regional
R-36	12/09/10	5839.37	Transducer	766.9	789.9	Regional
R-36	12/08/10	5839.23	Transducer	766.9	789.9	Regional
R-36	12/07/10	5839.39	Transducer	766.9	789.9	Regional
R-36	12/06/10	5839.21	Transducer	766.9	789.9	Regional
R-36	12/05/10	5839.27	Transducer	766.9	789.9	Regional
R-36	12/04/10	5839.32	Transducer	766.9	789.9	Regional
R-36	12/03/10	5839.26	Transducer	766.9	789.9	Regional
R-36	12/02/10	5839.26	Transducer	766.9	789.9	Regional
R-36	12/01/10	5839.16	Transducer	766.9	789.9	Regional
R-36	11/30/10	5839.31	Transducer	766.9	789.9	Regional
R-36	11/29/10	5839.84	Transducer	766.9	789.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-36	11/28/10	5839.69	Transducer	766.9	789.9	Regional
R-36	11/27/10	5839.31	Transducer	766.9	789.9	Regional
R-36	11/26/10	5839.33	Transducer	766.9	789.9	Regional
R-36	11/25/10	5839.71	Transducer	766.9	789.9	Regional
R-36	11/24/10	5839.76	Transducer	766.9	789.9	Regional
R-36	11/23/10	5839.44	Transducer	766.9	789.9	Regional
R-36	11/22/10	5839.73	Transducer	766.9	789.9	Regional
R-36	11/21/10	5839.65	Transducer	766.9	789.9	Regional
R-36	11/20/10	5839.54	Transducer	766.9	789.9	Regional
R-36	11/19/10	5839.39	Transducer	766.9	789.9	Regional
R-36	11/18/10	5839.22	Transducer	766.9	789.9	Regional
R-36	11/17/10	5839.73	Transducer	766.9	789.9	Regional
R-36	11/16/10	5839.6	Transducer	766.9	789.9	Regional
R-36	11/15/10	5839.8	Transducer	766.9	789.9	Regional
R-36	11/14/10	5839.58	Transducer	766.9	789.9	Regional
R-36	11/13/10	5839.35	Transducer	766.9	789.9	Regional
R-36	11/12/10	5839.44	Transducer	766.9	789.9	Regional
R-36	11/11/10	5839.71	Transducer	766.9	789.9	Regional
R-36	11/10/10	5839.74	Transducer	766.9	789.9	Regional
R-36	11/09/10	5839.87	Transducer	766.9	789.9	Regional
R-36	11/08/10	5839.58	Transducer	766.9	789.9	Regional
R-36	11/07/10	5839.47	Transducer	766.9	789.9	Regional
R-36	11/06/10	5839.45	Transducer	766.9	789.9	Regional
R-36	11/05/10	5839.39	Transducer	766.9	789.9	Regional
R-36	11/04/10	5839.21	Transducer	766.9	789.9	Regional
R-36	11/03/10	5839.24	Transducer	766.9	789.9	Regional
R-36	11/02/10	5839.2	Transducer	766.9	789.9	Regional
R-36	11/01/10	5839.44	Transducer	766.9	789.9	Regional
R-36	10/31/10	5839.53	Transducer	766.9	789.9	Regional
R-36	10/30/10	5839.38	Transducer	766.9	789.9	Regional
R-42	11/15/12	5837.31	Transducer	931.8	952.9	Regional
R-42	11/14/12	5837.24	Transducer	931.8	952.9	Regional
R-42	11/13/12	5837.24	Transducer	931.8	952.9	Regional
R-42	11/12/12	5837.26	Transducer	931.8	952.9	Regional
R-42	11/11/12	5837.73	Transducer	931.8	952.9	Regional
R-42	11/10/12	5837.74	Transducer	931.8	952.9	Regional
R-42	11/09/12	5837.58	Transducer	931.8	952.9	Regional
R-42	11/08/12	5837.44	Transducer	931.8	952.9	Regional
R-42	11/07/12	5837.28	Transducer	931.8	952.9	Regional
R-42	11/06/12	5837.3	Transducer	931.8	952.9	Regional
R-42	11/05/12	5837.27	Transducer	931.8	952.9	Regional
R-42	11/04/12	5837.31	Transducer	931.8	952.9	Regional
R-42	11/03/12	5837.42	Transducer	931.8	952.9	Regional
R-42	11/02/12	5837.46	Transducer	931.8	952.9	Regional
R-42	11/01/12	5837.34	Transducer	931.8	952.9	Regional
R-42	10/31/12	5837.37	Transducer	931.8	952.9	Regional
R-42	10/30/12	5837.35	Transducer	931.8	952.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-42	10/29/12	5837.35	Transducer	931.8	952.9	Regional
R-42	10/28/12	5837.41	Transducer	931.8	952.9	Regional
R-42	10/27/12	5837.32	Transducer	931.8	952.9	Regional
R-42	10/26/12	5837.39	Transducer	931.8	952.9	Regional
R-42	10/25/12	5837.61	Transducer	931.8	952.9	Regional
R-42	10/24/12	5837.58	Transducer	931.8	952.9	Regional
R-42	10/23/12	5837.56	Transducer	931.8	952.9	Regional
R-42	10/22/12	5837.6	Transducer	931.8	952.9	Regional
R-42	10/21/12	5837.65	Transducer	931.8	952.9	Regional
R-42	10/20/12	5837.56	Transducer	931.8	952.9	Regional
R-42	10/19/12	5837.48	Transducer	931.8	952.9	Regional
R-42	10/18/12	5837.56	Transducer	931.8	952.9	Regional
R-42	10/17/12	5837.72	Transducer	931.8	952.9	Regional
R-42	10/16/12	5837.56	Transducer	931.8	952.9	Regional
R-42	10/15/12	5837.36	Transducer	931.8	952.9	Regional
R-42	10/14/12	5837.41	Transducer	931.8	952.9	Regional
R-42	10/13/12	5837.57	Transducer	931.8	952.9	Regional
R-42	10/12/12	5837.47	Transducer	931.8	952.9	Regional
R-42	10/11/12	5837.52	Transducer	931.8	952.9	Regional
R-42	10/10/12	5837.5	Transducer	931.8	952.9	Regional
R-42	10/09/12	5837.58	Transducer	931.8	952.9	Regional
R-42	10/08/12	5837.56	Transducer	931.8	952.9	Regional
R-42	10/07/12	5837.55	Transducer	931.8	952.9	Regional
R-42	10/06/12	5837.59	Transducer	931.8	952.9	Regional
R-42	10/05/12	5837.54	Transducer	931.8	952.9	Regional
R-42	10/04/12	5837.52	Transducer	931.8	952.9	Regional
R-42	10/03/12	5837.6	Transducer	931.8	952.9	Regional
R-42	10/02/12	5837.47	Transducer	931.8	952.9	Regional
R-42	10/01/12	5837.48	Transducer	931.8	952.9	Regional
R-42	09/30/12	5837.49	Transducer	931.8	952.9	Regional
R-42	09/29/12	5837.5	Transducer	931.8	952.9	Regional
R-42	09/28/12	5837.52	Transducer	931.8	952.9	Regional
R-42	09/27/12	5837.56	Transducer	931.8	952.9	Regional
R-42	09/26/12	5837.65	Transducer	931.8	952.9	Regional
R-42	09/25/12	5837.58	Transducer	931.8	952.9	Regional
R-42	09/24/12	5837.49	Transducer	931.8	952.9	Regional
R-42	09/23/12	5837.47	Transducer	931.8	952.9	Regional
R-42	09/22/12	5837.5	Transducer	931.8	952.9	Regional
R-42	09/21/12	5837.54	Transducer	931.8	952.9	Regional
R-42	09/20/12	5837.52	Transducer	931.8	952.9	Regional
R-42	09/19/12	5837.51	Transducer	931.8	952.9	Regional
R-42	09/18/12	5837.51	Transducer	931.8	952.9	Regional
R-42	09/17/12	5837.63	Transducer	931.8	952.9	Regional
R-42	09/16/12	5837.5	Transducer	931.8	952.9	Regional
R-42	09/15/12	5837.35	Transducer	931.8	952.9	Regional
R-42	09/14/12	5837.28	Transducer	931.8	952.9	Regional
R-42	09/13/12	5837.47	Transducer	931.8	952.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-42	09/12/12	5837.6	Transducer	931.8	952.9	Regional
R-42	09/11/12	5837.58	Transducer	931.8	952.9	Regional
R-42	09/10/12	5837.49	Transducer	931.8	952.9	Regional
R-42	09/10/12	5837.463	Transducer	931.8	952.9	Regional
R-42	09/09/12	5837.404	Transducer	931.8	952.9	Regional
R-42	09/08/12	5837.425	Transducer	931.8	952.9	Regional
R-42	09/07/12	5837.606	Transducer	931.8	952.9	Regional
R-42	09/06/12	5837.567	Transducer	931.8	952.9	Regional
R-42	09/05/12	5837.604	Transducer	931.8	952.9	Regional
R-42	09/04/12	5837.542	Transducer	931.8	952.9	Regional
R-42	09/03/12	5837.574	Transducer	931.8	952.9	Regional
R-42	09/02/12	5837.534	Transducer	931.8	952.9	Regional
R-42	09/01/12	5837.529	Transducer	931.8	952.9	Regional
R-42	08/31/12	5837.573	Transducer	931.8	952.9	Regional
R-42	08/30/12	5837.56	Transducer	931.8	952.9	Regional
R-42	08/29/12	5837.463	Transducer	931.8	952.9	Regional
R-42	08/28/12	5837.402	Transducer	931.8	952.9	Regional
R-42	08/27/12	5837.461	Transducer	931.8	952.9	Regional
R-42	08/26/12	5837.602	Transducer	931.8	952.9	Regional
R-42	08/25/12	5837.741	Transducer	931.8	952.9	Regional
R-42	08/24/12	5837.699	Transducer	931.8	952.9	Regional
R-42	08/23/12	5837.623	Transducer	931.8	952.9	Regional
R-42	08/22/12	5837.573	Transducer	931.8	952.9	Regional
R-42	08/21/12	5837.617	Transducer	931.8	952.9	Regional
R-42	08/20/12	5837.605	Transducer	931.8	952.9	Regional
R-42	08/19/12	5837.645	Transducer	931.8	952.9	Regional
R-42	08/18/12	5837.601	Transducer	931.8	952.9	Regional
R-42	08/17/12	5837.542	Transducer	931.8	952.9	Regional
R-42	08/16/12	5837.676	Transducer	931.8	952.9	Regional
R-42	08/15/12	5837.697	Transducer	931.8	952.9	Regional
R-42	08/14/12	5837.604	Transducer	931.8	952.9	Regional
R-42	08/13/12	5837.508	Transducer	931.8	952.9	Regional
R-42	08/12/12	5837.641	Transducer	931.8	952.9	Regional
R-42	08/11/12	5837.614	Transducer	931.8	952.9	Regional
R-42	08/10/12	5837.545	Transducer	931.8	952.9	Regional
R-42	08/09/12	5837.503	Transducer	931.8	952.9	Regional
R-42	08/08/12	5837.544	Transducer	931.8	952.9	Regional
R-42	08/07/12	5837.559	Transducer	931.8	952.9	Regional
R-42	08/06/12	5837.386	Transducer	931.8	952.9	Regional
R-42	08/05/12	5837.483	Transducer	931.8	952.9	Regional
R-42	08/04/12	5837.695	Transducer	931.8	952.9	Regional
R-42	08/03/12	5837.619	Transducer	931.8	952.9	Regional
R-42	08/02/12	5837.635	Transducer	931.8	952.9	Regional
R-42	08/01/12	5837.55	Transducer	931.8	952.9	Regional
R-42	07/31/12	5837.603	Transducer	931.8	952.9	Regional
R-42	07/30/12	5837.609	Transducer	931.8	952.9	Regional
R-42	07/29/12	5837.532	Transducer	931.8	952.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-42	07/28/12	5837.519	Transducer	931.8	952.9	Regional
R-42	07/27/12	5837.596	Transducer	931.8	952.9	Regional
R-42	07/26/12	5837.725	Transducer	931.8	952.9	Regional
R-42	07/25/12	5837.714	Transducer	931.8	952.9	Regional
R-42	07/24/12	5837.601	Transducer	931.8	952.9	Regional
R-42	07/23/12	5837.571	Transducer	931.8	952.9	Regional
R-42	07/22/12	5837.547	Transducer	931.8	952.9	Regional
R-42	07/21/12	5837.509	Transducer	931.8	952.9	Regional
R-42	07/20/12	5837.502	Transducer	931.8	952.9	Regional
R-42	07/19/12	5837.568	Transducer	931.8	952.9	Regional
R-42	07/18/12	5837.686	Transducer	931.8	952.9	Regional
R-42	07/17/12	5837.734	Transducer	931.8	952.9	Regional
R-42	07/16/12	5837.685	Transducer	931.8	952.9	Regional
R-42	07/15/12	5837.626	Transducer	931.8	952.9	Regional
R-42	07/14/12	5837.597	Transducer	931.8	952.9	Regional
R-42	07/13/12	5837.587	Transducer	931.8	952.9	Regional
R-42	07/12/12	5837.568	Transducer	931.8	952.9	Regional
R-42	07/11/12	5837.517	Transducer	931.8	952.9	Regional
R-42	07/10/12	5837.523	Transducer	931.8	952.9	Regional
R-42	07/09/12	5837.525	Transducer	931.8	952.9	Regional
R-42	07/08/12	5837.507	Transducer	931.8	952.9	Regional
R-42	07/07/12	5837.562	Transducer	931.8	952.9	Regional
R-42	07/06/12	5837.634	Transducer	931.8	952.9	Regional
R-42	07/05/12	5837.691	Transducer	931.8	952.9	Regional
R-42	07/04/12	5837.722	Transducer	931.8	952.9	Regional
R-42	07/03/12	5837.7	Transducer	931.8	952.9	Regional
R-42	07/02/12	5837.704	Transducer	931.8	952.9	Regional
R-42	07/01/12	5837.723	Transducer	931.8	952.9	Regional
R-42	06/30/12	5837.702	Transducer	931.8	952.9	Regional
R-42	06/29/12	5837.574	Transducer	931.8	952.9	Regional
R-42	06/28/12	5837.601	Transducer	931.8	952.9	Regional
R-42	06/27/12	5837.62	Manual	931.8	952.9	Regional
R-42	06/27/12	5837.579	Transducer	931.8	952.9	Regional
R-42	06/26/12	5837.523	Transducer	931.8	952.9	Regional
R-42	06/25/12	5837.438	Transducer	931.8	952.9	Regional
R-42	06/24/12	5837.51	Transducer	931.8	952.9	Regional
R-42	06/23/12	5837.625	Transducer	931.8	952.9	Regional
R-42	06/22/12	5837.484	Transducer	931.8	952.9	Regional
R-42	06/21/12	5837.563	Transducer	931.8	952.9	Regional
R-42	06/20/12	5837.78	Transducer	931.8	952.9	Regional
R-42	06/19/12	5837.768	Transducer	931.8	952.9	Regional
R-42	06/18/12	5837.708	Transducer	931.8	952.9	Regional
R-42	06/17/12	5837.446	Transducer	931.8	952.9	Regional
R-42	06/16/12	5837.602	Transducer	931.8	952.9	Regional
R-42	06/15/12	5837.725	Transducer	931.8	952.9	Regional
R-42	06/14/12	5837.741	Transducer	931.8	952.9	Regional
R-42	06/13/12	5837.647	Transducer	931.8	952.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-42	06/12/12	5837.537	Transducer	931.8	952.9	Regional
R-42	06/11/12	5837.668	Transducer	931.8	952.9	Regional
R-42	06/10/12	5837.866	Transducer	931.8	952.9	Regional
R-42	06/09/12	5837.822	Transducer	931.8	952.9	Regional
R-42	06/08/12	5837.7	Transducer	931.8	952.9	Regional
R-42	06/07/12	5837.797	Transducer	931.8	952.9	Regional
R-42	06/06/12	5837.77	Transducer	931.8	952.9	Regional
R-42	06/05/12	5837.692	Transducer	931.8	952.9	Regional
R-42	06/05/12	5837.692	Transducer	931.8	952.9	Regional
R-42	06/04/12	5837.675	Transducer	931.8	952.9	Regional
R-42	06/03/12	5837.763	Transducer	931.8	952.9	Regional
R-42	06/02/12	5837.798	Transducer	931.8	952.9	Regional
R-42	06/01/12	5837.738	Transducer	931.8	952.9	Regional
R-42	05/31/12	5837.793	Transducer	931.8	952.9	Regional
R-42	05/30/12	5837.78	Transducer	931.8	952.9	Regional
R-42	05/29/12	5837.741	Transducer	931.8	952.9	Regional
R-42	05/28/12	5837.788	Transducer	931.8	952.9	Regional
R-42	05/27/12	5837.917	Transducer	931.8	952.9	Regional
R-42	05/26/12	5837.959	Transducer	931.8	952.9	Regional
R-42	05/25/12	5838.084	Transducer	931.8	952.9	Regional
R-42	05/24/12	5838.226	Transducer	931.8	952.9	Regional
R-42	05/23/12	5838.034	Transducer	931.8	952.9	Regional
R-42	05/22/12	5837.729	Transducer	931.8	952.9	Regional
R-42	05/21/12	5837.627	Transducer	931.8	952.9	Regional
R-42	05/20/12	5837.803	Transducer	931.8	952.9	Regional
R-42	05/19/12	5838.038	Transducer	931.8	952.9	Regional
R-42	05/18/12	5838.032	Transducer	931.8	952.9	Regional
R-42	05/17/12	5837.846	Transducer	931.8	952.9	Regional
R-42	05/16/12	5837.675	Transducer	931.8	952.9	Regional
R-42	05/15/12	5837.661	Transducer	931.8	952.9	Regional
R-42	05/14/12	5837.683	Transducer	931.8	952.9	Regional
R-42	05/13/12	5837.616	Transducer	931.8	952.9	Regional
R-42	05/12/12	5837.688	Transducer	931.8	952.9	Regional
R-42	05/11/12	5837.981	Transducer	931.8	952.9	Regional
R-42	05/10/12	5837.88	Transducer	931.8	952.9	Regional
R-42	05/09/12	5837.742	Transducer	931.8	952.9	Regional
R-42	05/08/12	5837.781	Transducer	931.8	952.9	Regional
R-42	05/07/12	5837.888	Transducer	931.8	952.9	Regional
R-42	05/06/12	5837.953	Transducer	931.8	952.9	Regional
R-42	05/05/12	5837.936	Transducer	931.8	952.9	Regional
R-42	05/04/12	5837.905	Transducer	931.8	952.9	Regional
R-42	05/03/12	5837.986	Transducer	931.8	952.9	Regional
R-42	05/02/12	5838.052	Transducer	931.8	952.9	Regional
R-42	05/01/12	5838.049	Transducer	931.8	952.9	Regional
R-42	04/30/12	5837.942	Transducer	931.8	952.9	Regional
R-42	04/29/12	5838.035	Transducer	931.8	952.9	Regional
R-42	04/28/12	5838.042	Transducer	931.8	952.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-42	04/27/12	5838.085	Transducer	931.8	952.9	Regional
R-42	04/26/12	5837.884	Transducer	931.8	952.9	Regional
R-42	04/25/12	5837.943	Transducer	931.8	952.9	Regional
R-42	04/24/12	5837.855	Transducer	931.8	952.9	Regional
R-42	04/23/12	5837.72	Transducer	931.8	952.9	Regional
R-42	04/22/12	5837.765	Transducer	931.8	952.9	Regional
R-42	04/21/12	5837.825	Transducer	931.8	952.9	Regional
R-42	04/20/12	5837.903	Transducer	931.8	952.9	Regional
R-42	04/19/12	5837.975	Transducer	931.8	952.9	Regional
R-42	04/18/12	5837.831	Transducer	931.8	952.9	Regional
R-42	04/17/12	5837.759	Transducer	931.8	952.9	Regional
R-42	04/16/12	5837.905	Transducer	931.8	952.9	Regional
R-42	04/15/12	5838.27	Transducer	931.8	952.9	Regional
R-42	04/14/12	5838.277	Transducer	931.8	952.9	Regional
R-42	04/13/12	5838.039	Transducer	931.8	952.9	Regional
R-42	04/12/12	5838.061	Transducer	931.8	952.9	Regional
R-42	04/11/12	5837.85	Transducer	931.8	952.9	Regional
R-42	04/10/12	5837.803	Transducer	931.8	952.9	Regional
R-42	04/09/12	5837.734	Transducer	931.8	952.9	Regional
R-42	04/08/12	5837.589	Transducer	931.8	952.9	Regional
R-42	04/07/12	5837.846	Transducer	931.8	952.9	Regional
R-42	04/06/12	5838.014	Transducer	931.8	952.9	Regional
R-42	04/05/12	5837.995	Transducer	931.8	952.9	Regional
R-42	04/04/12	5837.966	Transducer	931.8	952.9	Regional
R-42	04/03/12	5838.145	Transducer	931.8	952.9	Regional
R-42	04/02/12	5838.261	Transducer	931.8	952.9	Regional
R-42	04/01/12	5838.045	Transducer	931.8	952.9	Regional
R-42	03/31/12	5837.923	Transducer	931.8	952.9	Regional
R-42	03/30/12	5837.941	Transducer	931.8	952.9	Regional
R-42	03/29/12	5837.958	Transducer	931.8	952.9	Regional
R-42	03/28/12	5837.888	Transducer	931.8	952.9	Regional
R-42	03/27/12	5837.922	Transducer	931.8	952.9	Regional
R-42	03/26/12	5837.947	Transducer	931.8	952.9	Regional
R-42	03/25/12	5837.823	Transducer	931.8	952.9	Regional
R-42	03/24/12	5837.835	Transducer	931.8	952.9	Regional
R-42	03/23/12	5837.919	Transducer	931.8	952.9	Regional
R-42	03/22/12	5838.002	Transducer	931.8	952.9	Regional
R-42	03/21/12	5838.001	Transducer	931.8	952.9	Regional
R-42	03/20/12	5838.305	Transducer	931.8	952.9	Regional
R-42	03/19/12	5838.305	Transducer	931.8	952.9	Regional
R-42	03/18/12	5838.173	Transducer	931.8	952.9	Regional
R-42	03/17/12	5838	Transducer	931.8	952.9	Regional
R-42	03/16/12	5837.856	Transducer	931.8	952.9	Regional
R-42	03/15/12	5837.806	Transducer	931.8	952.9	Regional
R-42	03/14/12	5837.879	Transducer	931.8	952.9	Regional
R-42	03/13/12	5837.831	Transducer	931.8	952.9	Regional
R-42	03/12/12	5837.972	Transducer	931.8	952.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-42	03/11/12	5838.053	Transducer	931.8	952.9	Regional
R-42	03/10/12	5837.708	Transducer	931.8	952.9	Regional
R-42	03/09/12	5837.523	Transducer	931.8	952.9	Regional
R-42	03/08/12	5838.01	Transducer	931.8	952.9	Regional
R-42	03/07/12	5838.224	Transducer	931.8	952.9	Regional
R-42	03/07/12	5838.207	Transducer	931.8	952.9	Regional
R-42	03/06/12	5837.854	Transducer	931.8	952.9	Regional
R-42	03/05/12	5837.661	Transducer	931.8	952.9	Regional
R-42	03/04/12	5837.686	Transducer	931.8	952.9	Regional
R-42	03/03/12	5837.847	Transducer	931.8	952.9	Regional
R-42	03/02/12	5838.101	Transducer	931.8	952.9	Regional
R-42	03/01/12	5837.968	Transducer	931.8	952.9	Regional
R-42	02/29/12	5837.839	Transducer	931.8	952.9	Regional
R-42	02/28/12	5837.989	Transducer	931.8	952.9	Regional
R-42	02/27/12	5837.832	Transducer	931.8	952.9	Regional
R-42	02/26/12	5837.969	Transducer	931.8	952.9	Regional
R-42	02/25/12	5837.698	Transducer	931.8	952.9	Regional
R-42	02/24/12	5837.873	Transducer	931.8	952.9	Regional
R-42	02/23/12	5838.116	Transducer	931.8	952.9	Regional
R-42	02/22/12	5837.845	Transducer	931.8	952.9	Regional
R-42	02/21/12	5837.846	Transducer	931.8	952.9	Regional
R-42	02/20/12	5838.176	Transducer	931.8	952.9	Regional
R-42	02/19/12	5837.986	Transducer	931.8	952.9	Regional
R-42	02/18/12	5837.989	Transducer	931.8	952.9	Regional
R-42	02/17/12	5837.919	Transducer	931.8	952.9	Regional
R-42	02/16/12	5837.921	Transducer	931.8	952.9	Regional
R-42	02/15/12	5838.257	Transducer	931.8	952.9	Regional
R-42	02/14/12	5838.169	Transducer	931.8	952.9	Regional
R-42	02/13/12	5838.225	Transducer	931.8	952.9	Regional
R-42	02/12/12	5837.875	Transducer	931.8	952.9	Regional
R-42	02/11/12	5837.846	Transducer	931.8	952.9	Regional
R-42	02/10/12	5837.84	Transducer	931.8	952.9	Regional
R-42	02/09/12	5837.84	Transducer	931.8	952.9	Regional
R-42	02/08/12	5837.721	Transducer	931.8	952.9	Regional
R-42	02/07/12	5837.919	Transducer	931.8	952.9	Regional
R-42	02/06/12	5837.829	Transducer	931.8	952.9	Regional
R-42	02/05/12	5837.691	Transducer	931.8	952.9	Regional
R-42	02/04/12	5837.811	Transducer	931.8	952.9	Regional
R-42	02/03/12	5838.12	Transducer	931.8	952.9	Regional
R-42	02/02/12	5837.921	Transducer	931.8	952.9	Regional
R-42	02/01/12	5837.82	Transducer	931.8	952.9	Regional
R-42	01/31/12	5837.958	Transducer	931.8	952.9	Regional
R-42	01/30/12	5837.775	Transducer	931.8	952.9	Regional
R-42	01/29/12	5837.631	Transducer	931.8	952.9	Regional
R-42	01/28/12	5837.711	Transducer	931.8	952.9	Regional
R-42	01/27/12	5838.004	Transducer	931.8	952.9	Regional
R-42	01/26/12	5837.84	Transducer	931.8	952.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-42	01/25/12	5837.855	Transducer	931.8	952.9	Regional
R-42	01/24/12	5838.104	Transducer	931.8	952.9	Regional
R-42	01/23/12	5837.939	Transducer	931.8	952.9	Regional
R-42	01/22/12	5838.36	Transducer	931.8	952.9	Regional
R-42	01/21/12	5837.922	Transducer	931.8	952.9	Regional
R-42	01/20/12	5838.078	Transducer	931.8	952.9	Regional
R-42	01/19/12	5837.894	Transducer	931.8	952.9	Regional
R-42	01/18/12	5837.813	Transducer	931.8	952.9	Regional
R-42	01/17/12	5838.007	Transducer	931.8	952.9	Regional
R-42	01/16/12	5838.014	Transducer	931.8	952.9	Regional
R-42	01/15/12	5837.801	Transducer	931.8	952.9	Regional
R-42	01/14/12	5837.735	Transducer	931.8	952.9	Regional
R-42	01/13/12	5837.921	Transducer	931.8	952.9	Regional
R-42	01/12/12	5837.93	Transducer	931.8	952.9	Regional
R-42	01/11/12	5838.047	Transducer	931.8	952.9	Regional
R-42	01/10/12	5837.852	Transducer	931.8	952.9	Regional
R-42	01/09/12	5837.848	Transducer	931.8	952.9	Regional
R-42	01/08/12	5838.087	Transducer	931.8	952.9	Regional
R-42	01/07/12	5837.946	Transducer	931.8	952.9	Regional
R-42	01/06/12	5837.94	Transducer	931.8	952.9	Regional
R-42	01/05/12	5837.579	Transducer	931.8	952.9	Regional
R-42	01/04/12	5837.659	Transducer	931.8	952.9	Regional
R-42	01/03/12	5837.528	Transducer	931.8	952.9	Regional
R-42	01/02/12	5837.452	Transducer	931.8	952.9	Regional
R-42	01/01/12	5837.61	Transducer	931.8	952.9	Regional
R-42	12/31/11	5837.883	Transducer	931.8	952.9	Regional
R-42	12/30/11	5837.83	Transducer	931.8	952.9	Regional
R-42	12/29/11	5837.737	Transducer	931.8	952.9	Regional
R-42	12/28/11	5837.771	Transducer	931.8	952.9	Regional
R-42	12/27/11	5837.685	Transducer	931.8	952.9	Regional
R-42	12/26/11	5837.739	Transducer	931.8	952.9	Regional
R-42	12/25/11	5837.564	Transducer	931.8	952.9	Regional
R-42	12/24/11	5837.657	Transducer	931.8	952.9	Regional
R-42	12/23/11	5837.754	Transducer	931.8	952.9	Regional
R-42	12/22/11	5838.036	Transducer	931.8	952.9	Regional
R-42	12/21/11	5838.028	Transducer	931.8	952.9	Regional
R-42	12/20/11	5837.962	Transducer	931.8	952.9	Regional
R-42	12/19/11	5838.066	Transducer	931.8	952.9	Regional
R-42	12/18/11	5837.619	Transducer	931.8	952.9	Regional
R-42	12/17/11	5837.518	Transducer	931.8	952.9	Regional
R-42	12/16/11	5837.675	Transducer	931.8	952.9	Regional
R-42	12/15/11	5837.798	Transducer	931.8	952.9	Regional
R-42	12/14/11	5838.011	Transducer	931.8	952.9	Regional
R-42	12/13/11	5837.892	Transducer	931.8	952.9	Regional
R-42	12/12/11	5837.875	Transducer	931.8	952.9	Regional
R-42	12/11/11	5837.732	Transducer	931.8	952.9	Regional
R-42	12/10/11	5837.584	Transducer	931.8	952.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-42	12/09/11	5837.767	Transducer	931.8	952.9	Regional
R-42	12/08/11	5837.809	Transducer	931.8	952.9	Regional
R-42	12/07/11	5837.686	Transducer	931.8	952.9	Regional
R-42	12/06/11	5837.764	Transducer	931.8	952.9	Regional
R-42	12/05/11	5837.927	Transducer	931.8	952.9	Regional
R-42	12/04/11	5837.881	Transducer	931.8	952.9	Regional
R-42	12/03/11	5838.096	Transducer	931.8	952.9	Regional
R-42	12/02/11	5837.715	Transducer	931.8	952.9	Regional
R-42	12/01/11	5838.009	Transducer	931.8	952.9	Regional
R-42	11/30/11	5837.654	Transducer	931.8	952.9	Regional
R-42	11/29/11	5837.622	Transducer	931.8	952.9	Regional
R-42	11/28/11	5837.516	Transducer	931.8	952.9	Regional
R-42	11/27/11	5837.413	Transducer	931.8	952.9	Regional
R-42	11/26/11	5837.847	Transducer	931.8	952.9	Regional
R-42	11/25/11	5837.793	Transducer	931.8	952.9	Regional
R-42	11/24/11	5837.63	Transducer	931.8	952.9	Regional
R-42	11/23/11	5837.514	Transducer	931.8	952.9	Regional
R-42	11/22/11	5837.675	Transducer	931.8	952.9	Regional
R-42	11/21/11	5837.772	Transducer	931.8	952.9	Regional
R-42	11/20/11	5837.863	Transducer	931.8	952.9	Regional
R-42	11/19/11	5838.036	Transducer	931.8	952.9	Regional
R-42	11/18/11	5837.831	Transducer	931.8	952.9	Regional
R-42	11/17/11	5837.576	Transducer	931.8	952.9	Regional
R-42	11/16/11	5837.87	Transducer	931.8	952.9	Regional
R-42	11/15/11	5837.905	Transducer	931.8	952.9	Regional
R-42	11/14/11	5837.962	Transducer	931.8	952.9	Regional
R-42	11/13/11	5837.967	Transducer	931.8	952.9	Regional
R-42	11/12/11	5837.895	Transducer	931.8	952.9	Regional
R-42	11/11/11	5837.604	Transducer	931.8	952.9	Regional
R-42	11/10/11	5837.417	Transducer	931.8	952.9	Regional
R-42	11/09/11	5837.596	Transducer	931.8	952.9	Regional
R-42	11/08/11	5837.964	Transducer	931.8	952.9	Regional
R-42	11/07/11	5837.893	Transducer	931.8	952.9	Regional
R-42	11/06/11	5837.949	Transducer	931.8	952.9	Regional
R-42	11/05/11	5838.086	Transducer	931.8	952.9	Regional
R-42	11/04/11	5837.744	Transducer	931.8	952.9	Regional
R-42	11/03/11	5837.51	Transducer	931.8	952.9	Regional
R-42	11/02/11	5837.972	Transducer	931.8	952.9	Regional
R-42	11/01/11	5837.745	Transducer	931.8	952.9	Regional
R-42	10/31/11	5837.582	Transducer	931.8	952.9	Regional
R-42	10/30/11	5837.691	Transducer	931.8	952.9	Regional
R-42	10/29/11	5837.605	Transducer	931.8	952.9	Regional
R-42	10/28/11	5837.709	Transducer	931.8	952.9	Regional
R-42	10/27/11	5837.865	Transducer	931.8	952.9	Regional
R-42	10/26/11	5837.784	Transducer	931.8	952.9	Regional
R-42	10/25/11	5837.694	Transducer	931.8	952.9	Regional
R-42	10/24/11	5837.588	Transducer	931.8	952.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-42	10/23/11	5837.617	Transducer	931.8	952.9	Regional
R-42	10/22/11	5837.615	Transducer	931.8	952.9	Regional
R-42	10/21/11	5837.632	Transducer	931.8	952.9	Regional
R-42	10/20/11	5837.745	Transducer	931.8	952.9	Regional
R-42	10/19/11	5837.577	Transducer	931.8	952.9	Regional
R-42	10/18/11	5837.634	Transducer	931.8	952.9	Regional
R-42	10/17/11	5837.724	Transducer	931.8	952.9	Regional
R-42	10/16/11	5837.615	Transducer	931.8	952.9	Regional
R-42	10/15/11	5837.633	Transducer	931.8	952.9	Regional
R-42	10/14/11	5837.714	Transducer	931.8	952.9	Regional
R-42	10/13/11	5837.637	Transducer	931.8	952.9	Regional
R-42	10/12/11	5837.774	Transducer	931.8	952.9	Regional
R-42	10/11/11	5837.806	Transducer	931.8	952.9	Regional
R-42	10/10/11	5837.729	Transducer	931.8	952.9	Regional
R-42	10/09/11	5837.76	Transducer	931.8	952.9	Regional
R-42	10/08/11	5837.938	Transducer	931.8	952.9	Regional
R-42	10/07/11	5837.932	Transducer	931.8	952.9	Regional
R-42	10/06/11	5837.972	Transducer	931.8	952.9	Regional
R-42	10/05/11	5837.786	Transducer	931.8	952.9	Regional
R-42	10/04/11	5837.641	Transducer	931.8	952.9	Regional
R-42	10/03/11	5837.602	Transducer	931.8	952.9	Regional
R-42	10/02/11	5837.583	Transducer	931.8	952.9	Regional
R-42	10/01/11	5837.58	Transducer	931.8	952.9	Regional
R-42	09/30/11	5837.468	Transducer	931.8	952.9	Regional
R-42	09/29/11	5837.667	Transducer	931.8	952.9	Regional
R-42	09/28/11	5837.604	Transducer	931.8	952.9	Regional
R-42	09/27/11	5837.686	Transducer	931.8	952.9	Regional
R-42	09/26/11	5837.798	Transducer	931.8	952.9	Regional
R-42	09/25/11	5837.748	Transducer	931.8	952.9	Regional
R-42	09/24/11	5837.608	Transducer	931.8	952.9	Regional
R-42	09/23/11	5837.562	Transducer	931.8	952.9	Regional
R-42	09/22/11	5837.672	Transducer	931.8	952.9	Regional
R-42	09/21/11	5837.677	Transducer	931.8	952.9	Regional
R-42	09/20/11	5837.666	Transducer	931.8	952.9	Regional
R-42	09/19/11	5837.575	Transducer	931.8	952.9	Regional
R-42	09/18/11	5837.654	Transducer	931.8	952.9	Regional
R-42	09/17/11	5837.718	Transducer	931.8	952.9	Regional
R-42	09/16/11	5837.733	Transducer	931.8	952.9	Regional
R-42	09/15/11	5837.688	Transducer	931.8	952.9	Regional
R-42	09/14/11	5837.656	Transducer	931.8	952.9	Regional
R-42	09/13/11	5837.561	Transducer	931.8	952.9	Regional
R-42	09/12/11	5837.506	Transducer	931.8	952.9	Regional
R-42	09/11/11	5837.531	Transducer	931.8	952.9	Regional
R-42	09/10/11	5837.571	Transducer	931.8	952.9	Regional
R-42	09/09/11	5837.537	Transducer	931.8	952.9	Regional
R-42	09/08/11	5837.433	Transducer	931.8	952.9	Regional
R-42	09/07/11	5837.596	Transducer	931.8	952.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-42	09/06/11	5837.595	Transducer	931.8	952.9	Regional
R-42	09/05/11	5837.526	Transducer	931.8	952.9	Regional
R-42	09/04/11	5837.611	Transducer	931.8	952.9	Regional
R-42	09/03/11	5837.721	Transducer	931.8	952.9	Regional
R-42	09/02/11	5837.637	Transducer	931.8	952.9	Regional
R-42	09/01/11	5837.667	Transducer	931.8	952.9	Regional
R-42	08/31/11	5837.729	Transducer	931.8	952.9	Regional
R-42	08/30/11	5837.712	Transducer	931.8	952.9	Regional
R-42	08/29/11	5837.679	Transducer	931.8	952.9	Regional
R-42	08/28/11	5837.6	Transducer	931.8	952.9	Regional
R-42	08/27/11	5837.52	Transducer	931.8	952.9	Regional
R-42	08/26/11	5837.526	Transducer	931.8	952.9	Regional
R-42	08/25/11	5837.552	Transducer	931.8	952.9	Regional
R-42	08/24/11	5837.619	Transducer	931.8	952.9	Regional
R-42	08/23/11	5837.606	Transducer	931.8	952.9	Regional
R-42	08/22/11	5837.524	Transducer	931.8	952.9	Regional
R-42	08/21/11	5837.61	Transducer	931.8	952.9	Regional
R-42	08/20/11	5837.677	Transducer	931.8	952.9	Regional
R-42	08/19/11	5837.65	Transducer	931.8	952.9	Regional
R-42	08/19/11	5837.718	Transducer	931.8	952.9	Regional
R-42	08/18/11	5837.51	Transducer	931.8	952.9	Regional
R-42	08/17/11	5837.54	Transducer	931.8	952.9	Regional
R-42	08/16/11	5837.69	Transducer	931.8	952.9	Regional
R-42	08/15/11	5837.64	Transducer	931.8	952.9	Regional
R-42	08/14/11	5837.5	Transducer	931.8	952.9	Regional
R-42	08/13/11	5837.64	Transducer	931.8	952.9	Regional
R-42	08/12/11	5837.69	Transducer	931.8	952.9	Regional
R-42	08/11/11	5837.69	Transducer	931.8	952.9	Regional
R-42	08/10/11	5837.75	Transducer	931.8	952.9	Regional
R-42	08/09/11	5837.71	Transducer	931.8	952.9	Regional
R-42	08/08/11	5837.73	Transducer	931.8	952.9	Regional
R-42	08/07/11	5837.68	Transducer	931.8	952.9	Regional
R-42	08/06/11	5837.64	Transducer	931.8	952.9	Regional
R-42	08/05/11	5837.65	Transducer	931.8	952.9	Regional
R-42	08/04/11	5837.64	Transducer	931.8	952.9	Regional
R-42	08/03/11	5837.61	Transducer	931.8	952.9	Regional
R-42	08/02/11	5837.58	Transducer	931.8	952.9	Regional
R-42	08/01/11	5837.5	Transducer	931.8	952.9	Regional
R-42	07/31/11	5837.48	Transducer	931.8	952.9	Regional
R-42	07/30/11	5837.51	Transducer	931.8	952.9	Regional
R-42	07/29/11	5837.6	Transducer	931.8	952.9	Regional
R-42	07/28/11	5837.7	Transducer	931.8	952.9	Regional
R-42	07/27/11	5837.72	Transducer	931.8	952.9	Regional
R-42	07/26/11	5837.65	Transducer	931.8	952.9	Regional
R-42	07/25/11	5837.54	Transducer	931.8	952.9	Regional
R-42	07/24/11	5837.6	Transducer	931.8	952.9	Regional
R-42	07/23/11	5837.71	Transducer	931.8	952.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-42	07/22/11	5837.74	Transducer	931.8	952.9	Regional
R-42	07/21/11	5837.72	Transducer	931.8	952.9	Regional
R-42	07/20/11	5837.65	Transducer	931.8	952.9	Regional
R-42	07/19/11	5837.57	Transducer	931.8	952.9	Regional
R-42	07/18/11	5837.52	Transducer	931.8	952.9	Regional
R-42	07/17/11	5837.61	Transducer	931.8	952.9	Regional
R-42	07/16/11	5837.75	Transducer	931.8	952.9	Regional
R-42	07/15/11	5837.79	Transducer	931.8	952.9	Regional
R-42	07/14/11	5837.76	Transducer	931.8	952.9	Regional
R-42	07/13/11	5837.72	Transducer	931.8	952.9	Regional
R-42	07/12/11	5837.7	Transducer	931.8	952.9	Regional
R-42	07/11/11	5837.7	Transducer	931.8	952.9	Regional
R-42	07/10/11	5837.72	Transducer	931.8	952.9	Regional
R-42	07/09/11	5837.78	Transducer	931.8	952.9	Regional
R-42	07/08/11	5837.73	Transducer	931.8	952.9	Regional
R-42	07/07/11	5837.66	Transducer	931.8	952.9	Regional
R-42	07/06/11	5837.65	Transducer	931.8	952.9	Regional
R-42	07/05/11	5837.65	Transducer	931.8	952.9	Regional
R-42	07/04/11	5837.66	Transducer	931.8	952.9	Regional
R-42	07/03/11	5837.61	Transducer	931.8	952.9	Regional
R-42	07/02/11	5837.68	Transducer	931.8	952.9	Regional
R-42	07/01/11	5837.73	Transducer	931.8	952.9	Regional
R-42	06/30/11	5837.73	Transducer	931.8	952.9	Regional
R-42	06/29/11	5837.65	Transducer	931.8	952.9	Regional
R-42	06/28/11	5837.62	Transducer	931.8	952.9	Regional
R-42	06/27/11	5837.79	Transducer	931.8	952.9	Regional
R-42	06/26/11	5837.81	Transducer	931.8	952.9	Regional
R-42	06/25/11	5837.84	Transducer	931.8	952.9	Regional
R-42	06/24/11	5837.85	Transducer	931.8	952.9	Regional
R-42	06/23/11	5837.76	Transducer	931.8	952.9	Regional
R-42	06/22/11	5837.78	Transducer	931.8	952.9	Regional
R-42	06/21/11	5837.89	Transducer	931.8	952.9	Regional
R-42	06/20/11	5838.05	Transducer	931.8	952.9	Regional
R-42	06/19/11	5837.94	Transducer	931.8	952.9	Regional
R-42	06/18/11	5837.87	Transducer	931.8	952.9	Regional
R-42	06/17/11	5838.01	Transducer	931.8	952.9	Regional
R-42	06/16/11	5837.96	Transducer	931.8	952.9	Regional
R-42	06/15/11	5837.79	Transducer	931.8	952.9	Regional
R-42	06/14/11	5837.84	Transducer	931.8	952.9	Regional
R-42	06/13/11	5837.88	Transducer	931.8	952.9	Regional
R-42	06/12/11	5837.93	Transducer	931.8	952.9	Regional
R-42	06/11/11	5837.86	Transducer	931.8	952.9	Regional
R-42	06/10/11	5837.89	Transducer	931.8	952.9	Regional
R-42	06/09/11	5837.93	Transducer	931.8	952.9	Regional
R-42	06/08/11	5837.9	Transducer	931.8	952.9	Regional
R-42	06/07/11	5837.9	Transducer	931.8	952.9	Regional
R-42	06/06/11	5837.72	Transducer	931.8	952.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-42	06/05/11	5837.61	Transducer	931.8	952.9	Regional
R-42	06/04/11	5837.79	Transducer	931.8	952.9	Regional
R-42	06/03/11	5837.9	Transducer	931.8	952.9	Regional
R-42	06/02/11	5837.84	Transducer	931.8	952.9	Regional
R-42	06/01/11	5837.65	Transducer	931.8	952.9	Regional
R-42	05/31/11	5837.76	Transducer	931.8	952.9	Regional
R-42	05/30/11	5838.25	Transducer	931.8	952.9	Regional
R-42	05/29/11	5838.23	Transducer	931.8	952.9	Regional
R-42	05/28/11	5838.14	Transducer	931.8	952.9	Regional
R-42	05/27/11	5838.07	Transducer	931.8	952.9	Regional
R-42	05/26/11	5837.93	Transducer	931.8	952.9	Regional
R-42	05/25/11	5838.04	Transducer	931.8	952.9	Regional
R-42	05/24/11	5838.22	Transducer	931.8	952.9	Regional
R-42	05/23/11	5838.12	Transducer	931.8	952.9	Regional
R-42	05/22/11	5838.09	Transducer	931.8	952.9	Regional
R-42	05/21/11	5838.13	Transducer	931.8	952.9	Regional
R-42	05/20/11	5838.24	Transducer	931.8	952.9	Regional
R-42	05/19/11	5838.43	Transducer	931.8	952.9	Regional
R-42	05/18/11	5838.39	Transducer	931.8	952.9	Regional
R-42	05/17/11	5838.3	Transducer	931.8	952.9	Regional
R-42	05/16/11	5838.14	Transducer	931.8	952.9	Regional
R-42	05/15/11	5838.15	Transducer	931.8	952.9	Regional
R-42	05/14/11	5838.04	Transducer	931.8	952.9	Regional
R-42	05/13/11	5838.04	Transducer	931.8	952.9	Regional
R-42	05/12/11	5838.26	Transducer	931.8	952.9	Regional
R-42	05/11/11	5838.52	Transducer	931.8	952.9	Regional
R-42	05/10/11	5838.5	Transducer	931.8	952.9	Regional
R-42	05/09/11	5838.49	Transducer	931.8	952.9	Regional
R-42	05/08/11	5838.37	Transducer	931.8	952.9	Regional
R-42	05/07/11	5838.32	Transducer	931.8	952.9	Regional
R-42	05/06/11	5838.17	Transducer	931.8	952.9	Regional
R-42	05/05/11	5838.13	Transducer	931.8	952.9	Regional
R-42	05/04/11	5838.1	Transducer	931.8	952.9	Regional
R-42	05/03/11	5838	Transducer	931.8	952.9	Regional
R-42	05/02/11	5838.17	Transducer	931.8	952.9	Regional
R-42	05/01/11	5838.46	Transducer	931.8	952.9	Regional
R-42	04/30/11	5838.55	Transducer	931.8	952.9	Regional
R-42	04/29/11	5838.45	Transducer	931.8	952.9	Regional
R-42	04/28/11	5838.22	Transducer	931.8	952.9	Regional
R-42	04/27/11	5838.62	Transducer	931.8	952.9	Regional
R-42	04/26/11	5838.67	Transducer	931.8	952.9	Regional
R-42	04/25/11	5838.58	Transducer	931.8	952.9	Regional
R-42	04/24/11	5838.54	Transducer	931.8	952.9	Regional
R-42	04/23/11	5838.58	Transducer	931.8	952.9	Regional
R-42	04/22/11	5838.57	Transducer	931.8	952.9	Regional
R-42	04/21/11	5838.48	Transducer	931.8	952.9	Regional
R-42	04/20/11	5838.48	Transducer	931.8	952.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-42	04/19/11	5838.7	Transducer	931.8	952.9	Regional
R-42	04/18/11	5838.57	Transducer	931.8	952.9	Regional
R-42	04/17/11	5838.5	Transducer	931.8	952.9	Regional
R-42	04/16/11	5838.4	Transducer	931.8	952.9	Regional
R-42	04/15/11	5838.46	Transducer	931.8	952.9	Regional
R-42	04/14/11	5838.6	Transducer	931.8	952.9	Regional
R-42	04/13/11	5838.49	Transducer	931.8	952.9	Regional
R-42	04/12/11	5838.32	Transducer	931.8	952.9	Regional
R-42	04/11/11	5838.35	Transducer	931.8	952.9	Regional
R-42	04/10/11	5838.61	Transducer	931.8	952.9	Regional
R-42	04/09/11	5838.69	Transducer	931.8	952.9	Regional
R-42	04/08/11	5838.68	Transducer	931.8	952.9	Regional
R-42	04/07/11	5838.56	Transducer	931.8	952.9	Regional
R-42	04/06/11	5838.58	Transducer	931.8	952.9	Regional
R-42	04/05/11	5838.34	Transducer	931.8	952.9	Regional
R-42	04/04/11	5838.51	Transducer	931.8	952.9	Regional
R-42	04/03/11	5838.6	Transducer	931.8	952.9	Regional
R-42	04/02/11	5838.43	Transducer	931.8	952.9	Regional
R-42	04/01/11	5838.5	Transducer	931.8	952.9	Regional
R-42	03/31/11	5838.48	Transducer	931.8	952.9	Regional
R-42	03/30/11	5838.44	Transducer	931.8	952.9	Regional
R-42	03/29/11	5838.61	Transducer	931.8	952.9	Regional
R-42	03/28/11	5838.65	Transducer	931.8	952.9	Regional
R-42	03/27/11	5838.74	Transducer	931.8	952.9	Regional
R-42	03/26/11	5838.69	Transducer	931.8	952.9	Regional
R-42	03/25/11	5838.57	Transducer	931.8	952.9	Regional
R-42	03/24/11	5838.56	Transducer	931.8	952.9	Regional
R-42	03/23/11	5838.55	Transducer	931.8	952.9	Regional
R-42	03/22/11	5838.75	Transducer	931.8	952.9	Regional
R-42	03/21/11	5838.52	Transducer	931.8	952.9	Regional
R-42	03/20/11	5838.48	Transducer	931.8	952.9	Regional
R-42	03/19/11	5838.36	Transducer	931.8	952.9	Regional
R-42	03/18/11	5838.39	Transducer	931.8	952.9	Regional
R-42	03/17/11	5838.46	Transducer	931.8	952.9	Regional
R-42	03/16/11	5838.37	Transducer	931.8	952.9	Regional
R-42	03/15/11	5838.39	Transducer	931.8	952.9	Regional
R-42	03/14/11	5838.22	Transducer	931.8	952.9	Regional
R-42	03/13/11	5838.45	Transducer	931.8	952.9	Regional
R-42	03/12/11	5838.42	Transducer	931.8	952.9	Regional
R-42	03/11/11	5838.3	Transducer	931.8	952.9	Regional
R-42	03/10/11	5838.11	Transducer	931.8	952.9	Regional
R-42	03/09/11	5838.35	Transducer	931.8	952.9	Regional
R-42	03/08/11	5838.82	Transducer	931.8	952.9	Regional
R-42	03/07/11	5838.7	Transducer	931.8	952.9	Regional
R-42	03/06/11	5838.34	Transducer	931.8	952.9	Regional
R-42	03/05/11	5838.16	Transducer	931.8	952.9	Regional
R-42	03/04/11	5838.48	Transducer	931.8	952.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-42	03/03/11	5838.34	Transducer	931.8	952.9	Regional
R-42	03/02/11	5838.29	Transducer	931.8	952.9	Regional
R-42	03/01/11	5838.18	Transducer	931.8	952.9	Regional
R-42	02/28/11	5838.44	Transducer	931.8	952.9	Regional
R-42	02/27/11	5838.77	Transducer	931.8	952.9	Regional
R-42	02/26/11	5838.64	Transducer	931.8	952.9	Regional
R-42	02/25/11	5838.48	Transducer	931.8	952.9	Regional
R-42	02/24/11	5838.65	Transducer	931.8	952.9	Regional
R-42	02/23/11	5838.54	Transducer	931.8	952.9	Regional
R-42	02/22/11	5838.54	Transducer	931.8	952.9	Regional
R-42	02/21/11	5838.66	Transducer	931.8	952.9	Regional
R-42	02/20/11	5838.72	Transducer	931.8	952.9	Regional
R-42	02/19/11	5838.35	Transducer	931.8	952.9	Regional
R-42	02/18/11	5838.4	Transducer	931.8	952.9	Regional
R-42	02/17/11	5838.61	Transducer	931.8	952.9	Regional
R-42	02/16/11	5838.41	Transducer	931.8	952.9	Regional
R-42	02/15/11	5838.33	Transducer	931.8	952.9	Regional
R-42	02/14/11	5838.21	Transducer	931.8	952.9	Regional
R-42	02/13/11	5838.12	Transducer	931.8	952.9	Regional
R-42	02/12/11	5838.1	Transducer	931.8	952.9	Regional
R-42	02/11/11	5838.35	Transducer	931.8	952.9	Regional
R-42	02/10/11	5838.39	Transducer	931.8	952.9	Regional
R-42	02/09/11	5838.47	Transducer	931.8	952.9	Regional
R-42	02/08/11	5838.66	Transducer	931.8	952.9	Regional
R-42	02/07/11	5838.25	Transducer	931.8	952.9	Regional
R-42	02/06/11	5838.6	Transducer	931.8	952.9	Regional
R-42	02/05/11	5838.46	Transducer	931.8	952.9	Regional
R-42	02/04/11	5838.37	Transducer	931.8	952.9	Regional
R-42	02/03/11	5838.26	Transducer	931.8	952.9	Regional
R-42	02/02/11	5838.47	Transducer	931.8	952.9	Regional
R-42	02/01/11	5838.64	Transducer	931.8	952.9	Regional
R-42	01/31/11	5838.52	Transducer	931.8	952.9	Regional
R-42	01/30/11	5838.4	Transducer	931.8	952.9	Regional
R-42	01/29/11	5838.39	Transducer	931.8	952.9	Regional
R-42	01/28/11	5838.23	Transducer	931.8	952.9	Regional
R-42	01/27/11	5838.19	Transducer	931.8	952.9	Regional
R-42	01/26/11	5838.37	Transducer	931.8	952.9	Regional
R-42	01/25/11	5838.27	Transducer	931.8	952.9	Regional
R-42	01/24/11	5838.43	Transducer	931.8	952.9	Regional
R-42	01/23/11	5838.49	Transducer	931.8	952.9	Regional
R-42	01/22/11	5838.37	Transducer	931.8	952.9	Regional
R-42	01/21/11	5838.36	Transducer	931.8	952.9	Regional
R-42	01/20/11	5838.5	Transducer	931.8	952.9	Regional
R-42	01/19/11	5838.44	Transducer	931.8	952.9	Regional
R-42	01/18/11	5838.48	Transducer	931.8	952.9	Regional
R-42	01/17/11	5838.37	Transducer	931.8	952.9	Regional
R-42	01/16/11	5838.29	Transducer	931.8	952.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-42	01/15/11	5838.11	Transducer	931.8	952.9	Regional
R-42	01/14/11	5838.2	Transducer	931.8	952.9	Regional
R-42	01/13/11	5838.07	Transducer	931.8	952.9	Regional
R-42	01/12/11	5838.09	Transducer	931.8	952.9	Regional
R-42	01/11/11	5838.17	Transducer	931.8	952.9	Regional
R-42	01/10/11	5838.63	Transducer	931.8	952.9	Regional
R-42	01/09/11	5838.66	Transducer	931.8	952.9	Regional
R-42	01/08/11	5838.44	Transducer	931.8	952.9	Regional
R-42	01/07/11	5838.26	Transducer	931.8	952.9	Regional
R-42	01/06/11	5838.14	Transducer	931.8	952.9	Regional
R-42	01/05/11	5838.22	Transducer	931.8	952.9	Regional
R-42	01/04/11	5838.3	Transducer	931.8	952.9	Regional
R-42	01/03/11	5838.29	Transducer	931.8	952.9	Regional
R-42	01/02/11	5838.17	Transducer	931.8	952.9	Regional
R-42	01/01/11	5838.49	Transducer	931.8	952.9	Regional
R-42	12/31/10	5839.02	Transducer	931.8	952.9	Regional
R-42	12/30/10	5838.96	Transducer	931.8	952.9	Regional
R-42	12/29/10	5838.51	Transducer	931.8	952.9	Regional
R-42	12/28/10	5838.32	Transducer	931.8	952.9	Regional
R-42	12/27/10	5838.33	Transducer	931.8	952.9	Regional
R-42	12/26/10	5838.12	Transducer	931.8	952.9	Regional
R-42	12/25/10	5838.08	Transducer	931.8	952.9	Regional
R-42	12/24/10	5838.28	Transducer	931.8	952.9	Regional
R-42	12/23/10	5838.28	Transducer	931.8	952.9	Regional
R-42	12/22/10	5838.19	Transducer	931.8	952.9	Regional
R-42	12/21/10	5838.35	Transducer	931.8	952.9	Regional
R-42	12/20/10	5838.47	Transducer	931.8	952.9	Regional
R-42	12/19/10	5838.42	Transducer	931.8	952.9	Regional
R-42	12/18/10	5838.39	Transducer	931.8	952.9	Regional
R-42	12/17/10	5838.49	Transducer	931.8	952.9	Regional
R-42	12/16/10	5838.51	Transducer	931.8	952.9	Regional
R-42	12/15/10	5838.52	Transducer	931.8	952.9	Regional
R-42	12/14/10	5838.25	Transducer	931.8	952.9	Regional
R-42	12/13/10	5838.08	Transducer	931.8	952.9	Regional
R-42	12/12/10	5838.09	Transducer	931.8	952.9	Regional
R-42	12/11/10	5838.32	Transducer	931.8	952.9	Regional
R-42	12/10/10	5838.26	Transducer	931.8	952.9	Regional
R-42	12/09/10	5838.15	Transducer	931.8	952.9	Regional
R-42	12/08/10	5838	Transducer	931.8	952.9	Regional
R-42	12/07/10	5838.16	Transducer	931.8	952.9	Regional
R-42	12/06/10	5837.98	Transducer	931.8	952.9	Regional
R-42	12/05/10	5838.05	Transducer	931.8	952.9	Regional
R-42	12/04/10	5838.09	Transducer	931.8	952.9	Regional
R-42	12/03/10	5838.04	Transducer	931.8	952.9	Regional
R-42	12/02/10	5838.04	Transducer	931.8	952.9	Regional
R-42	12/01/10	5837.95	Transducer	931.8	952.9	Regional
R-42	11/30/10	5838.1	Transducer	931.8	952.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-42	11/29/10	5838.61	Transducer	931.8	952.9	Regional
R-42	11/28/10	5838.46	Transducer	931.8	952.9	Regional
R-42	11/27/10	5838.08	Transducer	931.8	952.9	Regional
R-42	11/26/10	5838.1	Transducer	931.8	952.9	Regional
R-42	11/25/10	5838.47	Transducer	931.8	952.9	Regional
R-42	11/24/10	5838.5	Transducer	931.8	952.9	Regional
R-42	11/23/10	5838.17	Transducer	931.8	952.9	Regional
R-42	11/22/10	5838.45	Transducer	931.8	952.9	Regional
R-42	11/21/10	5838.35	Transducer	931.8	952.9	Regional
R-42	11/20/10	5838.23	Transducer	931.8	952.9	Regional
R-42	11/19/10	5838.09	Transducer	931.8	952.9	Regional
R-42	11/18/10	5837.91	Transducer	931.8	952.9	Regional
R-42	11/17/10	5838.42	Transducer	931.8	952.9	Regional
R-42	11/16/10	5838.27	Transducer	931.8	952.9	Regional
R-42	11/15/10	5838.45	Transducer	931.8	952.9	Regional
R-42	11/14/10	5838.24	Transducer	931.8	952.9	Regional
R-42	11/13/10	5838.01	Transducer	931.8	952.9	Regional
R-42	11/12/10	5838.09	Transducer	931.8	952.9	Regional
R-42	11/11/10	5838.34	Transducer	931.8	952.9	Regional
R-42	11/10/10	5838.35	Transducer	931.8	952.9	Regional
R-42	11/09/10	5838.45	Transducer	931.8	952.9	Regional
R-42	11/08/10	5838.15	Transducer	931.8	952.9	Regional
R-42	11/07/10	5838.03	Transducer	931.8	952.9	Regional
R-42	11/06/10	5838.01	Transducer	931.8	952.9	Regional
R-42	11/05/10	5837.94	Transducer	931.8	952.9	Regional
R-42	11/04/10	5837.75	Transducer	931.8	952.9	Regional
R-42	11/03/10	5837.8	Transducer	931.8	952.9	Regional
R-42	11/02/10	5837.76	Transducer	931.8	952.9	Regional
R-42	11/01/10	5838	Transducer	931.8	952.9	Regional
R-42	10/31/10	5838.09	Transducer	931.8	952.9	Regional
R-42	10/30/10	5837.94	Transducer	931.8	952.9	Regional
R-43 S1	11/15/12	5836.83	Transducer	903.9	924.6	Regional
R-43 S1	11/14/12	5836.76	Transducer	903.9	924.6	Regional
R-43 S1	11/13/12	5836.76	Transducer	903.9	924.6	Regional
R-43 S1	11/12/12	5836.79	Transducer	903.9	924.6	Regional
R-43 S1	11/11/12	5837.25	Transducer	903.9	924.6	Regional
R-43 S1	11/10/12	5837.26	Transducer	903.9	924.6	Regional
R-43 S1	11/09/12	5837.11	Transducer	903.9	924.6	Regional
R-43 S1	11/08/12	5836.98	Transducer	903.9	924.6	Regional
R-43 S1	11/07/12	5836.78	Transducer	903.9	924.6	Regional
R-43 S1	11/06/12	5836.8	Transducer	903.9	924.6	Regional
R-43 S1	11/05/12	5836.77	Transducer	903.9	924.6	Regional
R-43 S1	11/04/12	5836.81	Transducer	903.9	924.6	Regional
R-43 S1	11/03/12	5836.91	Transducer	903.9	924.6	Regional
R-43 S1	11/02/12	5836.94	Transducer	903.9	924.6	Regional
R-43 S1	11/01/12	5836.83	Transducer	903.9	924.6	Regional
R-43 S1	10/31/12	5836.85	Transducer	903.9	924.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S1	10/30/12	5836.83	Transducer	903.9	924.6	Regional
R-43 S1	10/29/12	5836.83	Transducer	903.9	924.6	Regional
R-43 S1	10/28/12	5836.89	Transducer	903.9	924.6	Regional
R-43 S1	10/27/12	5836.81	Transducer	903.9	924.6	Regional
R-43 S1	10/26/12	5836.88	Transducer	903.9	924.6	Regional
R-43 S1	10/25/12	5837.1	Transducer	903.9	924.6	Regional
R-43 S1	10/24/12	5837.06	Transducer	903.9	924.6	Regional
R-43 S1	10/23/12	5837.04	Transducer	903.9	924.6	Regional
R-43 S1	10/22/12	5837.08	Transducer	903.9	924.6	Regional
R-43 S1	10/21/12	5837.13	Transducer	903.9	924.6	Regional
R-43 S1	10/20/12	5837.03	Transducer	903.9	924.6	Regional
R-43 S1	10/19/12	5836.93	Transducer	903.9	924.6	Regional
R-43 S1	10/18/12	5837.02	Transducer	903.9	924.6	Regional
R-43 S1	10/17/12	5837.18	Transducer	903.9	924.6	Regional
R-43 S1	10/16/12	5837.01	Transducer	903.9	924.6	Regional
R-43 S1	10/15/12	5836.83	Transducer	903.9	924.6	Regional
R-43 S1	10/14/12	5836.87	Transducer	903.9	924.6	Regional
R-43 S1	10/13/12	5837.03	Transducer	903.9	924.6	Regional
R-43 S1	10/12/12	5836.94	Transducer	903.9	924.6	Regional
R-43 S1	10/11/12	5836.99	Transducer	903.9	924.6	Regional
R-43 S1	10/10/12	5836.97	Transducer	903.9	924.6	Regional
R-43 S1	10/09/12	5837.05	Transducer	903.9	924.6	Regional
R-43 S1	10/08/12	5837.03	Transducer	903.9	924.6	Regional
R-43 S1	10/07/12	5837.02	Transducer	903.9	924.6	Regional
R-43 S1	10/06/12	5837.05	Transducer	903.9	924.6	Regional
R-43 S1	10/05/12	5837	Transducer	903.9	924.6	Regional
R-43 S1	10/04/12	5836.98	Transducer	903.9	924.6	Regional
R-43 S1	10/03/12	5837.08	Transducer	903.9	924.6	Regional
R-43 S1	10/02/12	5836.93	Transducer	903.9	924.6	Regional
R-43 S1	10/01/12	5836.95	Transducer	903.9	924.6	Regional
R-43 S1	09/30/12	5836.95	Transducer	903.9	924.6	Regional
R-43 S1	09/29/12	5836.97	Transducer	903.9	924.6	Regional
R-43 S1	09/28/12	5836.98	Transducer	903.9	924.6	Regional
R-43 S1	09/27/12	5837.01	Transducer	903.9	924.6	Regional
R-43 S1	09/26/12	5837.1	Transducer	903.9	924.6	Regional
R-43 S1	09/25/12	5837.03	Transducer	903.9	924.6	Regional
R-43 S1	09/24/12	5836.94	Transducer	903.9	924.6	Regional
R-43 S1	09/23/12	5836.92	Transducer	903.9	924.6	Regional
R-43 S1	09/22/12	5836.95	Transducer	903.9	924.6	Regional
R-43 S1	09/21/12	5836.99	Transducer	903.9	924.6	Regional
R-43 S1	09/20/12	5836.97	Transducer	903.9	924.6	Regional
R-43 S1	09/19/12	5836.96	Transducer	903.9	924.6	Regional
R-43 S1	09/18/12	5836.95	Transducer	903.9	924.6	Regional
R-43 S1	09/17/12	5837.07	Transducer	903.9	924.6	Regional
R-43 S1	09/16/12	5836.95	Transducer	903.9	924.6	Regional
R-43 S1	09/15/12	5836.8	Transducer	903.9	924.6	Regional
R-43 S1	09/14/12	5836.74	Transducer	903.9	924.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S1	09/13/12	5836.78	Transducer	903.9	924.6	Regional
R-43 S1	09/13/12	5836.911	Transducer	903.9	924.6	Regional
R-43 S1	09/12/12	5837.042	Transducer	903.9	924.6	Regional
R-43 S1	09/11/12	5837.028	Transducer	903.9	924.6	Regional
R-43 S1	09/10/12	5836.921	Transducer	903.9	924.6	Regional
R-43 S1	09/09/12	5836.866	Transducer	903.9	924.6	Regional
R-43 S1	09/08/12	5836.882	Transducer	903.9	924.6	Regional
R-43 S1	09/07/12	5837.063	Transducer	903.9	924.6	Regional
R-43 S1	09/06/12	5837.025	Transducer	903.9	924.6	Regional
R-43 S1	09/05/12	5837.059	Transducer	903.9	924.6	Regional
R-43 S1	09/04/12	5836.994	Transducer	903.9	924.6	Regional
R-43 S1	09/03/12	5837.021	Transducer	903.9	924.6	Regional
R-43 S1	09/02/12	5836.989	Transducer	903.9	924.6	Regional
R-43 S1	09/01/12	5836.995	Transducer	903.9	924.6	Regional
R-43 S1	08/31/12	5837.044	Transducer	903.9	924.6	Regional
R-43 S1	08/30/12	5837.035	Transducer	903.9	924.6	Regional
R-43 S1	08/29/12	5836.941	Transducer	903.9	924.6	Regional
R-43 S1	08/28/12	5836.885	Transducer	903.9	924.6	Regional
R-43 S1	08/27/12	5836.944	Transducer	903.9	924.6	Regional
R-43 S1	08/26/12	5837.081	Transducer	903.9	924.6	Regional
R-43 S1	08/25/12	5837.209	Transducer	903.9	924.6	Regional
R-43 S1	08/24/12	5837.163	Transducer	903.9	924.6	Regional
R-43 S1	08/23/12	5837.087	Transducer	903.9	924.6	Regional
R-43 S1	08/22/12	5837.049	Transducer	903.9	924.6	Regional
R-43 S1	08/21/12	5837.085	Transducer	903.9	924.6	Regional
R-43 S1	08/20/12	5837.076	Transducer	903.9	924.6	Regional
R-43 S1	08/19/12	5837.118	Transducer	903.9	924.6	Regional
R-43 S1	08/18/12	5837.083	Transducer	903.9	924.6	Regional
R-43 S1	08/17/12	5837.036	Transducer	903.9	924.6	Regional
R-43 S1	08/16/12	5837.184	Transducer	903.9	924.6	Regional
R-43 S1	08/15/12	5837.212	Transducer	903.9	924.6	Regional
R-43 S1	08/14/12	5837.121	Transducer	903.9	924.6	Regional
R-43 S1	08/13/12	5836.968	Transducer	903.9	924.6	Regional
R-43 S1	08/12/12	5837.102	Transducer	903.9	924.6	Regional
R-43 S1	08/11/12	5837.081	Transducer	903.9	924.6	Regional
R-43 S1	08/10/12	5837.015	Transducer	903.9	924.6	Regional
R-43 S1	08/09/12	5836.974	Transducer	903.9	924.6	Regional
R-43 S1	08/08/12	5837.016	Transducer	903.9	924.6	Regional
R-43 S1	08/07/12	5837.017	Transducer	903.9	924.6	Regional
R-43 S1	08/06/12	5836.848	Transducer	903.9	924.6	Regional
R-43 S1	08/05/12	5836.95	Transducer	903.9	924.6	Regional
R-43 S1	08/04/12	5837.152	Transducer	903.9	924.6	Regional
R-43 S1	08/03/12	5837.069	Transducer	903.9	924.6	Regional
R-43 S1	08/02/12	5837.094	Transducer	903.9	924.6	Regional
R-43 S1	08/01/12	5837.017	Transducer	903.9	924.6	Regional
R-43 S1	07/31/12	5837.073	Transducer	903.9	924.6	Regional
R-43 S1	07/30/12	5837.075	Transducer	903.9	924.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S1	07/29/12	5837.007	Transducer	903.9	924.6	Regional
R-43 S1	07/28/12	5837.005	Transducer	903.9	924.6	Regional
R-43 S1	07/27/12	5837.074	Transducer	903.9	924.6	Regional
R-43 S1	07/26/12	5837.199	Transducer	903.9	924.6	Regional
R-43 S1	07/25/12	5837.189	Transducer	903.9	924.6	Regional
R-43 S1	07/24/12	5837.075	Transducer	903.9	924.6	Regional
R-43 S1	07/23/12	5837.04	Transducer	903.9	924.6	Regional
R-43 S1	07/22/12	5837.02	Transducer	903.9	924.6	Regional
R-43 S1	07/21/12	5836.989	Transducer	903.9	924.6	Regional
R-43 S1	07/20/12	5836.984	Transducer	903.9	924.6	Regional
R-43 S1	07/19/12	5837.055	Transducer	903.9	924.6	Regional
R-43 S1	07/18/12	5837.169	Transducer	903.9	924.6	Regional
R-43 S1	07/17/12	5837.216	Transducer	903.9	924.6	Regional
R-43 S1	07/16/12	5837.163	Transducer	903.9	924.6	Regional
R-43 S1	07/15/12	5837.111	Transducer	903.9	924.6	Regional
R-43 S1	07/14/12	5837.08	Transducer	903.9	924.6	Regional
R-43 S1	07/13/12	5837.076	Transducer	903.9	924.6	Regional
R-43 S1	07/12/12	5837.057	Transducer	903.9	924.6	Regional
R-43 S1	07/11/12	5837.01	Manual	903.9	924.6	Regional
R-43 S1	07/11/12	5837.005	Transducer	903.9	924.6	Regional
R-43 S1	07/10/12	5837.006	Transducer	903.9	924.6	Regional
R-43 S1	07/09/12	5837.019	Transducer	903.9	924.6	Regional
R-43 S1	07/08/12	5837	Transducer	903.9	924.6	Regional
R-43 S1	07/07/12	5837.059	Transducer	903.9	924.6	Regional
R-43 S1	07/06/12	5837.13	Transducer	903.9	924.6	Regional
R-43 S1	07/05/12	5837.189	Transducer	903.9	924.6	Regional
R-43 S1	07/04/12	5837.209	Transducer	903.9	924.6	Regional
R-43 S1	07/03/12	5837.192	Transducer	903.9	924.6	Regional
R-43 S1	07/02/12	5837.199	Transducer	903.9	924.6	Regional
R-43 S1	07/01/12	5837.216	Transducer	903.9	924.6	Regional
R-43 S1	06/30/12	5837.194	Transducer	903.9	924.6	Regional
R-43 S1	06/29/12	5837.081	Transducer	903.9	924.6	Regional
R-43 S1	06/28/12	5837.115	Transducer	903.9	924.6	Regional
R-43 S1	06/27/12	5837.236	Transducer	903.9	924.6	Regional
R-43 S1	06/26/12	5837.18	Transducer	903.9	924.6	Regional
R-43 S1	06/25/12	5837.1	Transducer	903.9	924.6	Regional
R-43 S1	06/24/12	5837.174	Transducer	903.9	924.6	Regional
R-43 S1	06/23/12	5837.285	Transducer	903.9	924.6	Regional
R-43 S1	06/22/12	5837.154	Transducer	903.9	924.6	Regional
R-43 S1	06/21/12	5837.236	Transducer	903.9	924.6	Regional
R-43 S1	06/20/12	5837.456	Transducer	903.9	924.6	Regional
R-43 S1	06/19/12	5837.438	Transducer	903.9	924.6	Regional
R-43 S1	06/18/12	5837.374	Transducer	903.9	924.6	Regional
R-43 S1	06/17/12	5837.114	Transducer	903.9	924.6	Regional
R-43 S1	06/16/12	5837.261	Transducer	903.9	924.6	Regional
R-43 S1	06/15/12	5837.389	Transducer	903.9	924.6	Regional
R-43 S1	06/14/12	5837.406	Transducer	903.9	924.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S1	06/13/12	5837.308	Transducer	903.9	924.6	Regional
R-43 S1	06/12/12	5837.207	Transducer	903.9	924.6	Regional
R-43 S1	06/11/12	5837.338	Transducer	903.9	924.6	Regional
R-43 S1	06/10/12	5837.529	Transducer	903.9	924.6	Regional
R-43 S1	06/09/12	5837.492	Transducer	903.9	924.6	Regional
R-43 S1	06/08/12	5837.375	Transducer	903.9	924.6	Regional
R-43 S1	06/07/12	5837.481	Transducer	903.9	924.6	Regional
R-43 S1	06/06/12	5837.463	Transducer	903.9	924.6	Regional
R-43 S1	06/06/12	5837.453	Transducer	903.9	924.6	Regional
R-43 S1	06/05/12	5837.381	Transducer	903.9	924.6	Regional
R-43 S1	06/04/12	5837.367	Transducer	903.9	924.6	Regional
R-43 S1	06/03/12	5837.459	Transducer	903.9	924.6	Regional
R-43 S1	06/02/12	5837.499	Transducer	903.9	924.6	Regional
R-43 S1	06/01/12	5837.457	Transducer	903.9	924.6	Regional
R-43 S1	05/31/12	5837.515	Transducer	903.9	924.6	Regional
R-43 S1	05/30/12	5837.511	Transducer	903.9	924.6	Regional
R-43 S1	05/29/12	5837.483	Transducer	903.9	924.6	Regional
R-43 S1	05/28/12	5837.529	Transducer	903.9	924.6	Regional
R-43 S1	05/27/12	5837.665	Transducer	903.9	924.6	Regional
R-43 S1	05/26/12	5837.711	Transducer	903.9	924.6	Regional
R-43 S1	05/25/12	5837.84	Transducer	903.9	924.6	Regional
R-43 S1	05/24/12	5838.002	Transducer	903.9	924.6	Regional
R-43 S1	05/23/12	5837.814	Transducer	903.9	924.6	Regional
R-43 S1	05/22/12	5837.47	Transducer	903.9	924.6	Regional
R-43 S1	05/21/12	5837.374	Transducer	903.9	924.6	Regional
R-43 S1	05/20/12	5837.544	Transducer	903.9	924.6	Regional
R-43 S1	05/19/12	5837.775	Transducer	903.9	924.6	Regional
R-43 S1	05/18/12	5837.765	Transducer	903.9	924.6	Regional
R-43 S1	05/17/12	5837.584	Transducer	903.9	924.6	Regional
R-43 S1	05/16/12	5837.419	Transducer	903.9	924.6	Regional
R-43 S1	05/15/12	5837.406	Transducer	903.9	924.6	Regional
R-43 S1	05/14/12	5837.43	Transducer	903.9	924.6	Regional
R-43 S1	05/13/12	5837.364	Transducer	903.9	924.6	Regional
R-43 S1	05/12/12	5837.438	Transducer	903.9	924.6	Regional
R-43 S1	05/11/12	5837.717	Transducer	903.9	924.6	Regional
R-43 S1	05/10/12	5837.613	Transducer	903.9	924.6	Regional
R-43 S1	05/09/12	5837.482	Transducer	903.9	924.6	Regional
R-43 S1	05/08/12	5837.51	Transducer	903.9	924.6	Regional
R-43 S1	05/07/12	5837.625	Transducer	903.9	924.6	Regional
R-43 S1	05/06/12	5837.689	Transducer	903.9	924.6	Regional
R-43 S1	05/05/12	5837.683	Transducer	903.9	924.6	Regional
R-43 S1	05/04/12	5837.667	Transducer	903.9	924.6	Regional
R-43 S1	05/03/12	5837.748	Transducer	903.9	924.6	Regional
R-43 S1	05/02/12	5837.813	Transducer	903.9	924.6	Regional
R-43 S1	05/01/12	5837.806	Transducer	903.9	924.6	Regional
R-43 S1	04/30/12	5837.708	Transducer	903.9	924.6	Regional
R-43 S1	04/29/12	5837.792	Transducer	903.9	924.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S1	04/28/12	5837.808	Transducer	903.9	924.6	Regional
R-43 S1	04/27/12	5837.851	Transducer	903.9	924.6	Regional
R-43 S1	04/26/12	5837.661	Transducer	903.9	924.6	Regional
R-43 S1	04/25/12	5837.719	Transducer	903.9	924.6	Regional
R-43 S1	04/24/12	5837.634	Transducer	903.9	924.6	Regional
R-43 S1	04/23/12	5837.501	Transducer	903.9	924.6	Regional
R-43 S1	04/22/12	5837.555	Transducer	903.9	924.6	Regional
R-43 S1	04/21/12	5837.611	Transducer	903.9	924.6	Regional
R-43 S1	04/20/12	5837.696	Transducer	903.9	924.6	Regional
R-43 S1	04/19/12	5837.767	Transducer	903.9	924.6	Regional
R-43 S1	04/18/12	5837.635	Transducer	903.9	924.6	Regional
R-43 S1	04/17/12	5837.562	Transducer	903.9	924.6	Regional
R-43 S1	04/16/12	5837.711	Transducer	903.9	924.6	Regional
R-43 S1	04/15/12	5838.06	Transducer	903.9	924.6	Regional
R-43 S1	04/14/12	5838.061	Transducer	903.9	924.6	Regional
R-43 S1	04/13/12	5837.834	Transducer	903.9	924.6	Regional
R-43 S1	04/12/12	5837.853	Transducer	903.9	924.6	Regional
R-43 S1	04/11/12	5837.639	Transducer	903.9	924.6	Regional
R-43 S1	04/10/12	5837.597	Transducer	903.9	924.6	Regional
R-43 S1	04/09/12	5837.531	Transducer	903.9	924.6	Regional
R-43 S1	04/08/12	5837.392	Transducer	903.9	924.6	Regional
R-43 S1	04/07/12	5837.655	Transducer	903.9	924.6	Regional
R-43 S1	04/06/12	5837.813	Transducer	903.9	924.6	Regional
R-43 S1	04/05/12	5837.793	Transducer	903.9	924.6	Regional
R-43 S1	04/04/12	5837.769	Transducer	903.9	924.6	Regional
R-43 S1	04/03/12	5837.941	Transducer	903.9	924.6	Regional
R-43 S1	04/02/12	5838.054	Transducer	903.9	924.6	Regional
R-43 S1	04/01/12	5837.836	Transducer	903.9	924.6	Regional
R-43 S1	03/31/12	5837.722	Transducer	903.9	924.6	Regional
R-43 S1	03/30/12	5837.751	Transducer	903.9	924.6	Regional
R-43 S1	03/29/12	5837.759	Transducer	903.9	924.6	Regional
R-43 S1	03/28/12	5837.693	Transducer	903.9	924.6	Regional
R-43 S1	03/27/12	5837.73	Transducer	903.9	924.6	Regional
R-43 S1	03/26/12	5837.757	Transducer	903.9	924.6	Regional
R-43 S1	03/25/12	5837.643	Transducer	903.9	924.6	Regional
R-43 S1	03/24/12	5837.653	Transducer	903.9	924.6	Regional
R-43 S1	03/23/12	5837.748	Transducer	903.9	924.6	Regional
R-43 S1	03/22/12	5837.834	Transducer	903.9	924.6	Regional
R-43 S1	03/21/12	5837.834	Transducer	903.9	924.6	Regional
R-43 S1	03/20/12	5838.118	Transducer	903.9	924.6	Regional
R-43 S1	03/19/12	5838.131	Transducer	903.9	924.6	Regional
R-43 S1	03/18/12	5837.992	Transducer	903.9	924.6	Regional
R-43 S1	03/17/12	5837.835	Transducer	903.9	924.6	Regional
R-43 S1	03/16/12	5837.704	Transducer	903.9	924.6	Regional
R-43 S1	03/15/12	5837.666	Transducer	903.9	924.6	Regional
R-43 S1	03/14/12	5837.756	Transducer	903.9	924.6	Regional
R-43 S1	03/13/12	5837.718	Transducer	903.9	924.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S1	03/12/12	5837.84	Transducer	903.9	924.6	Regional
R-43 S1	03/11/12	5837.925	Transducer	903.9	924.6	Regional
R-43 S1	03/10/12	5837.599	Transducer	903.9	924.6	Regional
R-43 S1	03/09/12	5837.369	Transducer	903.9	924.6	Regional
R-43 S1	03/08/12	5837.85	Transducer	903.9	924.6	Regional
R-43 S1	03/07/12	5838.036	Transducer	903.9	924.6	Regional
R-43 S1	03/06/12	5837.814	Transducer	903.9	924.6	Regional
R-43 S1	03/06/12	5837.693	Transducer	903.9	924.6	Regional
R-43 S1	03/05/12	5837.519	Transducer	903.9	924.6	Regional
R-43 S1	03/04/12	5837.542	Transducer	903.9	924.6	Regional
R-43 S1	03/03/12	5837.717	Transducer	903.9	924.6	Regional
R-43 S1	03/02/12	5837.962	Transducer	903.9	924.6	Regional
R-43 S1	03/01/12	5837.833	Transducer	903.9	924.6	Regional
R-43 S1	02/29/12	5837.71	Transducer	903.9	924.6	Regional
R-43 S1	02/28/12	5837.851	Transducer	903.9	924.6	Regional
R-43 S1	02/27/12	5837.696	Transducer	903.9	924.6	Regional
R-43 S1	02/26/12	5837.823	Transducer	903.9	924.6	Regional
R-43 S1	02/25/12	5837.557	Transducer	903.9	924.6	Regional
R-43 S1	02/24/12	5837.728	Transducer	903.9	924.6	Regional
R-43 S1	02/23/12	5837.952	Transducer	903.9	924.6	Regional
R-43 S1	02/22/12	5837.677	Transducer	903.9	924.6	Regional
R-43 S1	02/21/12	5837.675	Transducer	903.9	924.6	Regional
R-43 S1	02/20/12	5837.992	Transducer	903.9	924.6	Regional
R-43 S1	02/19/12	5837.79	Transducer	903.9	924.6	Regional
R-43 S1	02/18/12	5837.79	Transducer	903.9	924.6	Regional
R-43 S1	02/17/12	5837.723	Transducer	903.9	924.6	Regional
R-43 S1	02/16/12	5837.729	Transducer	903.9	924.6	Regional
R-43 S1	02/15/12	5838.05	Transducer	903.9	924.6	Regional
R-43 S1	02/14/12	5837.953	Transducer	903.9	924.6	Regional
R-43 S1	02/13/12	5837.999	Transducer	903.9	924.6	Regional
R-43 S1	02/12/12	5837.652	Transducer	903.9	924.6	Regional
R-43 S1	02/11/12	5837.627	Transducer	903.9	924.6	Regional
R-43 S1	02/10/12	5837.617	Transducer	903.9	924.6	Regional
R-43 S1	02/09/12	5837.622	Transducer	903.9	924.6	Regional
R-43 S1	02/08/12	5837.517	Transducer	903.9	924.6	Regional
R-43 S1	02/07/12	5837.706	Transducer	903.9	924.6	Regional
R-43 S1	02/06/12	5837.617	Transducer	903.9	924.6	Regional
R-43 S1	02/05/12	5837.487	Transducer	903.9	924.6	Regional
R-43 S1	02/04/12	5837.607	Transducer	903.9	924.6	Regional
R-43 S1	02/03/12	5837.905	Transducer	903.9	924.6	Regional
R-43 S1	02/02/12	5837.701	Transducer	903.9	924.6	Regional
R-43 S1	02/01/12	5837.611	Transducer	903.9	924.6	Regional
R-43 S1	01/31/12	5837.738	Transducer	903.9	924.6	Regional
R-43 S1	01/30/12	5837.552	Transducer	903.9	924.6	Regional
R-43 S1	01/29/12	5837.423	Transducer	903.9	924.6	Regional
R-43 S1	01/28/12	5837.507	Transducer	903.9	924.6	Regional
R-43 S1	01/27/12	5837.786	Transducer	903.9	924.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S1	01/26/12	5837.626	Transducer	903.9	924.6	Regional
R-43 S1	01/25/12	5837.643	Transducer	903.9	924.6	Regional
R-43 S1	01/24/12	5837.882	Transducer	903.9	924.6	Regional
R-43 S1	01/23/12	5837.72	Transducer	903.9	924.6	Regional
R-43 S1	01/22/12	5838.126	Transducer	903.9	924.6	Regional
R-43 S1	01/21/12	5837.702	Transducer	903.9	924.6	Regional
R-43 S1	01/20/12	5837.841	Transducer	903.9	924.6	Regional
R-43 S1	01/19/12	5837.672	Transducer	903.9	924.6	Regional
R-43 S1	01/18/12	5837.585	Transducer	903.9	924.6	Regional
R-43 S1	01/17/12	5837.78	Transducer	903.9	924.6	Regional
R-43 S1	01/16/12	5837.775	Transducer	903.9	924.6	Regional
R-43 S1	01/15/12	5837.56	Transducer	903.9	924.6	Regional
R-43 S1	01/14/12	5837.498	Transducer	903.9	924.6	Regional
R-43 S1	01/13/12	5837.674	Transducer	903.9	924.6	Regional
R-43 S1	01/12/12	5837.678	Transducer	903.9	924.6	Regional
R-43 S1	01/11/12	5837.783	Transducer	903.9	924.6	Regional
R-43 S1	01/10/12	5837.587	Transducer	903.9	924.6	Regional
R-43 S1	01/09/12	5837.588	Transducer	903.9	924.6	Regional
R-43 S1	01/08/12	5837.801	Transducer	903.9	924.6	Regional
R-43 S1	01/07/12	5837.667	Transducer	903.9	924.6	Regional
R-43 S1	01/06/12	5837.653	Transducer	903.9	924.6	Regional
R-43 S1	01/05/12	5837.305	Transducer	903.9	924.6	Regional
R-43 S1	01/04/12	5837.384	Transducer	903.9	924.6	Regional
R-43 S1	01/03/12	5837.256	Transducer	903.9	924.6	Regional
R-43 S1	01/02/12	5837.184	Transducer	903.9	924.6	Regional
R-43 S1	01/01/12	5837.347	Transducer	903.9	924.6	Regional
R-43 S1	12/31/11	5837.611	Transducer	903.9	924.6	Regional
R-43 S1	12/30/11	5837.558	Transducer	903.9	924.6	Regional
R-43 S1	12/29/11	5837.458	Transducer	903.9	924.6	Regional
R-43 S1	12/28/11	5837.498	Transducer	903.9	924.6	Regional
R-43 S1	12/27/11	5837.411	Transducer	903.9	924.6	Regional
R-43 S1	12/26/11	5837.458	Transducer	903.9	924.6	Regional
R-43 S1	12/25/11	5837.3	Transducer	903.9	924.6	Regional
R-43 S1	12/24/11	5837.385	Transducer	903.9	924.6	Regional
R-43 S1	12/23/11	5837.493	Transducer	903.9	924.6	Regional
R-43 S1	12/22/11	5837.772	Transducer	903.9	924.6	Regional
R-43 S1	12/21/11	5837.754	Transducer	903.9	924.6	Regional
R-43 S1	12/20/11	5837.69	Transducer	903.9	924.6	Regional
R-43 S1	12/19/11	5837.779	Transducer	903.9	924.6	Regional
R-43 S1	12/18/11	5837.346	Transducer	903.9	924.6	Regional
R-43 S1	12/17/11	5837.251	Transducer	903.9	924.6	Regional
R-43 S1	12/16/11	5837.414	Transducer	903.9	924.6	Regional
R-43 S1	12/15/11	5837.533	Transducer	903.9	924.6	Regional
R-43 S1	12/14/11	5837.74	Transducer	903.9	924.6	Regional
R-43 S1	12/13/11	5837.614	Transducer	903.9	924.6	Regional
R-43 S1	12/12/11	5837.597	Transducer	903.9	924.6	Regional
R-43 S1	12/11/11	5837.446	Transducer	903.9	924.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S1	12/10/11	5837.304	Transducer	903.9	924.6	Regional
R-43 S1	12/09/11	5837.498	Transducer	903.9	924.6	Regional
R-43 S1	12/08/11	5837.529	Transducer	903.9	924.6	Regional
R-43 S1	12/07/11	5837.414	Transducer	903.9	924.6	Regional
R-43 S1	12/06/11	5837.489	Transducer	903.9	924.6	Regional
R-43 S1	12/05/11	5837.652	Transducer	903.9	924.6	Regional
R-43 S1	12/04/11	5837.604	Transducer	903.9	924.6	Regional
R-43 S1	12/03/11	5837.796	Transducer	903.9	924.6	Regional
R-43 S1	12/02/11	5837.437	Transducer	903.9	924.6	Regional
R-43 S1	12/01/11	5837.705	Transducer	903.9	924.6	Regional
R-43 S1	11/30/11	5837.363	Transducer	903.9	924.6	Regional
R-43 S1	11/29/11	5837.337	Transducer	903.9	924.6	Regional
R-43 S1	11/28/11	5837.229	Transducer	903.9	924.6	Regional
R-43 S1	11/27/11	5837.133	Transducer	903.9	924.6	Regional
R-43 S1	11/26/11	5837.561	Transducer	903.9	924.6	Regional
R-43 S1	11/25/11	5837.509	Transducer	903.9	924.6	Regional
R-43 S1	11/24/11	5837.35	Transducer	903.9	924.6	Regional
R-43 S1	11/23/11	5837.248	Transducer	903.9	924.6	Regional
R-43 S1	11/22/11	5837.416	Transducer	903.9	924.6	Regional
R-43 S1	11/21/11	5837.522	Transducer	903.9	924.6	Regional
R-43 S1	11/20/11	5837.605	Transducer	903.9	924.6	Regional
R-43 S1	11/19/11	5837.776	Transducer	903.9	924.6	Regional
R-43 S1	11/18/11	5837.592	Transducer	903.9	924.6	Regional
R-43 S1	11/17/11	5837.355	Transducer	903.9	924.6	Regional
R-43 S1	11/16/11	5837.634	Transducer	903.9	924.6	Regional
R-43 S1	11/15/11	5837.639	Transducer	903.9	924.6	Regional
R-43 S1	11/14/11	5837.692	Transducer	903.9	924.6	Regional
R-43 S1	11/13/11	5837.692	Transducer	903.9	924.6	Regional
R-43 S1	11/12/11	5837.616	Transducer	903.9	924.6	Regional
R-43 S1	11/11/11	5837.339	Transducer	903.9	924.6	Regional
R-43 S1	11/10/11	5837.165	Transducer	903.9	924.6	Regional
R-43 S1	11/09/11	5837.34	Transducer	903.9	924.6	Regional
R-43 S1	11/08/11	5837.695	Transducer	903.9	924.6	Regional
R-43 S1	11/07/11	5837.624	Transducer	903.9	924.6	Regional
R-43 S1	11/06/11	5837.683	Transducer	903.9	924.6	Regional
R-43 S1	11/05/11	5837.797	Transducer	903.9	924.6	Regional
R-43 S1	11/04/11	5837.469	Transducer	903.9	924.6	Regional
R-43 S1	11/03/11	5837.243	Transducer	903.9	924.6	Regional
R-43 S1	11/02/11	5837.693	Transducer	903.9	924.6	Regional
R-43 S1	11/01/11	5837.464	Transducer	903.9	924.6	Regional
R-43 S1	10/31/11	5837.308	Transducer	903.9	924.6	Regional
R-43 S1	10/30/11	5837.421	Transducer	903.9	924.6	Regional
R-43 S1	10/29/11	5837.333	Transducer	903.9	924.6	Regional
R-43 S1	10/28/11	5837.445	Transducer	903.9	924.6	Regional
R-43 S1	10/27/11	5837.593	Transducer	903.9	924.6	Regional
R-43 S1	10/26/11	5837.509	Transducer	903.9	924.6	Regional
R-43 S1	10/25/11	5837.417	Transducer	903.9	924.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S1	10/24/11	5837.321	Transducer	903.9	924.6	Regional
R-43 S1	10/23/11	5837.359	Transducer	903.9	924.6	Regional
R-43 S1	10/22/11	5837.359	Transducer	903.9	924.6	Regional
R-43 S1	10/21/11	5837.371	Transducer	903.9	924.6	Regional
R-43 S1	10/20/11	5837.485	Transducer	903.9	924.6	Regional
R-43 S1	10/19/11	5837.322	Transducer	903.9	924.6	Regional
R-43 S1	10/18/11	5837.38	Transducer	903.9	924.6	Regional
R-43 S1	10/17/11	5837.472	Transducer	903.9	924.6	Regional
R-43 S1	10/16/11	5837.372	Transducer	903.9	924.6	Regional
R-43 S1	10/15/11	5837.403	Transducer	903.9	924.6	Regional
R-43 S1	10/14/11	5837.491	Transducer	903.9	924.6	Regional
R-43 S1	10/13/11	5837.424	Transducer	903.9	924.6	Regional
R-43 S1	10/12/11	5837.575	Transducer	903.9	924.6	Regional
R-43 S1	10/11/11	5837.56	Transducer	903.9	924.6	Regional
R-43 S1	10/10/11	5837.484	Transducer	903.9	924.6	Regional
R-43 S1	10/09/11	5837.52	Transducer	903.9	924.6	Regional
R-43 S1	10/08/11	5837.69	Transducer	903.9	924.6	Regional
R-43 S1	10/07/11	5837.689	Transducer	903.9	924.6	Regional
R-43 S1	10/06/11	5837.718	Transducer	903.9	924.6	Regional
R-43 S1	10/05/11	5837.529	Transducer	903.9	924.6	Regional
R-43 S1	10/04/11	5837.39	Transducer	903.9	924.6	Regional
R-43 S1	10/03/11	5837.354	Transducer	903.9	924.6	Regional
R-43 S1	10/02/11	5837.339	Transducer	903.9	924.6	Regional
R-43 S1	10/01/11	5837.339	Transducer	903.9	924.6	Regional
R-43 S1	09/30/11	5837.233	Transducer	903.9	924.6	Regional
R-43 S1	09/29/11	5837.423	Transducer	903.9	924.6	Regional
R-43 S1	09/28/11	5837.362	Transducer	903.9	924.6	Regional
R-43 S1	09/27/11	5837.451	Transducer	903.9	924.6	Regional
R-43 S1	09/26/11	5837.561	Transducer	903.9	924.6	Regional
R-43 S1	09/25/11	5837.512	Transducer	903.9	924.6	Regional
R-43 S1	09/24/11	5837.376	Transducer	903.9	924.6	Regional
R-43 S1	09/23/11	5837.34	Transducer	903.9	924.6	Regional
R-43 S1	09/22/11	5837.453	Transducer	903.9	924.6	Regional
R-43 S1	09/21/11	5837.461	Transducer	903.9	924.6	Regional
R-43 S1	09/20/11	5837.448	Transducer	903.9	924.6	Regional
R-43 S1	09/19/11	5837.365	Transducer	903.9	924.6	Regional
R-43 S1	09/18/11	5837.438	Transducer	903.9	924.6	Regional
R-43 S1	09/17/11	5837.497	Transducer	903.9	924.6	Regional
R-43 S1	09/16/11	5837.502	Transducer	903.9	924.6	Regional
R-43 S1	09/15/11	5837.459	Transducer	903.9	924.6	Regional
R-43 S1	09/14/11	5837.425	Transducer	903.9	924.6	Regional
R-43 S1	09/13/11	5837.327	Transducer	903.9	924.6	Regional
R-43 S1	09/12/11	5837.275	Transducer	903.9	924.6	Regional
R-43 S1	09/11/11	5837.302	Transducer	903.9	924.6	Regional
R-43 S1	09/10/11	5837.344	Transducer	903.9	924.6	Regional
R-43 S1	09/09/11	5837.314	Transducer	903.9	924.6	Regional
R-43 S1	09/08/11	5837.213	Transducer	903.9	924.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S1	09/07/11	5837.372	Transducer	903.9	924.6	Regional
R-43 S1	09/06/11	5837.371	Transducer	903.9	924.6	Regional
R-43 S1	09/05/11	5837.303	Transducer	903.9	924.6	Regional
R-43 S1	09/04/11	5837.388	Transducer	903.9	924.6	Regional
R-43 S1	09/03/11	5837.502	Transducer	903.9	924.6	Regional
R-43 S1	09/02/11	5837.415	Transducer	903.9	924.6	Regional
R-43 S1	09/01/11	5837.443	Transducer	903.9	924.6	Regional
R-43 S1	08/31/11	5837.512	Transducer	903.9	924.6	Regional
R-43 S1	08/30/11	5837.498	Transducer	903.9	924.6	Regional
R-43 S1	08/29/11	5837.453	Transducer	903.9	924.6	Regional
R-43 S1	08/28/11	5837.387	Transducer	903.9	924.6	Regional
R-43 S1	08/27/11	5837.313	Transducer	903.9	924.6	Regional
R-43 S1	08/26/11	5837.325	Transducer	903.9	924.6	Regional
R-43 S1	08/25/11	5837.357	Transducer	903.9	924.6	Regional
R-43 S1	08/24/11	5837.427	Transducer	903.9	924.6	Regional
R-43 S1	08/23/11	5837.409	Transducer	903.9	924.6	Regional
R-43 S1	08/22/11	5837.34	Transducer	903.9	924.6	Regional
R-43 S1	08/22/11	5837.345	Transducer	903.9	924.6	Regional
R-43 S1	08/21/11	5837.43	Transducer	903.9	924.6	Regional
R-43 S1	08/20/11	5837.51	Transducer	903.9	924.6	Regional
R-43 S1	08/19/11	5837.47	Transducer	903.9	924.6	Regional
R-43 S1	08/18/11	5837.35	Transducer	903.9	924.6	Regional
R-43 S1	08/17/11	5837.39	Transducer	903.9	924.6	Regional
R-43 S1	08/16/11	5837.49	Transducer	903.9	924.6	Regional
R-43 S1	08/15/11	5837.44	Transducer	903.9	924.6	Regional
R-43 S1	08/14/11	5837.31	Transducer	903.9	924.6	Regional
R-43 S1	08/13/11	5837.45	Transducer	903.9	924.6	Regional
R-43 S1	08/12/11	5837.51	Transducer	903.9	924.6	Regional
R-43 S1	08/11/11	5837.51	Transducer	903.9	924.6	Regional
R-43 S1	08/10/11	5837.57	Transducer	903.9	924.6	Regional
R-43 S1	08/09/11	5837.53	Transducer	903.9	924.6	Regional
R-43 S1	08/08/11	5837.54	Transducer	903.9	924.6	Regional
R-43 S1	08/07/11	5837.49	Transducer	903.9	924.6	Regional
R-43 S1	08/06/11	5837.46	Transducer	903.9	924.6	Regional
R-43 S1	08/05/11	5837.46	Transducer	903.9	924.6	Regional
R-43 S1	08/04/11	5837.45	Transducer	903.9	924.6	Regional
R-43 S1	08/03/11	5837.42	Transducer	903.9	924.6	Regional
R-43 S1	08/02/11	5837.39	Transducer	903.9	924.6	Regional
R-43 S1	08/01/11	5837.31	Transducer	903.9	924.6	Regional
R-43 S1	07/31/11	5837.29	Transducer	903.9	924.6	Regional
R-43 S1	07/30/11	5837.31	Transducer	903.9	924.6	Regional
R-43 S1	07/29/11	5837.42	Transducer	903.9	924.6	Regional
R-43 S1	07/28/11	5837.52	Transducer	903.9	924.6	Regional
R-43 S1	07/27/11	5837.53	Transducer	903.9	924.6	Regional
R-43 S1	07/26/11	5837.45	Transducer	903.9	924.6	Regional
R-43 S1	07/25/11	5837.34	Transducer	903.9	924.6	Regional
R-43 S1	07/24/11	5837.39	Transducer	903.9	924.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S1	07/23/11	5837.49	Transducer	903.9	924.6	Regional
R-43 S1	07/22/11	5837.52	Transducer	903.9	924.6	Regional
R-43 S1	07/21/11	5837.5	Transducer	903.9	924.6	Regional
R-43 S1	07/20/11	5837.44	Transducer	903.9	924.6	Regional
R-43 S1	07/19/11	5837.36	Transducer	903.9	924.6	Regional
R-43 S1	07/18/11	5837.3	Transducer	903.9	924.6	Regional
R-43 S1	07/17/11	5837.4	Transducer	903.9	924.6	Regional
R-43 S1	07/16/11	5837.55	Transducer	903.9	924.6	Regional
R-43 S1	07/15/11	5837.58	Transducer	903.9	924.6	Regional
R-43 S1	07/14/11	5837.55	Transducer	903.9	924.6	Regional
R-43 S1	07/13/11	5837.51	Transducer	903.9	924.6	Regional
R-43 S1	07/12/11	5837.48	Transducer	903.9	924.6	Regional
R-43 S1	07/11/11	5837.49	Transducer	903.9	924.6	Regional
R-43 S1	07/10/11	5837.52	Transducer	903.9	924.6	Regional
R-43 S1	07/09/11	5837.57	Transducer	903.9	924.6	Regional
R-43 S1	07/08/11	5837.52	Transducer	903.9	924.6	Regional
R-43 S1	07/07/11	5837.46	Transducer	903.9	924.6	Regional
R-43 S1	07/06/11	5837.45	Transducer	903.9	924.6	Regional
R-43 S1	07/05/11	5837.45	Transducer	903.9	924.6	Regional
R-43 S1	07/04/11	5837.46	Transducer	903.9	924.6	Regional
R-43 S1	07/03/11	5837.42	Transducer	903.9	924.6	Regional
R-43 S1	07/02/11	5837.48	Transducer	903.9	924.6	Regional
R-43 S1	07/01/11	5837.53	Transducer	903.9	924.6	Regional
R-43 S1	06/30/11	5837.53	Transducer	903.9	924.6	Regional
R-43 S1	06/29/11	5837.44	Transducer	903.9	924.6	Regional
R-43 S1	06/28/11	5837.42	Transducer	903.9	924.6	Regional
R-43 S1	06/27/11	5837.6	Transducer	903.9	924.6	Regional
R-43 S1	06/26/11	5837.61	Transducer	903.9	924.6	Regional
R-43 S1	06/25/11	5837.66	Transducer	903.9	924.6	Regional
R-43 S1	06/24/11	5837.66	Transducer	903.9	924.6	Regional
R-43 S1	06/23/11	5837.58	Transducer	903.9	924.6	Regional
R-43 S1	06/22/11	5837.6	Transducer	903.9	924.6	Regional
R-43 S1	06/21/11	5837.72	Transducer	903.9	924.6	Regional
R-43 S1	06/20/11	5837.87	Transducer	903.9	924.6	Regional
R-43 S1	06/19/11	5837.75	Transducer	903.9	924.6	Regional
R-43 S1	06/18/11	5837.7	Transducer	903.9	924.6	Regional
R-43 S1	06/17/11	5837.83	Transducer	903.9	924.6	Regional
R-43 S1	06/16/11	5837.78	Transducer	903.9	924.6	Regional
R-43 S1	06/15/11	5837.61	Transducer	903.9	924.6	Regional
R-43 S1	06/14/11	5837.66	Transducer	903.9	924.6	Regional
R-43 S1	06/13/11	5837.71	Transducer	903.9	924.6	Regional
R-43 S1	06/12/11	5837.76	Transducer	903.9	924.6	Regional
R-43 S1	06/11/11	5837.7	Transducer	903.9	924.6	Regional
R-43 S1	06/10/11	5837.72	Transducer	903.9	924.6	Regional
R-43 S1	06/09/11	5837.76	Transducer	903.9	924.6	Regional
R-43 S1	06/08/11	5837.74	Transducer	903.9	924.6	Regional
R-43 S1	06/07/11	5837.74	Transducer	903.9	924.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S1	06/06/11	5837.55	Transducer	903.9	924.6	Regional
R-43 S1	06/05/11	5837.45	Transducer	903.9	924.6	Regional
R-43 S1	06/04/11	5837.62	Transducer	903.9	924.6	Regional
R-43 S1	06/03/11	5837.73	Transducer	903.9	924.6	Regional
R-43 S1	06/02/11	5837.65	Transducer	903.9	924.6	Regional
R-43 S1	06/01/11	5837.47	Transducer	903.9	924.6	Regional
R-43 S1	05/31/11	5837.59	Transducer	903.9	924.6	Regional
R-43 S1	05/30/11	5838.06	Transducer	903.9	924.6	Regional
R-43 S1	05/29/11	5838.03	Transducer	903.9	924.6	Regional
R-43 S1	05/28/11	5837.93	Transducer	903.9	924.6	Regional
R-43 S1	05/27/11	5837.87	Transducer	903.9	924.6	Regional
R-43 S1	05/26/11	5837.72	Transducer	903.9	924.6	Regional
R-43 S1	05/25/11	5837.85	Transducer	903.9	924.6	Regional
R-43 S1	05/24/11	5838.01	Transducer	903.9	924.6	Regional
R-43 S1	05/23/11	5837.92	Transducer	903.9	924.6	Regional
R-43 S1	05/22/11	5837.91	Transducer	903.9	924.6	Regional
R-43 S1	05/21/11	5837.95	Transducer	903.9	924.6	Regional
R-43 S1	05/20/11	5838.08	Transducer	903.9	924.6	Regional
R-43 S1	05/19/11	5838.26	Transducer	903.9	924.6	Regional
R-43 S1	05/18/11	5838.17	Transducer	903.9	924.6	Regional
R-43 S1	05/17/11	5838.07	Transducer	903.9	924.6	Regional
R-43 S1	05/16/11	5837.92	Transducer	903.9	924.6	Regional
R-43 S1	05/15/11	5837.94	Transducer	903.9	924.6	Regional
R-43 S1	05/14/11	5837.83	Transducer	903.9	924.6	Regional
R-43 S1	05/13/11	5837.85	Transducer	903.9	924.6	Regional
R-43 S1	05/12/11	5838.07	Transducer	903.9	924.6	Regional
R-43 S1	05/11/11	5838.32	Transducer	903.9	924.6	Regional
R-43 S1	05/10/11	5838.29	Transducer	903.9	924.6	Regional
R-43 S1	05/09/11	5838.28	Transducer	903.9	924.6	Regional
R-43 S1	05/08/11	5838.16	Transducer	903.9	924.6	Regional
R-43 S1	05/07/11	5838.1	Transducer	903.9	924.6	Regional
R-43 S1	05/06/11	5837.96	Transducer	903.9	924.6	Regional
R-43 S1	05/05/11	5837.93	Transducer	903.9	924.6	Regional
R-43 S1	05/04/11	5837.9	Transducer	903.9	924.6	Regional
R-43 S1	05/03/11	5837.81	Transducer	903.9	924.6	Regional
R-43 S1	05/02/11	5837.98	Transducer	903.9	924.6	Regional
R-43 S1	05/01/11	5838.26	Transducer	903.9	924.6	Regional
R-43 S1	04/30/11	5838.36	Transducer	903.9	924.6	Regional
R-43 S1	04/29/11	5838.26	Transducer	903.9	924.6	Regional
R-43 S1	04/28/11	5838.05	Transducer	903.9	924.6	Regional
R-43 S1	04/27/11	5838.42	Transducer	903.9	924.6	Regional
R-43 S1	04/26/11	5838.48	Transducer	903.9	924.6	Regional
R-43 S1	04/25/11	5838.4	Transducer	903.9	924.6	Regional
R-43 S1	04/24/11	5838.37	Transducer	903.9	924.6	Regional
R-43 S1	04/23/11	5838.42	Transducer	903.9	924.6	Regional
R-43 S1	04/22/11	5838.45	Transducer	903.9	924.6	Regional
R-43 S1	04/21/11	5838.37	Transducer	903.9	924.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S1	04/20/11	5838.38	Transducer	903.9	924.6	Regional
R-43 S1	04/19/11	5838.59	Transducer	903.9	924.6	Regional
R-43 S1	04/18/11	5838.49	Transducer	903.9	924.6	Regional
R-43 S1	04/17/11	5838.42	Transducer	903.9	924.6	Regional
R-43 S1	04/16/11	5838.33	Transducer	903.9	924.6	Regional
R-43 S1	04/15/11	5838.39	Transducer	903.9	924.6	Regional
R-43 S1	04/14/11	5838.54	Transducer	903.9	924.6	Regional
R-43 S1	04/13/11	5838.44	Transducer	903.9	924.6	Regional
R-43 S1	04/12/11	5838.27	Transducer	903.9	924.6	Regional
R-43 S1	04/11/11	5838.29	Transducer	903.9	924.6	Regional
R-43 S1	04/10/11	5838.55	Transducer	903.9	924.6	Regional
R-43 S1	04/09/11	5838.62	Transducer	903.9	924.6	Regional
R-43 S1	04/08/11	5838.62	Transducer	903.9	924.6	Regional
R-43 S1	04/07/11	5838.5	Transducer	903.9	924.6	Regional
R-43 S1	04/06/11	5838.52	Transducer	903.9	924.6	Regional
R-43 S1	04/05/11	5838.28	Transducer	903.9	924.6	Regional
R-43 S1	04/04/11	5838.47	Transducer	903.9	924.6	Regional
R-43 S1	04/03/11	5838.55	Transducer	903.9	924.6	Regional
R-43 S1	04/02/11	5838.38	Transducer	903.9	924.6	Regional
R-43 S1	04/01/11	5838.46	Transducer	903.9	924.6	Regional
R-43 S1	03/31/11	5838.45	Transducer	903.9	924.6	Regional
R-43 S1	03/30/11	5838.4	Transducer	903.9	924.6	Regional
R-43 S1	03/29/11	5838.57	Transducer	903.9	924.6	Regional
R-43 S1	03/28/11	5838.61	Transducer	903.9	924.6	Regional
R-43 S1	03/27/11	5838.69	Transducer	903.9	924.6	Regional
R-43 S1	03/26/11	5838.65	Transducer	903.9	924.6	Regional
R-43 S1	03/25/11	5838.52	Transducer	903.9	924.6	Regional
R-43 S1	03/24/11	5838.52	Transducer	903.9	924.6	Regional
R-43 S1	03/23/11	5838.51	Transducer	903.9	924.6	Regional
R-43 S1	03/22/11	5838.7	Transducer	903.9	924.6	Regional
R-43 S1	03/21/11	5838.47	Transducer	903.9	924.6	Regional
R-43 S1	03/20/11	5838.44	Transducer	903.9	924.6	Regional
R-43 S1	03/19/11	5838.31	Transducer	903.9	924.6	Regional
R-43 S1	03/18/11	5838.35	Transducer	903.9	924.6	Regional
R-43 S1	03/17/11	5838.42	Transducer	903.9	924.6	Regional
R-43 S1	03/16/11	5838.33	Transducer	903.9	924.6	Regional
R-43 S1	03/15/11	5838.34	Transducer	903.9	924.6	Regional
R-43 S1	03/14/11	5838.19	Transducer	903.9	924.6	Regional
R-43 S1	03/13/11	5838.41	Transducer	903.9	924.6	Regional
R-43 S1	03/12/11	5838.39	Transducer	903.9	924.6	Regional
R-43 S1	03/11/11	5838.27	Transducer	903.9	924.6	Regional
R-43 S1	03/10/11	5838.08	Transducer	903.9	924.6	Regional
R-43 S1	03/09/11	5838.34	Transducer	903.9	924.6	Regional
R-43 S1	03/08/11	5838.78	Transducer	903.9	924.6	Regional
R-43 S1	03/07/11	5838.65	Transducer	903.9	924.6	Regional
R-43 S1	03/06/11	5838.3	Transducer	903.9	924.6	Regional
R-43 S1	03/05/11	5838.14	Transducer	903.9	924.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S1	03/04/11	5838.44	Transducer	903.9	924.6	Regional
R-43 S1	03/03/11	5838.31	Transducer	903.9	924.6	Regional
R-43 S1	03/02/11	5838.27	Transducer	903.9	924.6	Regional
R-43 S1	03/01/11	5838.17	Transducer	903.9	924.6	Regional
R-43 S1	02/28/11	5838.43	Transducer	903.9	924.6	Regional
R-43 S1	02/27/11	5838.74	Transducer	903.9	924.6	Regional
R-43 S1	02/26/11	5838.62	Transducer	903.9	924.6	Regional
R-43 S1	02/25/11	5838.49	Transducer	903.9	924.6	Regional
R-43 S1	02/24/11	5838.66	Transducer	903.9	924.6	Regional
R-43 S1	02/23/11	5838.54	Transducer	903.9	924.6	Regional
R-43 S1	02/22/11	5838.51	Transducer	903.9	924.6	Regional
R-43 S1	02/21/11	5838.62	Transducer	903.9	924.6	Regional
R-43 S1	02/20/11	5838.67	Transducer	903.9	924.6	Regional
R-43 S1	02/19/11	5838.32	Transducer	903.9	924.6	Regional
R-43 S1	02/18/11	5838.36	Transducer	903.9	924.6	Regional
R-43 S1	02/17/11	5838.56	Transducer	903.9	924.6	Regional
R-43 S1	02/16/11	5838.35	Transducer	903.9	924.6	Regional
R-43 S1	02/15/11	5838.29	Transducer	903.9	924.6	Regional
R-43 S1	02/14/11	5838.17	Transducer	903.9	924.6	Regional
R-43 S1	02/13/11	5838.08	Transducer	903.9	924.6	Regional
R-43 S1	02/12/11	5838.08	Transducer	903.9	924.6	Regional
R-43 S1	02/11/11	5838.33	Transducer	903.9	924.6	Regional
R-43 S1	02/10/11	5838.36	Transducer	903.9	924.6	Regional
R-43 S1	02/09/11	5838.45	Transducer	903.9	924.6	Regional
R-43 S1	02/08/11	5838.62	Transducer	903.9	924.6	Regional
R-43 S1	02/07/11	5838.23	Transducer	903.9	924.6	Regional
R-43 S1	02/06/11	5838.57	Transducer	903.9	924.6	Regional
R-43 S1	02/05/11	5838.43	Transducer	903.9	924.6	Regional
R-43 S1	02/04/11	5838.35	Transducer	903.9	924.6	Regional
R-43 S1	02/03/11	5838.23	Transducer	903.9	924.6	Regional
R-43 S1	02/02/11	5838.46	Transducer	903.9	924.6	Regional
R-43 S1	02/01/11	5838.62	Transducer	903.9	924.6	Regional
R-43 S1	01/31/11	5838.49	Transducer	903.9	924.6	Regional
R-43 S1	01/30/11	5838.37	Transducer	903.9	924.6	Regional
R-43 S1	01/29/11	5838.37	Transducer	903.9	924.6	Regional
R-43 S1	01/28/11	5838.21	Transducer	903.9	924.6	Regional
R-43 S1	01/27/11	5838.17	Transducer	903.9	924.6	Regional
R-43 S1	01/26/11	5838.35	Transducer	903.9	924.6	Regional
R-43 S1	01/25/11	5838.25	Transducer	903.9	924.6	Regional
R-43 S1	01/24/11	5838.4	Transducer	903.9	924.6	Regional
R-43 S1	01/23/11	5838.45	Transducer	903.9	924.6	Regional
R-43 S1	01/22/11	5838.34	Transducer	903.9	924.6	Regional
R-43 S1	01/21/11	5838.32	Transducer	903.9	924.6	Regional
R-43 S1	01/20/11	5838.47	Transducer	903.9	924.6	Regional
R-43 S1	01/19/11	5838.4	Transducer	903.9	924.6	Regional
R-43 S1	01/18/11	5838.45	Transducer	903.9	924.6	Regional
R-43 S1	01/17/11	5838.33	Transducer	903.9	924.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S1	01/16/11	5838.26	Transducer	903.9	924.6	Regional
R-43 S1	01/15/11	5838.09	Transducer	903.9	924.6	Regional
R-43 S1	01/14/11	5838.18	Transducer	903.9	924.6	Regional
R-43 S1	01/13/11	5838.06	Transducer	903.9	924.6	Regional
R-43 S1	01/12/11	5838.08	Transducer	903.9	924.6	Regional
R-43 S1	01/11/11	5838.16	Transducer	903.9	924.6	Regional
R-43 S1	01/10/11	5838.62	Transducer	903.9	924.6	Regional
R-43 S1	01/09/11	5838.63	Transducer	903.9	924.6	Regional
R-43 S1	01/08/11	5838.41	Transducer	903.9	924.6	Regional
R-43 S1	01/07/11	5838.23	Transducer	903.9	924.6	Regional
R-43 S1	01/06/11	5838.13	Transducer	903.9	924.6	Regional
R-43 S1	01/05/11	5838.21	Transducer	903.9	924.6	Regional
R-43 S1	01/04/11	5838.29	Transducer	903.9	924.6	Regional
R-43 S1	01/03/11	5838.29	Transducer	903.9	924.6	Regional
R-43 S1	01/02/11	5838.18	Transducer	903.9	924.6	Regional
R-43 S1	01/01/11	5838.5	Transducer	903.9	924.6	Regional
R-43 S1	12/31/10	5839	Transducer	903.9	924.6	Regional
R-43 S1	12/30/10	5838.93	Transducer	903.9	924.6	Regional
R-43 S1	12/29/10	5838.48	Transducer	903.9	924.6	Regional
R-43 S1	12/28/10	5838.3	Transducer	903.9	924.6	Regional
R-43 S1	12/27/10	5838.31	Transducer	903.9	924.6	Regional
R-43 S1	12/26/10	5838.11	Transducer	903.9	924.6	Regional
R-43 S1	12/25/10	5838.06	Transducer	903.9	924.6	Regional
R-43 S1	12/24/10	5838.27	Transducer	903.9	924.6	Regional
R-43 S1	12/23/10	5838.28	Transducer	903.9	924.6	Regional
R-43 S1	12/22/10	5838.18	Transducer	903.9	924.6	Regional
R-43 S1	12/21/10	5838.35	Transducer	903.9	924.6	Regional
R-43 S1	12/20/10	5838.46	Transducer	903.9	924.6	Regional
R-43 S1	12/19/10	5838.42	Transducer	903.9	924.6	Regional
R-43 S1	12/18/10	5838.39	Transducer	903.9	924.6	Regional
R-43 S1	12/17/10	5838.49	Transducer	903.9	924.6	Regional
R-43 S1	12/16/10	5838.5	Transducer	903.9	924.6	Regional
R-43 S1	12/15/10	5838.5	Transducer	903.9	924.6	Regional
R-43 S1	12/14/10	5838.23	Transducer	903.9	924.6	Regional
R-43 S1	12/13/10	5838.07	Transducer	903.9	924.6	Regional
R-43 S1	12/12/10	5838.08	Transducer	903.9	924.6	Regional
R-43 S1	12/11/10	5838.3	Transducer	903.9	924.6	Regional
R-43 S1	12/10/10	5838.24	Transducer	903.9	924.6	Regional
R-43 S1	12/09/10	5838.13	Transducer	903.9	924.6	Regional
R-43 S1	12/08/10	5837.98	Transducer	903.9	924.6	Regional
R-43 S1	12/07/10	5838.13	Transducer	903.9	924.6	Regional
R-43 S1	12/06/10	5837.96	Transducer	903.9	924.6	Regional
R-43 S1	12/05/10	5838.03	Transducer	903.9	924.6	Regional
R-43 S1	12/04/10	5838.09	Transducer	903.9	924.6	Regional
R-43 S1	12/03/10	5838.03	Transducer	903.9	924.6	Regional
R-43 S1	12/02/10	5838.04	Transducer	903.9	924.6	Regional
R-43 S1	12/01/10	5837.95	Transducer	903.9	924.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S1	11/30/10	5838.1	Transducer	903.9	924.6	Regional
R-43 S1	11/29/10	5838.6	Transducer	903.9	924.6	Regional
R-43 S1	11/28/10	5838.43	Transducer	903.9	924.6	Regional
R-43 S1	11/27/10	5838.07	Transducer	903.9	924.6	Regional
R-43 S1	11/26/10	5838.08	Transducer	903.9	924.6	Regional
R-43 S1	11/25/10	5838.44	Transducer	903.9	924.6	Regional
R-43 S1	11/24/10	5838.46	Transducer	903.9	924.6	Regional
R-43 S1	11/23/10	5838.14	Transducer	903.9	924.6	Regional
R-43 S1	11/22/10	5838.41	Transducer	903.9	924.6	Regional
R-43 S1	11/21/10	5838.31	Transducer	903.9	924.6	Regional
R-43 S1	11/20/10	5838.2	Transducer	903.9	924.6	Regional
R-43 S1	11/19/10	5838.07	Transducer	903.9	924.6	Regional
R-43 S1	11/18/10	5837.9	Transducer	903.9	924.6	Regional
R-43 S1	11/17/10	5838.39	Transducer	903.9	924.6	Regional
R-43 S1	11/16/10	5838.23	Transducer	903.9	924.6	Regional
R-43 S1	11/15/10	5838.39	Transducer	903.9	924.6	Regional
R-43 S1	11/14/10	5838.19	Transducer	903.9	924.6	Regional
R-43 S1	11/13/10	5837.96	Transducer	903.9	924.6	Regional
R-43 S1	11/12/10	5838.03	Transducer	903.9	924.6	Regional
R-43 S1	11/11/10	5838.27	Transducer	903.9	924.6	Regional
R-43 S1	11/10/10	5838.27	Transducer	903.9	924.6	Regional
R-43 S1	11/09/10	5838.37	Transducer	903.9	924.6	Regional
R-43 S1	11/08/10	5838.07	Transducer	903.9	924.6	Regional
R-43 S1	11/07/10	5837.95	Transducer	903.9	924.6	Regional
R-43 S1	11/06/10	5837.92	Transducer	903.9	924.6	Regional
R-43 S1	11/05/10	5837.87	Transducer	903.9	924.6	Regional
R-43 S1	11/04/10	5837.7	Transducer	903.9	924.6	Regional
R-43 S1	11/03/10	5837.73	Transducer	903.9	924.6	Regional
R-43 S1	11/02/10	5837.7	Transducer	903.9	924.6	Regional
R-43 S1	11/01/10	5837.92	Transducer	903.9	924.6	Regional
R-43 S1	10/31/10	5838.02	Transducer	903.9	924.6	Regional
R-43 S1	10/30/10	5837.87	Transducer	903.9	924.6	Regional
R-43 S2	11/15/12	5835.79	Transducer	969.1	979.1	Regional
R-43 S2	11/14/12	5835.72	Transducer	969.1	979.1	Regional
R-43 S2	11/13/12	5835.71	Transducer	969.1	979.1	Regional
R-43 S2	11/12/12	5835.75	Transducer	969.1	979.1	Regional
R-43 S2	11/11/12	5836.18	Transducer	969.1	979.1	Regional
R-43 S2	11/10/12	5836.17	Transducer	969.1	979.1	Regional
R-43 S2	11/09/12	5836.02	Transducer	969.1	979.1	Regional
R-43 S2	11/08/12	5835.89	Transducer	969.1	979.1	Regional
R-43 S2	11/07/12	5835.73	Transducer	969.1	979.1	Regional
R-43 S2	11/06/12	5835.73	Transducer	969.1	979.1	Regional
R-43 S2	11/05/12	5835.71	Transducer	969.1	979.1	Regional
R-43 S2	11/04/12	5835.74	Transducer	969.1	979.1	Regional
R-43 S2	11/03/12	5835.83	Transducer	969.1	979.1	Regional
R-43 S2	11/02/12	5835.86	Transducer	969.1	979.1	Regional
R-43 S2	11/01/12	5835.76	Transducer	969.1	979.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S2	10/31/12	5835.77	Transducer	969.1	979.1	Regional
R-43 S2	10/30/12	5835.76	Transducer	969.1	979.1	Regional
R-43 S2	10/29/12	5835.76	Transducer	969.1	979.1	Regional
R-43 S2	10/28/12	5835.81	Transducer	969.1	979.1	Regional
R-43 S2	10/27/12	5835.72	Transducer	969.1	979.1	Regional
R-43 S2	10/26/12	5835.83	Transducer	969.1	979.1	Regional
R-43 S2	10/25/12	5836.03	Transducer	969.1	979.1	Regional
R-43 S2	10/24/12	5835.98	Transducer	969.1	979.1	Regional
R-43 S2	10/23/12	5835.95	Transducer	969.1	979.1	Regional
R-43 S2	10/22/12	5836	Transducer	969.1	979.1	Regional
R-43 S2	10/21/12	5836.04	Transducer	969.1	979.1	Regional
R-43 S2	10/20/12	5835.94	Transducer	969.1	979.1	Regional
R-43 S2	10/19/12	5835.84	Transducer	969.1	979.1	Regional
R-43 S2	10/18/12	5835.93	Transducer	969.1	979.1	Regional
R-43 S2	10/17/12	5836.07	Transducer	969.1	979.1	Regional
R-43 S2	10/16/12	5835.9	Transducer	969.1	979.1	Regional
R-43 S2	10/15/12	5835.72	Transducer	969.1	979.1	Regional
R-43 S2	10/14/12	5835.76	Transducer	969.1	979.1	Regional
R-43 S2	10/13/12	5835.93	Transducer	969.1	979.1	Regional
R-43 S2	10/12/12	5835.85	Transducer	969.1	979.1	Regional
R-43 S2	10/11/12	5835.88	Transducer	969.1	979.1	Regional
R-43 S2	10/10/12	5835.88	Transducer	969.1	979.1	Regional
R-43 S2	10/09/12	5835.96	Transducer	969.1	979.1	Regional
R-43 S2	10/08/12	5835.93	Transducer	969.1	979.1	Regional
R-43 S2	10/07/12	5835.93	Transducer	969.1	979.1	Regional
R-43 S2	10/06/12	5835.95	Transducer	969.1	979.1	Regional
R-43 S2	10/05/12	5835.89	Transducer	969.1	979.1	Regional
R-43 S2	10/04/12	5835.88	Transducer	969.1	979.1	Regional
R-43 S2	10/03/12	5835.97	Transducer	969.1	979.1	Regional
R-43 S2	10/02/12	5835.82	Transducer	969.1	979.1	Regional
R-43 S2	10/01/12	5835.85	Transducer	969.1	979.1	Regional
R-43 S2	09/30/12	5835.84	Transducer	969.1	979.1	Regional
R-43 S2	09/29/12	5835.85	Transducer	969.1	979.1	Regional
R-43 S2	09/28/12	5835.87	Transducer	969.1	979.1	Regional
R-43 S2	09/27/12	5835.91	Transducer	969.1	979.1	Regional
R-43 S2	09/26/12	5835.99	Transducer	969.1	979.1	Regional
R-43 S2	09/25/12	5835.91	Transducer	969.1	979.1	Regional
R-43 S2	09/24/12	5835.83	Transducer	969.1	979.1	Regional
R-43 S2	09/23/12	5835.81	Transducer	969.1	979.1	Regional
R-43 S2	09/22/12	5835.85	Transducer	969.1	979.1	Regional
R-43 S2	09/21/12	5835.88	Transducer	969.1	979.1	Regional
R-43 S2	09/20/12	5835.85	Transducer	969.1	979.1	Regional
R-43 S2	09/19/12	5835.84	Transducer	969.1	979.1	Regional
R-43 S2	09/18/12	5835.84	Transducer	969.1	979.1	Regional
R-43 S2	09/17/12	5835.95	Transducer	969.1	979.1	Regional
R-43 S2	09/16/12	5835.83	Transducer	969.1	979.1	Regional
R-43 S2	09/15/12	5835.69	Transducer	969.1	979.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S2	09/14/12	5835.64	Transducer	969.1	979.1	Regional
R-43 S2	09/13/12	5835.66	Transducer	969.1	979.1	Regional
R-43 S2	09/13/12	5835.8	Transducer	969.1	979.1	Regional
R-43 S2	09/12/12	5835.934	Transducer	969.1	979.1	Regional
R-43 S2	09/11/12	5835.916	Transducer	969.1	979.1	Regional
R-43 S2	09/10/12	5835.807	Transducer	969.1	979.1	Regional
R-43 S2	09/09/12	5835.752	Transducer	969.1	979.1	Regional
R-43 S2	09/08/12	5835.764	Transducer	969.1	979.1	Regional
R-43 S2	09/07/12	5835.949	Transducer	969.1	979.1	Regional
R-43 S2	09/06/12	5835.907	Transducer	969.1	979.1	Regional
R-43 S2	09/05/12	5835.939	Transducer	969.1	979.1	Regional
R-43 S2	09/04/12	5835.868	Transducer	969.1	979.1	Regional
R-43 S2	09/03/12	5835.896	Transducer	969.1	979.1	Regional
R-43 S2	09/02/12	5835.866	Transducer	969.1	979.1	Regional
R-43 S2	09/01/12	5835.871	Transducer	969.1	979.1	Regional
R-43 S2	08/31/12	5835.926	Transducer	969.1	979.1	Regional
R-43 S2	08/30/12	5835.919	Transducer	969.1	979.1	Regional
R-43 S2	08/29/12	5835.843	Transducer	969.1	979.1	Regional
R-43 S2	08/28/12	5835.798	Transducer	969.1	979.1	Regional
R-43 S2	08/27/12	5835.837	Transducer	969.1	979.1	Regional
R-43 S2	08/26/12	5835.981	Transducer	969.1	979.1	Regional
R-43 S2	08/25/12	5836.098	Transducer	969.1	979.1	Regional
R-43 S2	08/24/12	5836.047	Transducer	969.1	979.1	Regional
R-43 S2	08/23/12	5835.97	Transducer	969.1	979.1	Regional
R-43 S2	08/22/12	5835.935	Transducer	969.1	979.1	Regional
R-43 S2	08/21/12	5835.963	Transducer	969.1	979.1	Regional
R-43 S2	08/20/12	5835.952	Transducer	969.1	979.1	Regional
R-43 S2	08/19/12	5835.985	Transducer	969.1	979.1	Regional
R-43 S2	08/18/12	5835.943	Transducer	969.1	979.1	Regional
R-43 S2	08/17/12	5835.898	Transducer	969.1	979.1	Regional
R-43 S2	08/16/12	5836.032	Transducer	969.1	979.1	Regional
R-43 S2	08/15/12	5836.046	Transducer	969.1	979.1	Regional
R-43 S2	08/14/12	5835.959	Transducer	969.1	979.1	Regional
R-43 S2	08/13/12	5835.853	Transducer	969.1	979.1	Regional
R-43 S2	08/12/12	5835.99	Transducer	969.1	979.1	Regional
R-43 S2	08/11/12	5835.972	Transducer	969.1	979.1	Regional
R-43 S2	08/10/12	5835.903	Transducer	969.1	979.1	Regional
R-43 S2	08/09/12	5835.872	Transducer	969.1	979.1	Regional
R-43 S2	08/08/12	5835.908	Transducer	969.1	979.1	Regional
R-43 S2	08/07/12	5835.886	Transducer	969.1	979.1	Regional
R-43 S2	08/06/12	5835.724	Transducer	969.1	979.1	Regional
R-43 S2	08/05/12	5835.824	Transducer	969.1	979.1	Regional
R-43 S2	08/04/12	5836.015	Transducer	969.1	979.1	Regional
R-43 S2	08/03/12	5835.926	Transducer	969.1	979.1	Regional
R-43 S2	08/02/12	5835.952	Transducer	969.1	979.1	Regional
R-43 S2	08/01/12	5835.882	Transducer	969.1	979.1	Regional
R-43 S2	07/31/12	5835.946	Transducer	969.1	979.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S2	07/30/12	5835.948	Transducer	969.1	979.1	Regional
R-43 S2	07/29/12	5835.884	Transducer	969.1	979.1	Regional
R-43 S2	07/28/12	5835.894	Transducer	969.1	979.1	Regional
R-43 S2	07/27/12	5835.955	Transducer	969.1	979.1	Regional
R-43 S2	07/26/12	5836.079	Transducer	969.1	979.1	Regional
R-43 S2	07/25/12	5836.066	Transducer	969.1	979.1	Regional
R-43 S2	07/24/12	5835.953	Transducer	969.1	979.1	Regional
R-43 S2	07/23/12	5835.916	Transducer	969.1	979.1	Regional
R-43 S2	07/22/12	5835.896	Transducer	969.1	979.1	Regional
R-43 S2	07/21/12	5835.869	Transducer	969.1	979.1	Regional
R-43 S2	07/20/12	5835.868	Transducer	969.1	979.1	Regional
R-43 S2	07/19/12	5835.947	Transducer	969.1	979.1	Regional
R-43 S2	07/18/12	5836.06	Transducer	969.1	979.1	Regional
R-43 S2	07/17/12	5836.094	Transducer	969.1	979.1	Regional
R-43 S2	07/16/12	5836.053	Transducer	969.1	979.1	Regional
R-43 S2	07/15/12	5836.01	Transducer	969.1	979.1	Regional
R-43 S2	07/14/12	5835.98	Transducer	969.1	979.1	Regional
R-43 S2	07/13/12	5835.976	Transducer	969.1	979.1	Regional
R-43 S2	07/12/12	5835.949	Transducer	969.1	979.1	Regional
R-43 S2	07/11/12	5835.9	Manual	969.1	979.1	Regional
R-43 S2	07/11/12	5835.897	Transducer	969.1	979.1	Regional
R-43 S2	07/10/12	5835.895	Transducer	969.1	979.1	Regional
R-43 S2	07/09/12	5835.905	Transducer	969.1	979.1	Regional
R-43 S2	07/08/12	5835.88	Transducer	969.1	979.1	Regional
R-43 S2	07/07/12	5835.947	Transducer	969.1	979.1	Regional
R-43 S2	07/06/12	5836.01	Transducer	969.1	979.1	Regional
R-43 S2	07/05/12	5836.067	Transducer	969.1	979.1	Regional
R-43 S2	07/04/12	5836.089	Transducer	969.1	979.1	Regional
R-43 S2	07/03/12	5836.067	Transducer	969.1	979.1	Regional
R-43 S2	07/02/12	5836.067	Transducer	969.1	979.1	Regional
R-43 S2	07/01/12	5836.09	Transducer	969.1	979.1	Regional
R-43 S2	06/30/12	5836.067	Transducer	969.1	979.1	Regional
R-43 S2	06/29/12	5835.973	Transducer	969.1	979.1	Regional
R-43 S2	06/28/12	5836.012	Transducer	969.1	979.1	Regional
R-43 S2	06/27/12	5836.135	Transducer	969.1	979.1	Regional
R-43 S2	06/26/12	5836.079	Transducer	969.1	979.1	Regional
R-43 S2	06/25/12	5835.999	Transducer	969.1	979.1	Regional
R-43 S2	06/24/12	5836.076	Transducer	969.1	979.1	Regional
R-43 S2	06/23/12	5836.171	Transducer	969.1	979.1	Regional
R-43 S2	06/22/12	5836.052	Transducer	969.1	979.1	Regional
R-43 S2	06/21/12	5836.147	Transducer	969.1	979.1	Regional
R-43 S2	06/20/12	5836.366	Transducer	969.1	979.1	Regional
R-43 S2	06/19/12	5836.347	Transducer	969.1	979.1	Regional
R-43 S2	06/18/12	5836.274	Transducer	969.1	979.1	Regional
R-43 S2	06/17/12	5836.028	Transducer	969.1	979.1	Regional
R-43 S2	06/16/12	5836.172	Transducer	969.1	979.1	Regional
R-43 S2	06/15/12	5836.306	Transducer	969.1	979.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S2	06/14/12	5836.319	Transducer	969.1	979.1	Regional
R-43 S2	06/13/12	5836.227	Transducer	969.1	979.1	Regional
R-43 S2	06/12/12	5836.13	Transducer	969.1	979.1	Regional
R-43 S2	06/11/12	5836.26	Transducer	969.1	979.1	Regional
R-43 S2	06/10/12	5836.438	Transducer	969.1	979.1	Regional
R-43 S2	06/09/12	5836.407	Transducer	969.1	979.1	Regional
R-43 S2	06/08/12	5836.298	Transducer	969.1	979.1	Regional
R-43 S2	06/07/12	5836.4	Transducer	969.1	979.1	Regional
R-43 S2	06/06/12	5836.363	Transducer	969.1	979.1	Regional
R-43 S2	06/06/12	5836.377	Transducer	969.1	979.1	Regional
R-43 S2	06/05/12	5836.303	Transducer	969.1	979.1	Regional
R-43 S2	06/04/12	5836.292	Transducer	969.1	979.1	Regional
R-43 S2	06/03/12	5836.389	Transducer	969.1	979.1	Regional
R-43 S2	06/02/12	5836.426	Transducer	969.1	979.1	Regional
R-43 S2	06/01/12	5836.381	Transducer	969.1	979.1	Regional
R-43 S2	05/31/12	5836.454	Transducer	969.1	979.1	Regional
R-43 S2	05/30/12	5836.443	Transducer	969.1	979.1	Regional
R-43 S2	05/29/12	5836.417	Transducer	969.1	979.1	Regional
R-43 S2	05/28/12	5836.447	Transducer	969.1	979.1	Regional
R-43 S2	05/27/12	5836.585	Transducer	969.1	979.1	Regional
R-43 S2	05/26/12	5836.622	Transducer	969.1	979.1	Regional
R-43 S2	05/25/12	5836.752	Transducer	969.1	979.1	Regional
R-43 S2	05/24/12	5836.891	Transducer	969.1	979.1	Regional
R-43 S2	05/23/12	5836.712	Transducer	969.1	979.1	Regional
R-43 S2	05/22/12	5836.429	Transducer	969.1	979.1	Regional
R-43 S2	05/21/12	5836.341	Transducer	969.1	979.1	Regional
R-43 S2	05/20/12	5836.5	Transducer	969.1	979.1	Regional
R-43 S2	05/19/12	5836.742	Transducer	969.1	979.1	Regional
R-43 S2	05/18/12	5836.72	Transducer	969.1	979.1	Regional
R-43 S2	05/17/12	5836.544	Transducer	969.1	979.1	Regional
R-43 S2	05/16/12	5836.393	Transducer	969.1	979.1	Regional
R-43 S2	05/15/12	5836.375	Transducer	969.1	979.1	Regional
R-43 S2	05/14/12	5836.385	Transducer	969.1	979.1	Regional
R-43 S2	05/13/12	5836.332	Transducer	969.1	979.1	Regional
R-43 S2	05/12/12	5836.395	Transducer	969.1	979.1	Regional
R-43 S2	05/11/12	5836.671	Transducer	969.1	979.1	Regional
R-43 S2	05/10/12	5836.565	Transducer	969.1	979.1	Regional
R-43 S2	05/09/12	5836.429	Transducer	969.1	979.1	Regional
R-43 S2	05/08/12	5836.445	Transducer	969.1	979.1	Regional
R-43 S2	05/07/12	5836.565	Transducer	969.1	979.1	Regional
R-43 S2	05/06/12	5836.631	Transducer	969.1	979.1	Regional
R-43 S2	05/05/12	5836.628	Transducer	969.1	979.1	Regional
R-43 S2	05/04/12	5836.637	Transducer	969.1	979.1	Regional
R-43 S2	05/03/12	5836.722	Transducer	969.1	979.1	Regional
R-43 S2	05/02/12	5836.79	Transducer	969.1	979.1	Regional
R-43 S2	05/01/12	5836.77	Transducer	969.1	979.1	Regional
R-43 S2	04/30/12	5836.678	Transducer	969.1	979.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S2	04/29/12	5836.762	Transducer	969.1	979.1	Regional
R-43 S2	04/28/12	5836.793	Transducer	969.1	979.1	Regional
R-43 S2	04/27/12	5836.827	Transducer	969.1	979.1	Regional
R-43 S2	04/26/12	5836.657	Transducer	969.1	979.1	Regional
R-43 S2	04/25/12	5836.717	Transducer	969.1	979.1	Regional
R-43 S2	04/24/12	5836.631	Transducer	969.1	979.1	Regional
R-43 S2	04/23/12	5836.505	Transducer	969.1	979.1	Regional
R-43 S2	04/22/12	5836.561	Transducer	969.1	979.1	Regional
R-43 S2	04/21/12	5836.604	Transducer	969.1	979.1	Regional
R-43 S2	04/20/12	5836.716	Transducer	969.1	979.1	Regional
R-43 S2	04/19/12	5836.781	Transducer	969.1	979.1	Regional
R-43 S2	04/18/12	5836.651	Transducer	969.1	979.1	Regional
R-43 S2	04/17/12	5836.573	Transducer	969.1	979.1	Regional
R-43 S2	04/16/12	5836.734	Transducer	969.1	979.1	Regional
R-43 S2	04/15/12	5837.069	Transducer	969.1	979.1	Regional
R-43 S2	04/14/12	5837.055	Transducer	969.1	979.1	Regional
R-43 S2	04/13/12	5836.847	Transducer	969.1	979.1	Regional
R-43 S2	04/12/12	5836.855	Transducer	969.1	979.1	Regional
R-43 S2	04/11/12	5836.654	Transducer	969.1	979.1	Regional
R-43 S2	04/10/12	5836.608	Transducer	969.1	979.1	Regional
R-43 S2	04/09/12	5836.535	Transducer	969.1	979.1	Regional
R-43 S2	04/08/12	5836.406	Transducer	969.1	979.1	Regional
R-43 S2	04/07/12	5836.67	Transducer	969.1	979.1	Regional
R-43 S2	04/06/12	5836.821	Transducer	969.1	979.1	Regional
R-43 S2	04/05/12	5836.802	Transducer	969.1	979.1	Regional
R-43 S2	04/04/12	5836.77	Transducer	969.1	979.1	Regional
R-43 S2	04/03/12	5836.955	Transducer	969.1	979.1	Regional
R-43 S2	04/02/12	5837.052	Transducer	969.1	979.1	Regional
R-43 S2	04/01/12	5836.838	Transducer	969.1	979.1	Regional
R-43 S2	03/31/12	5836.733	Transducer	969.1	979.1	Regional
R-43 S2	03/30/12	5836.771	Transducer	969.1	979.1	Regional
R-43 S2	03/29/12	5836.778	Transducer	969.1	979.1	Regional
R-43 S2	03/28/12	5836.705	Transducer	969.1	979.1	Regional
R-43 S2	03/27/12	5836.745	Transducer	969.1	979.1	Regional
R-43 S2	03/26/12	5836.753	Transducer	969.1	979.1	Regional
R-43 S2	03/25/12	5836.647	Transducer	969.1	979.1	Regional
R-43 S2	03/24/12	5836.665	Transducer	969.1	979.1	Regional
R-43 S2	03/23/12	5836.772	Transducer	969.1	979.1	Regional
R-43 S2	03/22/12	5836.845	Transducer	969.1	979.1	Regional
R-43 S2	03/21/12	5836.852	Transducer	969.1	979.1	Regional
R-43 S2	03/20/12	5837.127	Transducer	969.1	979.1	Regional
R-43 S2	03/19/12	5837.128	Transducer	969.1	979.1	Regional
R-43 S2	03/18/12	5836.994	Transducer	969.1	979.1	Regional
R-43 S2	03/17/12	5836.834	Transducer	969.1	979.1	Regional
R-43 S2	03/16/12	5836.709	Transducer	969.1	979.1	Regional
R-43 S2	03/15/12	5836.664	Transducer	969.1	979.1	Regional
R-43 S2	03/14/12	5836.733	Transducer	969.1	979.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S2	03/13/12	5836.692	Transducer	969.1	979.1	Regional
R-43 S2	03/12/12	5836.819	Transducer	969.1	979.1	Regional
R-43 S2	03/11/12	5836.87	Transducer	969.1	979.1	Regional
R-43 S2	03/10/12	5836.551	Transducer	969.1	979.1	Regional
R-43 S2	03/09/12	5836.393	Transducer	969.1	979.1	Regional
R-43 S2	03/08/12	5836.871	Transducer	969.1	979.1	Regional
R-43 S2	03/07/12	5837.039	Transducer	969.1	979.1	Regional
R-43 S2	03/06/12	5836.809	Transducer	969.1	979.1	Regional
R-43 S2	03/06/12	5836.683	Transducer	969.1	979.1	Regional
R-43 S2	03/05/12	5836.518	Transducer	969.1	979.1	Regional
R-43 S2	03/04/12	5836.547	Transducer	969.1	979.1	Regional
R-43 S2	03/03/12	5836.741	Transducer	969.1	979.1	Regional
R-43 S2	03/02/12	5836.966	Transducer	969.1	979.1	Regional
R-43 S2	03/01/12	5836.837	Transducer	969.1	979.1	Regional
R-43 S2	02/29/12	5836.723	Transducer	969.1	979.1	Regional
R-43 S2	02/28/12	5836.847	Transducer	969.1	979.1	Regional
R-43 S2	02/27/12	5836.692	Transducer	969.1	979.1	Regional
R-43 S2	02/26/12	5836.805	Transducer	969.1	979.1	Regional
R-43 S2	02/25/12	5836.544	Transducer	969.1	979.1	Regional
R-43 S2	02/24/12	5836.736	Transducer	969.1	979.1	Regional
R-43 S2	02/23/12	5836.928	Transducer	969.1	979.1	Regional
R-43 S2	02/22/12	5836.672	Transducer	969.1	979.1	Regional
R-43 S2	02/21/12	5836.671	Transducer	969.1	979.1	Regional
R-43 S2	02/20/12	5836.98	Transducer	969.1	979.1	Regional
R-43 S2	02/19/12	5836.775	Transducer	969.1	979.1	Regional
R-43 S2	02/18/12	5836.784	Transducer	969.1	979.1	Regional
R-43 S2	02/17/12	5836.728	Transducer	969.1	979.1	Regional
R-43 S2	02/16/12	5836.74	Transducer	969.1	979.1	Regional
R-43 S2	02/15/12	5837.044	Transducer	969.1	979.1	Regional
R-43 S2	02/14/12	5836.952	Transducer	969.1	979.1	Regional
R-43 S2	02/13/12	5836.976	Transducer	969.1	979.1	Regional
R-43 S2	02/12/12	5836.644	Transducer	969.1	979.1	Regional
R-43 S2	02/11/12	5836.621	Transducer	969.1	979.1	Regional
R-43 S2	02/10/12	5836.624	Transducer	969.1	979.1	Regional
R-43 S2	02/09/12	5836.615	Transducer	969.1	979.1	Regional
R-43 S2	02/08/12	5836.515	Transducer	969.1	979.1	Regional
R-43 S2	02/07/12	5836.699	Transducer	969.1	979.1	Regional
R-43 S2	02/06/12	5836.601	Transducer	969.1	979.1	Regional
R-43 S2	02/05/12	5836.484	Transducer	969.1	979.1	Regional
R-43 S2	02/04/12	5836.608	Transducer	969.1	979.1	Regional
R-43 S2	02/03/12	5836.904	Transducer	969.1	979.1	Regional
R-43 S2	02/02/12	5836.693	Transducer	969.1	979.1	Regional
R-43 S2	02/01/12	5836.624	Transducer	969.1	979.1	Regional
R-43 S2	01/31/12	5836.74	Transducer	969.1	979.1	Regional
R-43 S2	01/30/12	5836.544	Transducer	969.1	979.1	Regional
R-43 S2	01/29/12	5836.422	Transducer	969.1	979.1	Regional
R-43 S2	01/28/12	5836.51	Transducer	969.1	979.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S2	01/27/12	5836.777	Transducer	969.1	979.1	Regional
R-43 S2	01/26/12	5836.623	Transducer	969.1	979.1	Regional
R-43 S2	01/25/12	5836.64	Transducer	969.1	979.1	Regional
R-43 S2	01/24/12	5836.86	Transducer	969.1	979.1	Regional
R-43 S2	01/23/12	5836.716	Transducer	969.1	979.1	Regional
R-43 S2	01/22/12	5837.105	Transducer	969.1	979.1	Regional
R-43 S2	01/21/12	5836.701	Transducer	969.1	979.1	Regional
R-43 S2	01/20/12	5836.836	Transducer	969.1	979.1	Regional
R-43 S2	01/19/12	5836.683	Transducer	969.1	979.1	Regional
R-43 S2	01/18/12	5836.586	Transducer	969.1	979.1	Regional
R-43 S2	01/17/12	5836.792	Transducer	969.1	979.1	Regional
R-43 S2	01/16/12	5836.767	Transducer	969.1	979.1	Regional
R-43 S2	01/15/12	5836.56	Transducer	969.1	979.1	Regional
R-43 S2	01/14/12	5836.502	Transducer	969.1	979.1	Regional
R-43 S2	01/13/12	5836.668	Transducer	969.1	979.1	Regional
R-43 S2	01/12/12	5836.684	Transducer	969.1	979.1	Regional
R-43 S2	01/11/12	5836.76	Transducer	969.1	979.1	Regional
R-43 S2	01/10/12	5836.568	Transducer	969.1	979.1	Regional
R-43 S2	01/09/12	5836.562	Transducer	969.1	979.1	Regional
R-43 S2	01/08/12	5836.773	Transducer	969.1	979.1	Regional
R-43 S2	01/07/12	5836.632	Transducer	969.1	979.1	Regional
R-43 S2	01/06/12	5836.628	Transducer	969.1	979.1	Regional
R-43 S2	01/05/12	5836.287	Transducer	969.1	979.1	Regional
R-43 S2	01/04/12	5836.386	Transducer	969.1	979.1	Regional
R-43 S2	01/03/12	5836.237	Transducer	969.1	979.1	Regional
R-43 S2	01/02/12	5836.177	Transducer	969.1	979.1	Regional
R-43 S2	01/01/12	5836.348	Transducer	969.1	979.1	Regional
R-43 S2	12/31/11	5836.596	Transducer	969.1	979.1	Regional
R-43 S2	12/30/11	5836.54	Transducer	969.1	979.1	Regional
R-43 S2	12/29/11	5836.439	Transducer	969.1	979.1	Regional
R-43 S2	12/28/11	5836.478	Transducer	969.1	979.1	Regional
R-43 S2	12/27/11	5836.397	Transducer	969.1	979.1	Regional
R-43 S2	12/26/11	5836.431	Transducer	969.1	979.1	Regional
R-43 S2	12/25/11	5836.289	Transducer	969.1	979.1	Regional
R-43 S2	12/24/11	5836.374	Transducer	969.1	979.1	Regional
R-43 S2	12/23/11	5836.489	Transducer	969.1	979.1	Regional
R-43 S2	12/22/11	5836.764	Transducer	969.1	979.1	Regional
R-43 S2	12/21/11	5836.734	Transducer	969.1	979.1	Regional
R-43 S2	12/20/11	5836.685	Transducer	969.1	979.1	Regional
R-43 S2	12/19/11	5836.75	Transducer	969.1	979.1	Regional
R-43 S2	12/18/11	5836.333	Transducer	969.1	979.1	Regional
R-43 S2	12/17/11	5836.242	Transducer	969.1	979.1	Regional
R-43 S2	12/16/11	5836.411	Transducer	969.1	979.1	Regional
R-43 S2	12/15/11	5836.526	Transducer	969.1	979.1	Regional
R-43 S2	12/14/11	5836.724	Transducer	969.1	979.1	Regional
R-43 S2	12/13/11	5836.598	Transducer	969.1	979.1	Regional
R-43 S2	12/12/11	5836.575	Transducer	969.1	979.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S2	12/11/11	5836.414	Transducer	969.1	979.1	Regional
R-43 S2	12/10/11	5836.276	Transducer	969.1	979.1	Regional
R-43 S2	12/09/11	5836.488	Transducer	969.1	979.1	Regional
R-43 S2	12/08/11	5836.508	Transducer	969.1	979.1	Regional
R-43 S2	12/07/11	5836.404	Transducer	969.1	979.1	Regional
R-43 S2	12/06/11	5836.477	Transducer	969.1	979.1	Regional
R-43 S2	12/05/11	5836.639	Transducer	969.1	979.1	Regional
R-43 S2	12/04/11	5836.586	Transducer	969.1	979.1	Regional
R-43 S2	12/03/11	5836.76	Transducer	969.1	979.1	Regional
R-43 S2	12/02/11	5836.428	Transducer	969.1	979.1	Regional
R-43 S2	12/01/11	5836.685	Transducer	969.1	979.1	Regional
R-43 S2	11/30/11	5836.33	Transducer	969.1	979.1	Regional
R-43 S2	11/29/11	5836.305	Transducer	969.1	979.1	Regional
R-43 S2	11/28/11	5836.196	Transducer	969.1	979.1	Regional
R-43 S2	11/27/11	5836.104	Transducer	969.1	979.1	Regional
R-43 S2	11/26/11	5836.525	Transducer	969.1	979.1	Regional
R-43 S2	11/25/11	5836.471	Transducer	969.1	979.1	Regional
R-43 S2	11/24/11	5836.303	Transducer	969.1	979.1	Regional
R-43 S2	11/23/11	5836.226	Transducer	969.1	979.1	Regional
R-43 S2	11/22/11	5836.391	Transducer	969.1	979.1	Regional
R-43 S2	11/21/11	5836.473	Transducer	969.1	979.1	Regional
R-43 S2	11/20/11	5836.563	Transducer	969.1	979.1	Regional
R-43 S2	11/19/11	5836.711	Transducer	969.1	979.1	Regional
R-43 S2	11/18/11	5836.526	Transducer	969.1	979.1	Regional
R-43 S2	11/17/11	5836.296	Transducer	969.1	979.1	Regional
R-43 S2	11/16/11	5836.572	Transducer	969.1	979.1	Regional
R-43 S2	11/15/11	5836.598	Transducer	969.1	979.1	Regional
R-43 S2	11/14/11	5836.649	Transducer	969.1	979.1	Regional
R-43 S2	11/13/11	5836.647	Transducer	969.1	979.1	Regional
R-43 S2	11/12/11	5836.571	Transducer	969.1	979.1	Regional
R-43 S2	11/11/11	5836.298	Transducer	969.1	979.1	Regional
R-43 S2	11/10/11	5836.14	Transducer	969.1	979.1	Regional
R-43 S2	11/09/11	5836.312	Transducer	969.1	979.1	Regional
R-43 S2	11/08/11	5836.656	Transducer	969.1	979.1	Regional
R-43 S2	11/07/11	5836.58	Transducer	969.1	979.1	Regional
R-43 S2	11/06/11	5836.643	Transducer	969.1	979.1	Regional
R-43 S2	11/05/11	5836.738	Transducer	969.1	979.1	Regional
R-43 S2	11/04/11	5836.424	Transducer	969.1	979.1	Regional
R-43 S2	11/03/11	5836.207	Transducer	969.1	979.1	Regional
R-43 S2	11/02/11	5836.64	Transducer	969.1	979.1	Regional
R-43 S2	11/01/11	5836.406	Transducer	969.1	979.1	Regional
R-43 S2	10/31/11	5836.254	Transducer	969.1	979.1	Regional
R-43 S2	10/30/11	5836.365	Transducer	969.1	979.1	Regional
R-43 S2	10/29/11	5836.275	Transducer	969.1	979.1	Regional
R-43 S2	10/28/11	5836.388	Transducer	969.1	979.1	Regional
R-43 S2	10/27/11	5836.533	Transducer	969.1	979.1	Regional
R-43 S2	10/26/11	5836.452	Transducer	969.1	979.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S2	10/25/11	5836.346	Transducer	969.1	979.1	Regional
R-43 S2	10/24/11	5836.253	Transducer	969.1	979.1	Regional
R-43 S2	10/23/11	5836.311	Transducer	969.1	979.1	Regional
R-43 S2	10/22/11	5836.304	Transducer	969.1	979.1	Regional
R-43 S2	10/21/11	5836.305	Transducer	969.1	979.1	Regional
R-43 S2	10/20/11	5836.41	Transducer	969.1	979.1	Regional
R-43 S2	10/19/11	5836.254	Transducer	969.1	979.1	Regional
R-43 S2	10/18/11	5836.303	Transducer	969.1	979.1	Regional
R-43 S2	10/17/11	5836.388	Transducer	969.1	979.1	Regional
R-43 S2	10/16/11	5836.291	Transducer	969.1	979.1	Regional
R-43 S2	10/15/11	5836.314	Transducer	969.1	979.1	Regional
R-43 S2	10/14/11	5836.396	Transducer	969.1	979.1	Regional
R-43 S2	10/13/11	5836.327	Transducer	969.1	979.1	Regional
R-43 S2	10/12/11	5836.475	Transducer	969.1	979.1	Regional
R-43 S2	10/11/11	5836.471	Transducer	969.1	979.1	Regional
R-43 S2	10/10/11	5836.407	Transducer	969.1	979.1	Regional
R-43 S2	10/09/11	5836.448	Transducer	969.1	979.1	Regional
R-43 S2	10/08/11	5836.613	Transducer	969.1	979.1	Regional
R-43 S2	10/07/11	5836.621	Transducer	969.1	979.1	Regional
R-43 S2	10/06/11	5836.62	Transducer	969.1	979.1	Regional
R-43 S2	10/05/11	5836.444	Transducer	969.1	979.1	Regional
R-43 S2	10/04/11	5836.302	Transducer	969.1	979.1	Regional
R-43 S2	10/03/11	5836.261	Transducer	969.1	979.1	Regional
R-43 S2	10/02/11	5836.25	Transducer	969.1	979.1	Regional
R-43 S2	10/01/11	5836.255	Transducer	969.1	979.1	Regional
R-43 S2	09/30/11	5836.152	Transducer	969.1	979.1	Regional
R-43 S2	09/29/11	5836.335	Transducer	969.1	979.1	Regional
R-43 S2	09/28/11	5836.256	Transducer	969.1	979.1	Regional
R-43 S2	09/27/11	5836.356	Transducer	969.1	979.1	Regional
R-43 S2	09/26/11	5836.463	Transducer	969.1	979.1	Regional
R-43 S2	09/25/11	5836.422	Transducer	969.1	979.1	Regional
R-43 S2	09/24/11	5836.285	Transducer	969.1	979.1	Regional
R-43 S2	09/23/11	5836.259	Transducer	969.1	979.1	Regional
R-43 S2	09/22/11	5836.371	Transducer	969.1	979.1	Regional
R-43 S2	09/21/11	5836.372	Transducer	969.1	979.1	Regional
R-43 S2	09/20/11	5836.355	Transducer	969.1	979.1	Regional
R-43 S2	09/19/11	5836.271	Transducer	969.1	979.1	Regional
R-43 S2	09/18/11	5836.344	Transducer	969.1	979.1	Regional
R-43 S2	09/17/11	5836.396	Transducer	969.1	979.1	Regional
R-43 S2	09/16/11	5836.399	Transducer	969.1	979.1	Regional
R-43 S2	09/15/11	5836.357	Transducer	969.1	979.1	Regional
R-43 S2	09/14/11	5836.322	Transducer	969.1	979.1	Regional
R-43 S2	09/13/11	5836.223	Transducer	969.1	979.1	Regional
R-43 S2	09/12/11	5836.178	Transducer	969.1	979.1	Regional
R-43 S2	09/11/11	5836.209	Transducer	969.1	979.1	Regional
R-43 S2	09/10/11	5836.248	Transducer	969.1	979.1	Regional
R-43 S2	09/09/11	5836.223	Transducer	969.1	979.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S2	09/08/11	5836.126	Transducer	969.1	979.1	Regional
R-43 S2	09/07/11	5836.275	Transducer	969.1	979.1	Regional
R-43 S2	09/06/11	5836.263	Transducer	969.1	979.1	Regional
R-43 S2	09/05/11	5836.199	Transducer	969.1	979.1	Regional
R-43 S2	09/04/11	5836.282	Transducer	969.1	979.1	Regional
R-43 S2	09/03/11	5836.391	Transducer	969.1	979.1	Regional
R-43 S2	09/02/11	5836.307	Transducer	969.1	979.1	Regional
R-43 S2	09/01/11	5836.335	Transducer	969.1	979.1	Regional
R-43 S2	08/31/11	5836.402	Transducer	969.1	979.1	Regional
R-43 S2	08/30/11	5836.394	Transducer	969.1	979.1	Regional
R-43 S2	08/29/11	5836.335	Transducer	969.1	979.1	Regional
R-43 S2	08/28/11	5836.284	Transducer	969.1	979.1	Regional
R-43 S2	08/27/11	5836.207	Transducer	969.1	979.1	Regional
R-43 S2	08/26/11	5836.227	Transducer	969.1	979.1	Regional
R-43 S2	08/25/11	5836.266	Transducer	969.1	979.1	Regional
R-43 S2	08/24/11	5836.331	Transducer	969.1	979.1	Regional
R-43 S2	08/23/11	5836.286	Transducer	969.1	979.1	Regional
R-43 S2	08/22/11	5836.22	Transducer	969.1	979.1	Regional
R-43 S2	08/22/11	5836.215	Transducer	969.1	979.1	Regional
R-43 S2	08/21/11	5836.29	Transducer	969.1	979.1	Regional
R-43 S2	08/20/11	5836.36	Transducer	969.1	979.1	Regional
R-43 S2	08/19/11	5836.32	Transducer	969.1	979.1	Regional
R-43 S2	08/18/11	5836.19	Transducer	969.1	979.1	Regional
R-43 S2	08/17/11	5836.24	Transducer	969.1	979.1	Regional
R-43 S2	08/16/11	5836.38	Transducer	969.1	979.1	Regional
R-43 S2	08/15/11	5836.33	Transducer	969.1	979.1	Regional
R-43 S2	08/14/11	5836.21	Transducer	969.1	979.1	Regional
R-43 S2	08/13/11	5836.34	Transducer	969.1	979.1	Regional
R-43 S2	08/12/11	5836.4	Transducer	969.1	979.1	Regional
R-43 S2	08/11/11	5836.4	Transducer	969.1	979.1	Regional
R-43 S2	08/10/11	5836.46	Transducer	969.1	979.1	Regional
R-43 S2	08/09/11	5836.42	Transducer	969.1	979.1	Regional
R-43 S2	08/08/11	5836.43	Transducer	969.1	979.1	Regional
R-43 S2	08/07/11	5836.38	Transducer	969.1	979.1	Regional
R-43 S2	08/06/11	5836.35	Transducer	969.1	979.1	Regional
R-43 S2	08/05/11	5836.36	Transducer	969.1	979.1	Regional
R-43 S2	08/04/11	5836.34	Transducer	969.1	979.1	Regional
R-43 S2	08/03/11	5836.32	Transducer	969.1	979.1	Regional
R-43 S2	08/02/11	5836.28	Transducer	969.1	979.1	Regional
R-43 S2	08/01/11	5836.2	Transducer	969.1	979.1	Regional
R-43 S2	07/31/11	5836.17	Transducer	969.1	979.1	Regional
R-43 S2	07/30/11	5836.2	Transducer	969.1	979.1	Regional
R-43 S2	07/29/11	5836.3	Transducer	969.1	979.1	Regional
R-43 S2	07/28/11	5836.4	Transducer	969.1	979.1	Regional
R-43 S2	07/27/11	5836.41	Transducer	969.1	979.1	Regional
R-43 S2	07/26/11	5836.32	Transducer	969.1	979.1	Regional
R-43 S2	07/25/11	5836.19	Transducer	969.1	979.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S2	07/24/11	5836.24	Transducer	969.1	979.1	Regional
R-43 S2	07/23/11	5836.34	Transducer	969.1	979.1	Regional
R-43 S2	07/22/11	5836.37	Transducer	969.1	979.1	Regional
R-43 S2	07/21/11	5836.34	Transducer	969.1	979.1	Regional
R-43 S2	07/20/11	5836.29	Transducer	969.1	979.1	Regional
R-43 S2	07/19/11	5836.19	Transducer	969.1	979.1	Regional
R-43 S2	07/18/11	5836.14	Transducer	969.1	979.1	Regional
R-43 S2	07/17/11	5836.24	Transducer	969.1	979.1	Regional
R-43 S2	07/16/11	5836.39	Transducer	969.1	979.1	Regional
R-43 S2	07/15/11	5836.43	Transducer	969.1	979.1	Regional
R-43 S2	07/14/11	5836.4	Transducer	969.1	979.1	Regional
R-43 S2	07/13/11	5836.35	Transducer	969.1	979.1	Regional
R-43 S2	07/12/11	5836.32	Transducer	969.1	979.1	Regional
R-43 S2	07/11/11	5836.33	Transducer	969.1	979.1	Regional
R-43 S2	07/10/11	5836.37	Transducer	969.1	979.1	Regional
R-43 S2	07/09/11	5836.41	Transducer	969.1	979.1	Regional
R-43 S2	07/08/11	5836.36	Transducer	969.1	979.1	Regional
R-43 S2	07/07/11	5836.32	Transducer	969.1	979.1	Regional
R-43 S2	07/06/11	5836.31	Transducer	969.1	979.1	Regional
R-43 S2	07/05/11	5836.31	Transducer	969.1	979.1	Regional
R-43 S2	07/04/11	5836.31	Transducer	969.1	979.1	Regional
R-43 S2	07/03/11	5836.27	Transducer	969.1	979.1	Regional
R-43 S2	07/02/11	5836.34	Transducer	969.1	979.1	Regional
R-43 S2	07/01/11	5836.38	Transducer	969.1	979.1	Regional
R-43 S2	06/30/11	5836.38	Transducer	969.1	979.1	Regional
R-43 S2	06/29/11	5836.27	Transducer	969.1	979.1	Regional
R-43 S2	06/28/11	5836.26	Transducer	969.1	979.1	Regional
R-43 S2	06/27/11	5836.44	Transducer	969.1	979.1	Regional
R-43 S2	06/26/11	5836.45	Transducer	969.1	979.1	Regional
R-43 S2	06/25/11	5836.51	Transducer	969.1	979.1	Regional
R-43 S2	06/24/11	5836.52	Transducer	969.1	979.1	Regional
R-43 S2	06/23/11	5836.44	Transducer	969.1	979.1	Regional
R-43 S2	06/22/11	5836.47	Transducer	969.1	979.1	Regional
R-43 S2	06/21/11	5836.59	Transducer	969.1	979.1	Regional
R-43 S2	06/20/11	5836.73	Transducer	969.1	979.1	Regional
R-43 S2	06/19/11	5836.62	Transducer	969.1	979.1	Regional
R-43 S2	06/18/11	5836.57	Transducer	969.1	979.1	Regional
R-43 S2	06/17/11	5836.7	Transducer	969.1	979.1	Regional
R-43 S2	06/16/11	5836.65	Transducer	969.1	979.1	Regional
R-43 S2	06/15/11	5836.48	Transducer	969.1	979.1	Regional
R-43 S2	06/14/11	5836.54	Transducer	969.1	979.1	Regional
R-43 S2	06/13/11	5836.58	Transducer	969.1	979.1	Regional
R-43 S2	06/12/11	5836.63	Transducer	969.1	979.1	Regional
R-43 S2	06/11/11	5836.57	Transducer	969.1	979.1	Regional
R-43 S2	06/10/11	5836.61	Transducer	969.1	979.1	Regional
R-43 S2	06/09/11	5836.65	Transducer	969.1	979.1	Regional
R-43 S2	06/08/11	5836.63	Transducer	969.1	979.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S2	06/07/11	5836.63	Transducer	969.1	979.1	Regional
R-43 S2	06/06/11	5836.44	Transducer	969.1	979.1	Regional
R-43 S2	06/05/11	5836.35	Transducer	969.1	979.1	Regional
R-43 S2	06/04/11	5836.52	Transducer	969.1	979.1	Regional
R-43 S2	06/03/11	5836.63	Transducer	969.1	979.1	Regional
R-43 S2	06/02/11	5836.55	Transducer	969.1	979.1	Regional
R-43 S2	06/01/11	5836.38	Transducer	969.1	979.1	Regional
R-43 S2	05/31/11	5836.51	Transducer	969.1	979.1	Regional
R-43 S2	05/30/11	5836.96	Transducer	969.1	979.1	Regional
R-43 S2	05/29/11	5836.93	Transducer	969.1	979.1	Regional
R-43 S2	05/28/11	5836.83	Transducer	969.1	979.1	Regional
R-43 S2	05/27/11	5836.77	Transducer	969.1	979.1	Regional
R-43 S2	05/26/11	5836.62	Transducer	969.1	979.1	Regional
R-43 S2	05/25/11	5836.75	Transducer	969.1	979.1	Regional
R-43 S2	05/24/11	5836.89	Transducer	969.1	979.1	Regional
R-43 S2	05/23/11	5836.79	Transducer	969.1	979.1	Regional
R-43 S2	05/22/11	5836.78	Transducer	969.1	979.1	Regional
R-43 S2	05/21/11	5836.82	Transducer	969.1	979.1	Regional
R-43 S2	05/20/11	5836.92	Transducer	969.1	979.1	Regional
R-43 S2	05/19/11	5837.1	Transducer	969.1	979.1	Regional
R-43 S2	05/18/11	5837.04	Transducer	969.1	979.1	Regional
R-43 S2	05/17/11	5836.95	Transducer	969.1	979.1	Regional
R-43 S2	05/16/11	5836.81	Transducer	969.1	979.1	Regional
R-43 S2	05/15/11	5836.84	Transducer	969.1	979.1	Regional
R-43 S2	05/14/11	5836.72	Transducer	969.1	979.1	Regional
R-43 S2	05/13/11	5836.76	Transducer	969.1	979.1	Regional
R-43 S2	05/12/11	5836.98	Transducer	969.1	979.1	Regional
R-43 S2	05/11/11	5837.23	Transducer	969.1	979.1	Regional
R-43 S2	05/10/11	5837.2	Transducer	969.1	979.1	Regional
R-43 S2	05/09/11	5837.18	Transducer	969.1	979.1	Regional
R-43 S2	05/08/11	5837.06	Transducer	969.1	979.1	Regional
R-43 S2	05/07/11	5837.01	Transducer	969.1	979.1	Regional
R-43 S2	05/06/11	5836.87	Transducer	969.1	979.1	Regional
R-43 S2	05/05/11	5836.85	Transducer	969.1	979.1	Regional
R-43 S2	05/04/11	5836.82	Transducer	969.1	979.1	Regional
R-43 S2	05/03/11	5836.74	Transducer	969.1	979.1	Regional
R-43 S2	05/02/11	5836.9	Transducer	969.1	979.1	Regional
R-43 S2	05/01/11	5837.17	Transducer	969.1	979.1	Regional
R-43 S2	04/30/11	5837.28	Transducer	969.1	979.1	Regional
R-43 S2	04/29/11	5837.15	Transducer	969.1	979.1	Regional
R-43 S2	04/28/11	5836.96	Transducer	969.1	979.1	Regional
R-43 S2	04/27/11	5837.33	Transducer	969.1	979.1	Regional
R-43 S2	04/26/11	5837.4	Transducer	969.1	979.1	Regional
R-43 S2	04/25/11	5837.32	Transducer	969.1	979.1	Regional
R-43 S2	04/24/11	5837.29	Transducer	969.1	979.1	Regional
R-43 S2	04/23/11	5837.36	Transducer	969.1	979.1	Regional
R-43 S2	04/22/11	5837.41	Transducer	969.1	979.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S2	04/21/11	5837.36	Transducer	969.1	979.1	Regional
R-43 S2	04/20/11	5837.37	Transducer	969.1	979.1	Regional
R-43 S2	04/19/11	5837.58	Transducer	969.1	979.1	Regional
R-43 S2	04/18/11	5837.51	Transducer	969.1	979.1	Regional
R-43 S2	04/17/11	5837.43	Transducer	969.1	979.1	Regional
R-43 S2	04/16/11	5837.34	Transducer	969.1	979.1	Regional
R-43 S2	04/15/11	5837.43	Transducer	969.1	979.1	Regional
R-43 S2	04/14/11	5837.57	Transducer	969.1	979.1	Regional
R-43 S2	04/13/11	5837.47	Transducer	969.1	979.1	Regional
R-43 S2	04/12/11	5837.31	Transducer	969.1	979.1	Regional
R-43 S2	04/11/11	5837.34	Transducer	969.1	979.1	Regional
R-43 S2	04/10/11	5837.58	Transducer	969.1	979.1	Regional
R-43 S2	04/09/11	5837.63	Transducer	969.1	979.1	Regional
R-43 S2	04/08/11	5837.64	Transducer	969.1	979.1	Regional
R-43 S2	04/07/11	5837.52	Transducer	969.1	979.1	Regional
R-43 S2	04/06/11	5837.55	Transducer	969.1	979.1	Regional
R-43 S2	04/05/11	5837.32	Transducer	969.1	979.1	Regional
R-43 S2	04/04/11	5837.52	Transducer	969.1	979.1	Regional
R-43 S2	04/03/11	5837.57	Transducer	969.1	979.1	Regional
R-43 S2	04/02/11	5837.42	Transducer	969.1	979.1	Regional
R-43 S2	04/01/11	5837.51	Transducer	969.1	979.1	Regional
R-43 S2	03/31/11	5837.49	Transducer	969.1	979.1	Regional
R-43 S2	03/30/11	5837.45	Transducer	969.1	979.1	Regional
R-43 S2	03/29/11	5837.62	Transducer	969.1	979.1	Regional
R-43 S2	03/28/11	5837.65	Transducer	969.1	979.1	Regional
R-43 S2	03/27/11	5837.73	Transducer	969.1	979.1	Regional
R-43 S2	03/26/11	5837.7	Transducer	969.1	979.1	Regional
R-43 S2	03/25/11	5837.58	Transducer	969.1	979.1	Regional
R-43 S2	03/24/11	5837.56	Transducer	969.1	979.1	Regional
R-43 S2	03/23/11	5837.56	Transducer	969.1	979.1	Regional
R-43 S2	03/22/11	5837.73	Transducer	969.1	979.1	Regional
R-43 S2	03/21/11	5837.51	Transducer	969.1	979.1	Regional
R-43 S2	03/20/11	5837.49	Transducer	969.1	979.1	Regional
R-43 S2	03/19/11	5837.36	Transducer	969.1	979.1	Regional
R-43 S2	03/18/11	5837.4	Transducer	969.1	979.1	Regional
R-43 S2	03/17/11	5837.47	Transducer	969.1	979.1	Regional
R-43 S2	03/16/11	5837.38	Transducer	969.1	979.1	Regional
R-43 S2	03/15/11	5837.39	Transducer	969.1	979.1	Regional
R-43 S2	03/14/11	5837.24	Transducer	969.1	979.1	Regional
R-43 S2	03/13/11	5837.46	Transducer	969.1	979.1	Regional
R-43 S2	03/12/11	5837.44	Transducer	969.1	979.1	Regional
R-43 S2	03/11/11	5837.32	Transducer	969.1	979.1	Regional
R-43 S2	03/10/11	5837.15	Transducer	969.1	979.1	Regional
R-43 S2	03/09/11	5837.4	Transducer	969.1	979.1	Regional
R-43 S2	03/08/11	5837.83	Transducer	969.1	979.1	Regional
R-43 S2	03/07/11	5837.68	Transducer	969.1	979.1	Regional
R-43 S2	03/06/11	5837.33	Transducer	969.1	979.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S2	03/05/11	5837.19	Transducer	969.1	979.1	Regional
R-43 S2	03/04/11	5837.49	Transducer	969.1	979.1	Regional
R-43 S2	03/03/11	5837.35	Transducer	969.1	979.1	Regional
R-43 S2	03/02/11	5837.31	Transducer	969.1	979.1	Regional
R-43 S2	03/01/11	5837.22	Transducer	969.1	979.1	Regional
R-43 S2	02/28/11	5837.5	Transducer	969.1	979.1	Regional
R-43 S2	02/27/11	5837.77	Transducer	969.1	979.1	Regional
R-43 S2	02/26/11	5837.66	Transducer	969.1	979.1	Regional
R-43 S2	02/25/11	5837.51	Transducer	969.1	979.1	Regional
R-43 S2	02/24/11	5837.67	Transducer	969.1	979.1	Regional
R-43 S2	02/23/11	5837.56	Transducer	969.1	979.1	Regional
R-43 S2	02/22/11	5837.55	Transducer	969.1	979.1	Regional
R-43 S2	02/21/11	5837.66	Transducer	969.1	979.1	Regional
R-43 S2	02/20/11	5837.7	Transducer	969.1	979.1	Regional
R-43 S2	02/19/11	5837.36	Transducer	969.1	979.1	Regional
R-43 S2	02/18/11	5837.4	Transducer	969.1	979.1	Regional
R-43 S2	02/17/11	5837.6	Transducer	969.1	979.1	Regional
R-43 S2	02/16/11	5837.39	Transducer	969.1	979.1	Regional
R-43 S2	02/15/11	5837.33	Transducer	969.1	979.1	Regional
R-43 S2	02/14/11	5837.21	Transducer	969.1	979.1	Regional
R-43 S2	02/13/11	5837.12	Transducer	969.1	979.1	Regional
R-43 S2	02/12/11	5837.15	Transducer	969.1	979.1	Regional
R-43 S2	02/11/11	5837.39	Transducer	969.1	979.1	Regional
R-43 S2	02/10/11	5837.41	Transducer	969.1	979.1	Regional
R-43 S2	02/09/11	5837.51	Transducer	969.1	979.1	Regional
R-43 S2	02/08/11	5837.66	Transducer	969.1	979.1	Regional
R-43 S2	02/07/11	5837.29	Transducer	969.1	979.1	Regional
R-43 S2	02/06/11	5837.62	Transducer	969.1	979.1	Regional
R-43 S2	02/05/11	5837.5	Transducer	969.1	979.1	Regional
R-43 S2	02/04/11	5837.4	Transducer	969.1	979.1	Regional
R-43 S2	02/03/11	5837.29	Transducer	969.1	979.1	Regional
R-43 S2	02/02/11	5837.52	Transducer	969.1	979.1	Regional
R-43 S2	02/01/11	5837.68	Transducer	969.1	979.1	Regional
R-43 S2	01/31/11	5837.54	Transducer	969.1	979.1	Regional
R-43 S2	01/30/11	5837.44	Transducer	969.1	979.1	Regional
R-43 S2	01/29/11	5837.44	Transducer	969.1	979.1	Regional
R-43 S2	01/28/11	5837.29	Transducer	969.1	979.1	Regional
R-43 S2	01/27/11	5837.25	Transducer	969.1	979.1	Regional
R-43 S2	01/26/11	5837.41	Transducer	969.1	979.1	Regional
R-43 S2	01/25/11	5837.31	Transducer	969.1	979.1	Regional
R-43 S2	01/24/11	5837.45	Transducer	969.1	979.1	Regional
R-43 S2	01/23/11	5837.52	Transducer	969.1	979.1	Regional
R-43 S2	01/22/11	5837.39	Transducer	969.1	979.1	Regional
R-43 S2	01/21/11	5837.37	Transducer	969.1	979.1	Regional
R-43 S2	01/20/11	5837.53	Transducer	969.1	979.1	Regional
R-43 S2	01/19/11	5837.45	Transducer	969.1	979.1	Regional
R-43 S2	01/18/11	5837.5	Transducer	969.1	979.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S2	01/17/11	5837.39	Transducer	969.1	979.1	Regional
R-43 S2	01/16/11	5837.32	Transducer	969.1	979.1	Regional
R-43 S2	01/15/11	5837.15	Transducer	969.1	979.1	Regional
R-43 S2	01/14/11	5837.24	Transducer	969.1	979.1	Regional
R-43 S2	01/13/11	5837.13	Transducer	969.1	979.1	Regional
R-43 S2	01/12/11	5837.15	Transducer	969.1	979.1	Regional
R-43 S2	01/11/11	5837.24	Transducer	969.1	979.1	Regional
R-43 S2	01/10/11	5837.67	Transducer	969.1	979.1	Regional
R-43 S2	01/09/11	5837.68	Transducer	969.1	979.1	Regional
R-43 S2	01/08/11	5837.47	Transducer	969.1	979.1	Regional
R-43 S2	01/07/11	5837.29	Transducer	969.1	979.1	Regional
R-43 S2	01/06/11	5837.19	Transducer	969.1	979.1	Regional
R-43 S2	01/05/11	5837.28	Transducer	969.1	979.1	Regional
R-43 S2	01/04/11	5837.36	Transducer	969.1	979.1	Regional
R-43 S2	01/03/11	5837.35	Transducer	969.1	979.1	Regional
R-43 S2	01/02/11	5837.25	Transducer	969.1	979.1	Regional
R-43 S2	01/01/11	5837.58	Transducer	969.1	979.1	Regional
R-43 S2	12/31/10	5838.06	Transducer	969.1	979.1	Regional
R-43 S2	12/30/10	5837.99	Transducer	969.1	979.1	Regional
R-43 S2	12/29/10	5837.54	Transducer	969.1	979.1	Regional
R-43 S2	12/28/10	5837.37	Transducer	969.1	979.1	Regional
R-43 S2	12/27/10	5837.37	Transducer	969.1	979.1	Regional
R-43 S2	12/26/10	5837.16	Transducer	969.1	979.1	Regional
R-43 S2	12/25/10	5837.13	Transducer	969.1	979.1	Regional
R-43 S2	12/24/10	5837.34	Transducer	969.1	979.1	Regional
R-43 S2	12/23/10	5837.33	Transducer	969.1	979.1	Regional
R-43 S2	12/22/10	5837.25	Transducer	969.1	979.1	Regional
R-43 S2	12/21/10	5837.42	Transducer	969.1	979.1	Regional
R-43 S2	12/20/10	5837.53	Transducer	969.1	979.1	Regional
R-43 S2	12/19/10	5837.49	Transducer	969.1	979.1	Regional
R-43 S2	12/18/10	5837.47	Transducer	969.1	979.1	Regional
R-43 S2	12/17/10	5837.58	Transducer	969.1	979.1	Regional
R-43 S2	12/16/10	5837.59	Transducer	969.1	979.1	Regional
R-43 S2	12/15/10	5837.57	Transducer	969.1	979.1	Regional
R-43 S2	12/14/10	5837.31	Transducer	969.1	979.1	Regional
R-43 S2	12/13/10	5837.16	Transducer	969.1	979.1	Regional
R-43 S2	12/12/10	5837.18	Transducer	969.1	979.1	Regional
R-43 S2	12/11/10	5837.38	Transducer	969.1	979.1	Regional
R-43 S2	12/10/10	5837.32	Transducer	969.1	979.1	Regional
R-43 S2	12/09/10	5837.2	Transducer	969.1	979.1	Regional
R-43 S2	12/08/10	5837.06	Transducer	969.1	979.1	Regional
R-43 S2	12/07/10	5837.2	Transducer	969.1	979.1	Regional
R-43 S2	12/06/10	5837.04	Transducer	969.1	979.1	Regional
R-43 S2	12/05/10	5837.11	Transducer	969.1	979.1	Regional
R-43 S2	12/04/10	5837.16	Transducer	969.1	979.1	Regional
R-43 S2	12/03/10	5837.11	Transducer	969.1	979.1	Regional
R-43 S2	12/02/10	5837.12	Transducer	969.1	979.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-43 S2	12/01/10	5837.05	Transducer	969.1	979.1	Regional
R-43 S2	11/30/10	5837.2	Transducer	969.1	979.1	Regional
R-43 S2	11/29/10	5837.68	Transducer	969.1	979.1	Regional
R-43 S2	11/28/10	5837.51	Transducer	969.1	979.1	Regional
R-43 S2	11/27/10	5837.14	Transducer	969.1	979.1	Regional
R-43 S2	11/26/10	5837.17	Transducer	969.1	979.1	Regional
R-43 S2	11/25/10	5837.52	Transducer	969.1	979.1	Regional
R-43 S2	11/24/10	5837.52	Transducer	969.1	979.1	Regional
R-43 S2	11/23/10	5837.22	Transducer	969.1	979.1	Regional
R-43 S2	11/22/10	5837.47	Transducer	969.1	979.1	Regional
R-43 S2	11/21/10	5837.37	Transducer	969.1	979.1	Regional
R-43 S2	11/20/10	5837.26	Transducer	969.1	979.1	Regional
R-43 S2	11/19/10	5837.12	Transducer	969.1	979.1	Regional
R-43 S2	11/18/10	5836.96	Transducer	969.1	979.1	Regional
R-43 S2	11/17/10	5837.45	Transducer	969.1	979.1	Regional
R-43 S2	11/16/10	5837.3	Transducer	969.1	979.1	Regional
R-43 S2	11/15/10	5837.45	Transducer	969.1	979.1	Regional
R-43 S2	11/14/10	5837.25	Transducer	969.1	979.1	Regional
R-43 S2	11/13/10	5837.02	Transducer	969.1	979.1	Regional
R-43 S2	11/12/10	5837.1	Transducer	969.1	979.1	Regional
R-43 S2	11/11/10	5837.33	Transducer	969.1	979.1	Regional
R-43 S2	11/10/10	5837.33	Transducer	969.1	979.1	Regional
R-43 S2	11/09/10	5837.42	Transducer	969.1	979.1	Regional
R-43 S2	11/08/10	5837.11	Transducer	969.1	979.1	Regional
R-43 S2	11/07/10	5836.99	Transducer	969.1	979.1	Regional
R-43 S2	11/06/10	5836.98	Transducer	969.1	979.1	Regional
R-43 S2	11/05/10	5836.93	Transducer	969.1	979.1	Regional
R-43 S2	11/04/10	5836.76	Transducer	969.1	979.1	Regional
R-43 S2	11/03/10	5836.8	Transducer	969.1	979.1	Regional
R-43 S2	11/02/10	5836.77	Transducer	969.1	979.1	Regional
R-43 S2	11/01/10	5836.99	Transducer	969.1	979.1	Regional
R-43 S2	10/31/10	5837.07	Transducer	969.1	979.1	Regional
R-43 S2	10/30/10	5836.92	Transducer	969.1	979.1	Regional
R-44 S1	11/15/12	5834.39	Transducer	895	905	Regional
R-44 S1	11/14/12	5834.31	Transducer	895	905	Regional
R-44 S1	11/13/12	5834.29	Transducer	895	905	Regional
R-44 S1	11/12/12	5834.3	Transducer	895	905	Regional
R-44 S1	11/11/12	5834.76	Transducer	895	905	Regional
R-44 S1	11/10/12	5834.79	Transducer	895	905	Regional
R-44 S1	11/09/12	5834.64	Transducer	895	905	Regional
R-44 S1	11/08/12	5834.51	Transducer	895	905	Regional
R-44 S1	11/07/12	5834.33	Transducer	895	905	Regional
R-44 S1	11/06/12	5834.35	Transducer	895	905	Regional
R-44 S1	11/05/12	5834.31	Transducer	895	905	Regional
R-44 S1	11/04/12	5834.36	Transducer	895	905	Regional
R-44 S1	11/03/12	5834.46	Transducer	895	905	Regional
R-44 S1	11/02/12	5834.51	Transducer	895	905	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S1	11/01/12	5834.38	Transducer	895	905	Regional
R-44 S1	10/31/12	5834.4	Transducer	895	905	Regional
R-44 S1	10/30/12	5834.38	Transducer	895	905	Regional
R-44 S1	10/29/12	5834.37	Transducer	895	905	Regional
R-44 S1	10/28/12	5834.43	Transducer	895	905	Regional
R-44 S1	10/27/12	5834.33	Transducer	895	905	Regional
R-44 S1	10/26/12	5834.38	Transducer	895	905	Regional
R-44 S1	10/25/12	5834.6	Transducer	895	905	Regional
R-44 S1	10/24/12	5834.57	Transducer	895	905	Regional
R-44 S1	10/23/12	5834.55	Transducer	895	905	Regional
R-44 S1	10/22/12	5834.6	Transducer	895	905	Regional
R-44 S1	10/21/12	5834.65	Transducer	895	905	Regional
R-44 S1	10/20/12	5834.56	Transducer	895	905	Regional
R-44 S1	10/19/12	5834.47	Transducer	895	905	Regional
R-44 S1	10/18/12	5834.55	Transducer	895	905	Regional
R-44 S1	10/17/12	5834.73	Transducer	895	905	Regional
R-44 S1	10/16/12	5834.56	Transducer	895	905	Regional
R-44 S1	10/15/12	5834.37	Transducer	895	905	Regional
R-44 S1	10/14/12	5834.4	Transducer	895	905	Regional
R-44 S1	10/13/12	5834.56	Transducer	895	905	Regional
R-44 S1	10/12/12	5834.47	Transducer	895	905	Regional
R-44 S1	10/11/12	5834.51	Transducer	895	905	Regional
R-44 S1	10/10/12	5834.49	Transducer	895	905	Regional
R-44 S1	10/09/12	5834.58	Transducer	895	905	Regional
R-44 S1	10/08/12	5834.55	Transducer	895	905	Regional
R-44 S1	10/07/12	5834.54	Transducer	895	905	Regional
R-44 S1	10/06/12	5834.58	Transducer	895	905	Regional
R-44 S1	10/05/12	5834.53	Transducer	895	905	Regional
R-44 S1	10/04/12	5834.52	Transducer	895	905	Regional
R-44 S1	10/03/12	5834.62	Transducer	895	905	Regional
R-44 S1	10/02/12	5834.47	Transducer	895	905	Regional
R-44 S1	10/01/12	5834.48	Transducer	895	905	Regional
R-44 S1	09/30/12	5834.48	Transducer	895	905	Regional
R-44 S1	09/29/12	5834.49	Transducer	895	905	Regional
R-44 S1	09/28/12	5834.51	Transducer	895	905	Regional
R-44 S1	09/27/12	5834.54	Transducer	895	905	Regional
R-44 S1	09/26/12	5834.64	Transducer	895	905	Regional
R-44 S1	09/25/12	5834.57	Transducer	895	905	Regional
R-44 S1	09/24/12	5834.49	Transducer	895	905	Regional
R-44 S1	09/23/12	5834.47	Transducer	895	905	Regional
R-44 S1	09/22/12	5834.5	Transducer	895	905	Regional
R-44 S1	09/21/12	5834.54	Transducer	895	905	Regional
R-44 S1	09/20/12	5834.52	Transducer	895	905	Regional
R-44 S1	09/19/12	5834.51	Transducer	895	905	Regional
R-44 S1	09/18/12	5834.51	Transducer	895	905	Regional
R-44 S1	09/17/12	5834.64	Transducer	895	905	Regional
R-44 S1	09/16/12	5834.52	Transducer	895	905	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S1	09/15/12	5834.36	Transducer	895	905	Regional
R-44 S1	09/14/12	5834.28	Transducer	895	905	Regional
R-44 S1	09/13/12	5834.45	Transducer	895	905	Regional
R-44 S1	09/12/12	5834.61	Transducer	895	905	Regional
R-44 S1	09/11/12	5834.58	Transducer	895	905	Regional
R-44 S1	09/10/12	5834.48	Transducer	895	905	Regional
R-44 S1	09/09/12	5834.4	Transducer	895	905	Regional
R-44 S1	09/08/12	5834.42	Transducer	895	905	Regional
R-44 S1	09/07/12	5834.6	Transducer	895	905	Regional
R-44 S1	09/06/12	5834.57	Transducer	895	905	Regional
R-44 S1	09/05/12	5834.61	Transducer	895	905	Regional
R-44 S1	09/04/12	5834.56	Transducer	895	905	Regional
R-44 S1	09/03/12	5834.57	Transducer	895	905	Regional
R-44 S1	09/02/12	5834.54	Transducer	895	905	Regional
R-44 S1	09/01/12	5834.54	Transducer	895	905	Regional
R-44 S1	08/31/12	5834.58	Transducer	895	905	Regional
R-44 S1	08/30/12	5834.57	Transducer	895	905	Regional
R-44 S1	08/29/12	5834.48	Transducer	895	905	Regional
R-44 S1	08/28/12	5834.4	Transducer	895	905	Regional
R-44 S1	08/27/12	5834.46	Transducer	895	905	Regional
R-44 S1	08/26/12	5834.59	Transducer	895	905	Regional
R-44 S1	08/25/12	5834.73	Transducer	895	905	Regional
R-44 S1	08/24/12	5834.69	Transducer	895	905	Regional
R-44 S1	08/23/12	5834.61	Transducer	895	905	Regional
R-44 S1	08/22/12	5834.57	Transducer	895	905	Regional
R-44 S1	08/21/12	5834.61	Transducer	895	905	Regional
R-44 S1	08/20/12	5834.6	Transducer	895	905	Regional
R-44 S1	08/19/12	5834.63	Transducer	895	905	Regional
R-44 S1	08/18/12	5834.6	Transducer	895	905	Regional
R-44 S1	08/17/12	5834.54	Transducer	895	905	Regional
R-44 S1	08/16/12	5834.67	Transducer	895	905	Regional
R-44 S1	08/15/12	5834.69	Transducer	895	905	Regional
R-44 S1	08/14/12	5834.61	Transducer	895	905	Regional
R-44 S1	08/13/12	5834.5	Transducer	895	905	Regional
R-44 S1	08/12/12	5834.64	Transducer	895	905	Regional
R-44 S1	08/11/12	5834.62	Transducer	895	905	Regional
R-44 S1	08/10/12	5834.55	Transducer	895	905	Regional
R-44 S1	08/09/12	5834.5	Transducer	895	905	Regional
R-44 S1	08/08/12	5834.54	Transducer	895	905	Regional
R-44 S1	08/07/12	5834.55	Transducer	895	905	Regional
R-44 S1	08/06/12	5834.36	Transducer	895	905	Regional
R-44 S1	08/05/12	5834.46	Transducer	895	905	Regional
R-44 S1	08/04/12	5834.68	Transducer	895	905	Regional
R-44 S1	08/03/12	5834.59	Transducer	895	905	Regional
R-44 S1	08/02/12	5834.62	Transducer	895	905	Regional
R-44 S1	08/01/12	5834.54	Transducer	895	905	Regional
R-44 S1	07/31/12	5834.6	Transducer	895	905	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S1	07/30/12	5834.6	Transducer	895	905	Regional
R-44 S1	07/29/12	5834.52	Transducer	895	905	Regional
R-44 S1	07/28/12	5834.51	Transducer	895	905	Regional
R-44 S1	07/27/12	5834.58	Transducer	895	905	Regional
R-44 S1	07/26/12	5834.72	Transducer	895	905	Regional
R-44 S1	07/25/12	5834.72	Transducer	895	905	Regional
R-44 S1	07/24/12	5834.6	Transducer	895	905	Regional
R-44 S1	07/23/12	5834.57	Transducer	895	905	Regional
R-44 S1	07/22/12	5834.55	Transducer	895	905	Regional
R-44 S1	07/21/12	5834.51	Transducer	895	905	Regional
R-44 S1	07/20/12	5834.5	Transducer	895	905	Regional
R-44 S1	07/19/12	5834.56	Transducer	895	905	Regional
R-44 S1	07/18/12	5834.68	Transducer	895	905	Regional
R-44 S1	07/17/12	5834.74	Transducer	895	905	Regional
R-44 S1	07/16/12	5834.69	Transducer	895	905	Regional
R-44 S1	07/15/12	5834.65	Transducer	895	905	Regional
R-44 S1	07/14/12	5834.61	Transducer	895	905	Regional
R-44 S1	07/13/12	5834.61	Transducer	895	905	Regional
R-44 S1	07/12/12	5834.59	Transducer	895	905	Regional
R-44 S1	07/11/12	5834.54	Transducer	895	905	Regional
R-44 S1	07/10/12	5834.54	Transducer	895	905	Regional
R-44 S1	07/09/12	5834.54	Transducer	895	905	Regional
R-44 S1	07/08/12	5834.52	Transducer	895	905	Regional
R-44 S1	07/07/12	5834.56	Transducer	895	905	Regional
R-44 S1	07/06/12	5834.63	Transducer	895	905	Regional
R-44 S1	07/05/12	5834.69	Transducer	895	905	Regional
R-44 S1	07/04/12	5834.72	Transducer	895	905	Regional
R-44 S1	07/03/12	5834.71	Transducer	895	905	Regional
R-44 S1	07/02/12	5834.72	Transducer	895	905	Regional
R-44 S1	07/01/12	5834.75	Transducer	895	905	Regional
R-44 S1	06/30/12	5834.73	Transducer	895	905	Regional
R-44 S1	06/29/12	5834.6	Transducer	895	905	Regional
R-44 S1	06/28/12	5834.63	Transducer	895	905	Regional
R-44 S1	06/27/12	5834.75	Transducer	895	905	Regional
R-44 S1	06/26/12	5834.69	Transducer	895	905	Regional
R-44 S1	06/25/12	5834.6	Transducer	895	905	Regional
R-44 S1	06/24/12	5834.68	Transducer	895	905	Regional
R-44 S1	06/23/12	5834.79	Transducer	895	905	Regional
R-44 S1	06/22/12	5834.64	Transducer	895	905	Regional
R-44 S1	06/21/12	5834.72	Transducer	895	905	Regional
R-44 S1	06/20/12	5834.84	Transducer	895	905	Regional
R-44 S1	06/20/12	5834.829	Transducer	895	905	Regional
R-44 S1	06/20/12	5834.82	Manual	895	905	Regional
R-44 S1	06/19/12	5834.825	Transducer	895	905	Regional
R-44 S1	06/18/12	5834.765	Transducer	895	905	Regional
R-44 S1	06/17/12	5834.493	Transducer	895	905	Regional
R-44 S1	06/16/12	5834.643	Transducer	895	905	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S1	06/15/12	5834.774	Transducer	895	905	Regional
R-44 S1	06/14/12	5834.792	Transducer	895	905	Regional
R-44 S1	06/13/12	5834.696	Transducer	895	905	Regional
R-44 S1	06/12/12	5834.573	Transducer	895	905	Regional
R-44 S1	06/11/12	5834.702	Transducer	895	905	Regional
R-44 S1	06/10/12	5834.9	Transducer	895	905	Regional
R-44 S1	06/09/12	5834.864	Transducer	895	905	Regional
R-44 S1	06/08/12	5834.739	Transducer	895	905	Regional
R-44 S1	06/07/12	5834.847	Transducer	895	905	Regional
R-44 S1	06/06/12	5834.818	Transducer	895	905	Regional
R-44 S1	06/05/12	5834.738	Transducer	895	905	Regional
R-44 S1	06/04/12	5834.721	Transducer	895	905	Regional
R-44 S1	06/03/12	5834.814	Transducer	895	905	Regional
R-44 S1	06/02/12	5834.846	Transducer	895	905	Regional
R-44 S1	06/01/12	5834.792	Transducer	895	905	Regional
R-44 S1	05/31/12	5834.842	Transducer	895	905	Regional
R-44 S1	05/30/12	5834.824	Transducer	895	905	Regional
R-44 S1	05/29/12	5834.773	Transducer	895	905	Regional
R-44 S1	05/28/12	5834.809	Transducer	895	905	Regional
R-44 S1	05/27/12	5834.944	Transducer	895	905	Regional
R-44 S1	05/26/12	5834.979	Transducer	895	905	Regional
R-44 S1	05/25/12	5835.114	Transducer	895	905	Regional
R-44 S1	05/24/12	5835.266	Transducer	895	905	Regional
R-44 S1	05/23/12	5835.085	Transducer	895	905	Regional
R-44 S1	05/22/12	5834.786	Transducer	895	905	Regional
R-44 S1	05/21/12	5834.677	Transducer	895	905	Regional
R-44 S1	05/20/12	5834.847	Transducer	895	905	Regional
R-44 S1	05/19/12	5835.09	Transducer	895	905	Regional
R-44 S1	05/18/12	5835.101	Transducer	895	905	Regional
R-44 S1	05/17/12	5834.925	Transducer	895	905	Regional
R-44 S1	05/16/12	5834.761	Transducer	895	905	Regional
R-44 S1	05/15/12	5834.737	Transducer	895	905	Regional
R-44 S1	05/14/12	5834.752	Transducer	895	905	Regional
R-44 S1	05/13/12	5834.677	Transducer	895	905	Regional
R-44 S1	05/12/12	5834.745	Transducer	895	905	Regional
R-44 S1	05/11/12	5835.035	Transducer	895	905	Regional
R-44 S1	05/10/12	5834.938	Transducer	895	905	Regional
R-44 S1	05/09/12	5834.794	Transducer	895	905	Regional
R-44 S1	05/08/12	5834.825	Transducer	895	905	Regional
R-44 S1	05/07/12	5834.942	Transducer	895	905	Regional
R-44 S1	05/06/12	5835.01	Transducer	895	905	Regional
R-44 S1	05/05/12	5834.993	Transducer	895	905	Regional
R-44 S1	05/04/12	5834.963	Transducer	895	905	Regional
R-44 S1	05/03/12	5835.042	Transducer	895	905	Regional
R-44 S1	05/02/12	5835.113	Transducer	895	905	Regional
R-44 S1	05/01/12	5835.105	Transducer	895	905	Regional
R-44 S1	04/30/12	5835.011	Transducer	895	905	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S1	04/29/12	5835.107	Transducer	895	905	Regional
R-44 S1	04/28/12	5835.133	Transducer	895	905	Regional
R-44 S1	04/27/12	5835.181	Transducer	895	905	Regional
R-44 S1	04/26/12	5834.996	Transducer	895	905	Regional
R-44 S1	04/25/12	5835.059	Transducer	895	905	Regional
R-44 S1	04/24/12	5834.977	Transducer	895	905	Regional
R-44 S1	04/23/12	5834.842	Transducer	895	905	Regional
R-44 S1	04/22/12	5834.888	Transducer	895	905	Regional
R-44 S1	04/21/12	5834.94	Transducer	895	905	Regional
R-44 S1	04/20/12	5835.016	Transducer	895	905	Regional
R-44 S1	04/19/12	5835.092	Transducer	895	905	Regional
R-44 S1	04/18/12	5834.948	Transducer	895	905	Regional
R-44 S1	04/17/12	5834.854	Transducer	895	905	Regional
R-44 S1	04/16/12	5834.995	Transducer	895	905	Regional
R-44 S1	04/15/12	5835.36	Transducer	895	905	Regional
R-44 S1	04/14/12	5835.385	Transducer	895	905	Regional
R-44 S1	04/13/12	5835.16	Transducer	895	905	Regional
R-44 S1	04/12/12	5835.195	Transducer	895	905	Regional
R-44 S1	04/11/12	5834.992	Transducer	895	905	Regional
R-44 S1	04/10/12	5834.949	Transducer	895	905	Regional
R-44 S1	04/09/12	5834.871	Transducer	895	905	Regional
R-44 S1	04/08/12	5834.707	Transducer	895	905	Regional
R-44 S1	04/07/12	5834.958	Transducer	895	905	Regional
R-44 S1	04/06/12	5835.118	Transducer	895	905	Regional
R-44 S1	04/05/12	5835.091	Transducer	895	905	Regional
R-44 S1	04/04/12	5835.056	Transducer	895	905	Regional
R-44 S1	04/03/12	5835.236	Transducer	895	905	Regional
R-44 S1	04/02/12	5835.37	Transducer	895	905	Regional
R-44 S1	04/01/12	5835.167	Transducer	895	905	Regional
R-44 S1	03/31/12	5835.051	Transducer	895	905	Regional
R-44 S1	03/30/12	5835.07	Transducer	895	905	Regional
R-44 S1	03/29/12	5835.093	Transducer	895	905	Regional
R-44 S1	03/28/12	5835.022	Transducer	895	905	Regional
R-44 S1	03/27/12	5835.056	Transducer	895	905	Regional
R-44 S1	03/26/12	5835.085	Transducer	895	905	Regional
R-44 S1	03/25/12	5834.958	Transducer	895	905	Regional
R-44 S1	03/24/12	5834.965	Transducer	895	905	Regional
R-44 S1	03/23/12	5835.041	Transducer	895	905	Regional
R-44 S1	03/22/12	5835.113	Transducer	895	905	Regional
R-44 S1	03/21/12	5835.104	Transducer	895	905	Regional
R-44 S1	03/20/12	5835.412	Transducer	895	905	Regional
R-44 S1	03/19/12	5835.434	Transducer	895	905	Regional
R-44 S1	03/18/12	5835.325	Transducer	895	905	Regional
R-44 S1	03/17/12	5835.162	Transducer	895	905	Regional
R-44 S1	03/16/12	5835.018	Transducer	895	905	Regional
R-44 S1	03/15/12	5834.967	Transducer	895	905	Regional
R-44 S1	03/14/12	5835.04	Transducer	895	905	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S1	03/13/12	5834.988	Transducer	895	905	Regional
R-44 S1	03/12/12	5835.141	Transducer	895	905	Regional
R-44 S1	03/11/12	5835.223	Transducer	895	905	Regional
R-44 S1	03/10/12	5834.876	Transducer	895	905	Regional
R-44 S1	03/09/12	5834.673	Transducer	895	905	Regional
R-44 S1	03/08/12	5835.168	Transducer	895	905	Regional
R-44 S1	03/07/12	5835.405	Transducer	895	905	Regional
R-44 S1	03/07/12	5835.384	Transducer	895	905	Regional
R-44 S1	03/06/12	5835.042	Transducer	895	905	Regional
R-44 S1	03/05/12	5834.843	Transducer	895	905	Regional
R-44 S1	03/04/12	5834.843	Transducer	895	905	Regional
R-44 S1	03/03/12	5835.003	Transducer	895	905	Regional
R-44 S1	03/02/12	5835.258	Transducer	895	905	Regional
R-44 S1	03/01/12	5835.126	Transducer	895	905	Regional
R-44 S1	02/29/12	5834.994	Transducer	895	905	Regional
R-44 S1	02/28/12	5835.146	Transducer	895	905	Regional
R-44 S1	02/27/12	5834.979	Transducer	895	905	Regional
R-44 S1	02/26/12	5835.099	Transducer	895	905	Regional
R-44 S1	02/25/12	5834.819	Transducer	895	905	Regional
R-44 S1	02/24/12	5834.982	Transducer	895	905	Regional
R-44 S1	02/23/12	5835.233	Transducer	895	905	Regional
R-44 S1	02/22/12	5834.952	Transducer	895	905	Regional
R-44 S1	02/21/12	5834.949	Transducer	895	905	Regional
R-44 S1	02/20/12	5835.281	Transducer	895	905	Regional
R-44 S1	02/19/12	5835.096	Transducer	895	905	Regional
R-44 S1	02/18/12	5835.095	Transducer	895	905	Regional
R-44 S1	02/17/12	5835.018	Transducer	895	905	Regional
R-44 S1	02/16/12	5835.023	Transducer	895	905	Regional
R-44 S1	02/15/12	5835.361	Transducer	895	905	Regional
R-44 S1	02/14/12	5835.289	Transducer	895	905	Regional
R-44 S1	02/13/12	5835.36	Transducer	895	905	Regional
R-44 S1	02/12/12	5835.016	Transducer	895	905	Regional
R-44 S1	02/11/12	5834.997	Transducer	895	905	Regional
R-44 S1	02/10/12	5834.991	Transducer	895	905	Regional
R-44 S1	02/09/12	5835.006	Transducer	895	905	Regional
R-44 S1	02/08/12	5834.883	Transducer	895	905	Regional
R-44 S1	02/07/12	5835.083	Transducer	895	905	Regional
R-44 S1	02/06/12	5834.996	Transducer	895	905	Regional
R-44 S1	02/05/12	5834.854	Transducer	895	905	Regional
R-44 S1	02/04/12	5834.969	Transducer	895	905	Regional
R-44 S1	02/03/12	5835.282	Transducer	895	905	Regional
R-44 S1	02/02/12	5835.092	Transducer	895	905	Regional
R-44 S1	02/01/12	5834.998	Transducer	895	905	Regional
R-44 S1	01/31/12	5835.142	Transducer	895	905	Regional
R-44 S1	01/30/12	5834.96	Transducer	895	905	Regional
R-44 S1	01/29/12	5834.812	Transducer	895	905	Regional
R-44 S1	01/28/12	5834.882	Transducer	895	905	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S1	01/27/12	5835.158	Transducer	895	905	Regional
R-44 S1	01/26/12	5834.994	Transducer	895	905	Regional
R-44 S1	01/25/12	5835.001	Transducer	895	905	Regional
R-44 S1	01/24/12	5835.247	Transducer	895	905	Regional
R-44 S1	01/23/12	5835.084	Transducer	895	905	Regional
R-44 S1	01/22/12	5835.519	Transducer	895	905	Regional
R-44 S1	01/21/12	5835.094	Transducer	895	905	Regional
R-44 S1	01/20/12	5835.25	Transducer	895	905	Regional
R-44 S1	01/19/12	5835.074	Transducer	895	905	Regional
R-44 S1	01/18/12	5834.985	Transducer	895	905	Regional
R-44 S1	01/17/12	5835.188	Transducer	895	905	Regional
R-44 S1	01/16/12	5835.206	Transducer	895	905	Regional
R-44 S1	01/15/12	5834.99	Transducer	895	905	Regional
R-44 S1	01/14/12	5834.924	Transducer	895	905	Regional
R-44 S1	01/13/12	5835.099	Transducer	895	905	Regional
R-44 S1	01/12/12	5835.108	Transducer	895	905	Regional
R-44 S1	01/11/12	5835.229	Transducer	895	905	Regional
R-44 S1	01/10/12	5835.039	Transducer	895	905	Regional
R-44 S1	01/09/12	5835.038	Transducer	895	905	Regional
R-44 S1	01/08/12	5835.29	Transducer	895	905	Regional
R-44 S1	01/07/12	5835.17	Transducer	895	905	Regional
R-44 S1	01/06/12	5835.177	Transducer	895	905	Regional
R-44 S1	01/05/12	5834.83	Transducer	895	905	Regional
R-44 S1	01/04/12	5834.911	Transducer	895	905	Regional
R-44 S1	01/03/12	5834.773	Transducer	895	905	Regional
R-44 S1	01/02/12	5834.686	Transducer	895	905	Regional
R-44 S1	01/01/12	5834.84	Transducer	895	905	Regional
R-44 S1	12/31/11	5835.115	Transducer	895	905	Regional
R-44 S1	12/30/11	5835.068	Transducer	895	905	Regional
R-44 S1	12/29/11	5834.983	Transducer	895	905	Regional
R-44 S1	12/28/11	5835.026	Transducer	895	905	Regional
R-44 S1	12/27/11	5834.94	Transducer	895	905	Regional
R-44 S1	12/26/11	5834.988	Transducer	895	905	Regional
R-44 S1	12/25/11	5834.805	Transducer	895	905	Regional
R-44 S1	12/24/11	5834.874	Transducer	895	905	Regional
R-44 S1	12/23/11	5834.961	Transducer	895	905	Regional
R-44 S1	12/22/11	5835.252	Transducer	895	905	Regional
R-44 S1	12/21/11	5835.253	Transducer	895	905	Regional
R-44 S1	12/20/11	5835.195	Transducer	895	905	Regional
R-44 S1	12/19/11	5835.321	Transducer	895	905	Regional
R-44 S1	12/18/11	5834.87	Transducer	895	905	Regional
R-44 S1	12/17/11	5834.755	Transducer	895	905	Regional
R-44 S1	12/16/11	5834.905	Transducer	895	905	Regional
R-44 S1	12/15/11	5835.025	Transducer	895	905	Regional
R-44 S1	12/14/11	5835.238	Transducer	895	905	Regional
R-44 S1	12/13/11	5835.13	Transducer	895	905	Regional
R-44 S1	12/12/11	5835.125	Transducer	895	905	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S1	12/11/11	5834.976	Transducer	895	905	Regional
R-44 S1	12/10/11	5834.825	Transducer	895	905	Regional
R-44 S1	12/09/11	5835.008	Transducer	895	905	Regional
R-44 S1	12/08/11	5835.041	Transducer	895	905	Regional
R-44 S1	12/07/11	5834.908	Transducer	895	905	Regional
R-44 S1	12/06/11	5834.98	Transducer	895	905	Regional
R-44 S1	12/05/11	5835.142	Transducer	895	905	Regional
R-44 S1	12/04/11	5835.105	Transducer	895	905	Regional
R-44 S1	12/03/11	5835.326	Transducer	895	905	Regional
R-44 S1	12/02/11	5834.958	Transducer	895	905	Regional
R-44 S1	12/01/11	5835.245	Transducer	895	905	Regional
R-44 S1	11/30/11	5834.897	Transducer	895	905	Regional
R-44 S1	11/29/11	5834.866	Transducer	895	905	Regional
R-44 S1	11/28/11	5834.75	Transducer	895	905	Regional
R-44 S1	11/27/11	5834.632	Transducer	895	905	Regional
R-44 S1	11/26/11	5835.068	Transducer	895	905	Regional
R-44 S1	11/25/11	5835.024	Transducer	895	905	Regional
R-44 S1	11/24/11	5834.855	Transducer	895	905	Regional
R-44 S1	11/23/11	5834.728	Transducer	895	905	Regional
R-44 S1	11/22/11	5834.883	Transducer	895	905	Regional
R-44 S1	11/21/11	5834.971	Transducer	895	905	Regional
R-44 S1	11/20/11	5835.069	Transducer	895	905	Regional
R-44 S1	11/19/11	5835.244	Transducer	895	905	Regional
R-44 S1	11/18/11	5835.037	Transducer	895	905	Regional
R-44 S1	11/17/11	5834.775	Transducer	895	905	Regional
R-44 S1	11/16/11	5835.068	Transducer	895	905	Regional
R-44 S1	11/15/11	5835.103	Transducer	895	905	Regional
R-44 S1	11/14/11	5835.164	Transducer	895	905	Regional
R-44 S1	11/13/11	5835.177	Transducer	895	905	Regional
R-44 S1	11/12/11	5835.122	Transducer	895	905	Regional
R-44 S1	11/11/11	5834.831	Transducer	895	905	Regional
R-44 S1	11/10/11	5834.623	Transducer	895	905	Regional
R-44 S1	11/09/11	5834.783	Transducer	895	905	Regional
R-44 S1	11/08/11	5835.15	Transducer	895	905	Regional
R-44 S1	11/07/11	5835.08	Transducer	895	905	Regional
R-44 S1	11/06/11	5835.149	Transducer	895	905	Regional
R-44 S1	11/05/11	5835.288	Transducer	895	905	Regional
R-44 S1	11/04/11	5834.955	Transducer	895	905	Regional
R-44 S1	11/03/11	5834.717	Transducer	895	905	Regional
R-44 S1	11/02/11	5835.182	Transducer	895	905	Regional
R-44 S1	11/01/11	5834.961	Transducer	895	905	Regional
R-44 S1	10/31/11	5834.802	Transducer	895	905	Regional
R-44 S1	10/30/11	5834.904	Transducer	895	905	Regional
R-44 S1	10/29/11	5834.806	Transducer	895	905	Regional
R-44 S1	10/28/11	5834.91	Transducer	895	905	Regional
R-44 S1	10/27/11	5835.058	Transducer	895	905	Regional
R-44 S1	10/26/11	5834.986	Transducer	895	905	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S1	10/25/11	5834.91	Transducer	895	905	Regional
R-44 S1	10/24/11	5834.799	Transducer	895	905	Regional
R-44 S1	10/23/11	5834.826	Transducer	895	905	Regional
R-44 S1	10/22/11	5834.82	Transducer	895	905	Regional
R-44 S1	10/21/11	5834.834	Transducer	895	905	Regional
R-44 S1	10/20/11	5834.95	Transducer	895	905	Regional
R-44 S1	10/19/11	5834.775	Transducer	895	905	Regional
R-44 S1	10/18/11	5834.831	Transducer	895	905	Regional
R-44 S1	10/17/11	5834.921	Transducer	895	905	Regional
R-44 S1	10/16/11	5834.804	Transducer	895	905	Regional
R-44 S1	10/15/11	5834.824	Transducer	895	905	Regional
R-44 S1	10/14/11	5834.892	Transducer	895	905	Regional
R-44 S1	10/13/11	5834.811	Transducer	895	905	Regional
R-44 S1	10/12/11	5834.943	Transducer	895	905	Regional
R-44 S1	10/11/11	5834.974	Transducer	895	905	Regional
R-44 S1	10/10/11	5834.885	Transducer	895	905	Regional
R-44 S1	10/09/11	5834.91	Transducer	895	905	Regional
R-44 S1	10/08/11	5835.083	Transducer	895	905	Regional
R-44 S1	10/07/11	5835.083	Transducer	895	905	Regional
R-44 S1	10/06/11	5835.139	Transducer	895	905	Regional
R-44 S1	10/05/11	5834.963	Transducer	895	905	Regional
R-44 S1	10/04/11	5834.826	Transducer	895	905	Regional
R-44 S1	10/03/11	5834.788	Transducer	895	905	Regional
R-44 S1	10/02/11	5834.773	Transducer	895	905	Regional
R-44 S1	10/01/11	5834.763	Transducer	895	905	Regional
R-44 S1	09/30/11	5834.639	Transducer	895	905	Regional
R-44 S1	09/29/11	5834.834	Transducer	895	905	Regional
R-44 S1	09/28/11	5834.762	Transducer	895	905	Regional
R-44 S1	09/27/11	5834.844	Transducer	895	905	Regional
R-44 S1	09/26/11	5834.963	Transducer	895	905	Regional
R-44 S1	09/25/11	5834.924	Transducer	895	905	Regional
R-44 S1	09/24/11	5834.784	Transducer	895	905	Regional
R-44 S1	09/23/11	5834.731	Transducer	895	905	Regional
R-44 S1	09/22/11	5834.838	Transducer	895	905	Regional
R-44 S1	09/21/11	5834.843	Transducer	895	905	Regional
R-44 S1	09/20/11	5834.826	Transducer	895	905	Regional
R-44 S1	09/19/11	5834.735	Transducer	895	905	Regional
R-44 S1	09/18/11	5834.798	Transducer	895	905	Regional
R-44 S1	09/17/11	5834.862	Transducer	895	905	Regional
R-44 S1	09/16/11	5834.875	Transducer	895	905	Regional
R-44 S1	09/15/11	5834.838	Transducer	895	905	Regional
R-44 S1	09/14/11	5834.811	Transducer	895	905	Regional
R-44 S1	09/13/11	5834.716	Transducer	895	905	Regional
R-44 S1	09/12/11	5834.657	Transducer	895	905	Regional
R-44 S1	09/11/11	5834.686	Transducer	895	905	Regional
R-44 S1	09/10/11	5834.725	Transducer	895	905	Regional
R-44 S1	09/09/11	5834.687	Transducer	895	905	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S1	09/08/11	5834.573	Transducer	895	905	Regional
R-44 S1	09/07/11	5834.729	Transducer	895	905	Regional
R-44 S1	09/06/11	5834.729	Transducer	895	905	Regional
R-44 S1	09/05/11	5834.654	Transducer	895	905	Regional
R-44 S1	09/04/11	5834.73	Transducer	895	905	Regional
R-44 S1	09/03/11	5834.846	Transducer	895	905	Regional
R-44 S1	09/02/11	5834.757	Transducer	895	905	Regional
R-44 S1	09/01/11	5834.783	Transducer	895	905	Regional
R-44 S1	08/31/11	5834.854	Transducer	895	905	Regional
R-44 S1	08/30/11	5834.84	Transducer	895	905	Regional
R-44 S1	08/29/11	5834.808	Transducer	895	905	Regional
R-44 S1	08/28/11	5834.734	Transducer	895	905	Regional
R-44 S1	08/27/11	5834.652	Transducer	895	905	Regional
R-44 S1	08/26/11	5834.654	Transducer	895	905	Regional
R-44 S1	08/25/11	5834.678	Transducer	895	905	Regional
R-44 S1	08/24/11	5834.744	Transducer	895	905	Regional
R-44 S1	08/23/11	5834.726	Transducer	895	905	Regional
R-44 S1	08/22/11	5834.636	Transducer	895	905	Regional
R-44 S1	08/21/11	5834.716	Transducer	895	905	Regional
R-44 S1	08/20/11	5834.782	Transducer	895	905	Regional
R-44 S1	08/19/11	5834.813	Transducer	895	905	Regional
R-44 S1	08/19/11	5834.75	Transducer	895	905	Regional
R-44 S1	08/18/11	5834.61	Transducer	895	905	Regional
R-44 S1	08/17/11	5834.64	Transducer	895	905	Regional
R-44 S1	08/16/11	5834.79	Transducer	895	905	Regional
R-44 S1	08/15/11	5834.74	Transducer	895	905	Regional
R-44 S1	08/14/11	5834.59	Transducer	895	905	Regional
R-44 S1	08/13/11	5834.72	Transducer	895	905	Regional
R-44 S1	08/12/11	5834.77	Transducer	895	905	Regional
R-44 S1	08/11/11	5834.77	Transducer	895	905	Regional
R-44 S1	08/10/11	5834.84	Transducer	895	905	Regional
R-44 S1	08/09/11	5834.79	Transducer	895	905	Regional
R-44 S1	08/08/11	5834.81	Transducer	895	905	Regional
R-44 S1	08/07/11	5834.76	Transducer	895	905	Regional
R-44 S1	08/06/11	5834.73	Transducer	895	905	Regional
R-44 S1	08/05/11	5834.73	Transducer	895	905	Regional
R-44 S1	08/04/11	5834.72	Transducer	895	905	Regional
R-44 S1	08/03/11	5834.68	Transducer	895	905	Regional
R-44 S1	08/02/11	5834.65	Transducer	895	905	Regional
R-44 S1	08/01/11	5834.56	Transducer	895	905	Regional
R-44 S1	07/31/11	5834.53	Transducer	895	905	Regional
R-44 S1	07/30/11	5834.53	Transducer	895	905	Regional
R-44 S1	07/29/11	5834.61	Transducer	895	905	Regional
R-44 S1	07/28/11	5834.71	Transducer	895	905	Regional
R-44 S1	07/27/11	5834.72	Transducer	895	905	Regional
R-44 S1	07/26/11	5834.65	Transducer	895	905	Regional
R-44 S1	07/25/11	5834.53	Transducer	895	905	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S1	07/24/11	5834.58	Transducer	895	905	Regional
R-44 S1	07/23/11	5834.68	Transducer	895	905	Regional
R-44 S1	07/22/11	5834.72	Transducer	895	905	Regional
R-44 S1	07/21/11	5834.7	Transducer	895	905	Regional
R-44 S1	07/20/11	5834.64	Transducer	895	905	Regional
R-44 S1	07/19/11	5834.55	Transducer	895	905	Regional
R-44 S1	07/18/11	5834.5	Transducer	895	905	Regional
R-44 S1	07/17/11	5834.59	Transducer	895	905	Regional
R-44 S1	07/16/11	5834.73	Transducer	895	905	Regional
R-44 S1	07/15/11	5834.77	Transducer	895	905	Regional
R-44 S1	07/14/11	5834.74	Transducer	895	905	Regional
R-44 S1	07/13/11	5834.7	Transducer	895	905	Regional
R-44 S1	07/12/11	5834.68	Transducer	895	905	Regional
R-44 S1	07/11/11	5834.69	Transducer	895	905	Regional
R-44 S1	07/10/11	5834.71	Transducer	895	905	Regional
R-44 S1	07/09/11	5834.77	Transducer	895	905	Regional
R-44 S1	07/08/11	5834.73	Transducer	895	905	Regional
R-44 S1	07/07/11	5834.66	Transducer	895	905	Regional
R-44 S1	07/06/11	5834.65	Transducer	895	905	Regional
R-44 S1	07/05/11	5834.66	Transducer	895	905	Regional
R-44 S1	07/04/11	5834.67	Transducer	895	905	Regional
R-44 S1	07/03/11	5834.6	Transducer	895	905	Regional
R-44 S1	07/02/11	5834.68	Transducer	895	905	Regional
R-44 S1	07/01/11	5834.74	Transducer	895	905	Regional
R-44 S1	06/30/11	5834.73	Transducer	895	905	Regional
R-44 S1	06/29/11	5834.65	Transducer	895	905	Regional
R-44 S1	06/28/11	5834.62	Transducer	895	905	Regional
R-44 S1	06/27/11	5834.78	Transducer	895	905	Regional
R-44 S1	06/26/11	5834.8	Transducer	895	905	Regional
R-44 S1	06/25/11	5834.85	Transducer	895	905	Regional
R-44 S1	06/24/11	5834.84	Transducer	895	905	Regional
R-44 S1	06/23/11	5834.76	Transducer	895	905	Regional
R-44 S1	06/22/11	5834.77	Transducer	895	905	Regional
R-44 S1	06/21/11	5834.89	Transducer	895	905	Regional
R-44 S1	06/20/11	5835.05	Transducer	895	905	Regional
R-44 S1	06/19/11	5834.95	Transducer	895	905	Regional
R-44 S1	06/18/11	5834.88	Transducer	895	905	Regional
R-44 S1	06/17/11	5835.03	Transducer	895	905	Regional
R-44 S1	06/16/11	5834.99	Transducer	895	905	Regional
R-44 S1	06/15/11	5834.81	Transducer	895	905	Regional
R-44 S1	06/14/11	5834.87	Transducer	895	905	Regional
R-44 S1	06/13/11	5834.9	Transducer	895	905	Regional
R-44 S1	06/12/11	5834.97	Transducer	895	905	Regional
R-44 S1	06/11/11	5834.9	Transducer	895	905	Regional
R-44 S1	06/10/11	5834.94	Transducer	895	905	Regional
R-44 S1	06/09/11	5834.99	Transducer	895	905	Regional
R-44 S1	06/08/11	5834.96	Transducer	895	905	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S1	06/07/11	5834.98	Transducer	895	905	Regional
R-44 S1	06/06/11	5834.8	Transducer	895	905	Regional
R-44 S1	06/05/11	5834.68	Transducer	895	905	Regional
R-44 S1	06/04/11	5834.86	Transducer	895	905	Regional
R-44 S1	06/03/11	5834.97	Transducer	895	905	Regional
R-44 S1	06/02/11	5834.89	Transducer	895	905	Regional
R-44 S1	06/01/11	5834.69	Transducer	895	905	Regional
R-44 S1	05/31/11	5834.79	Transducer	895	905	Regional
R-44 S1	05/30/11	5835.27	Transducer	895	905	Regional
R-44 S1	05/29/11	5835.27	Transducer	895	905	Regional
R-44 S1	05/28/11	5835.18	Transducer	895	905	Regional
R-44 S1	05/27/11	5835.12	Transducer	895	905	Regional
R-44 S1	05/26/11	5834.96	Transducer	895	905	Regional
R-44 S1	05/25/11	5835.07	Transducer	895	905	Regional
R-44 S1	05/24/11	5835.24	Transducer	895	905	Regional
R-44 S1	05/23/11	5835.15	Transducer	895	905	Regional
R-44 S1	05/22/11	5835.12	Transducer	895	905	Regional
R-44 S1	05/21/11	5835.15	Transducer	895	905	Regional
R-44 S1	05/20/11	5835.25	Transducer	895	905	Regional
R-44 S1	05/19/11	5835.45	Transducer	895	905	Regional
R-44 S1	05/18/11	5835.43	Transducer	895	905	Regional
R-44 S1	05/17/11	5835.34	Transducer	895	905	Regional
R-44 S1	05/16/11	5835.19	Transducer	895	905	Regional
R-44 S1	05/15/11	5835.19	Transducer	895	905	Regional
R-44 S1	05/14/11	5835.07	Transducer	895	905	Regional
R-44 S1	05/13/11	5835.13	Transducer	895	905	Regional
R-44 S1	05/12/11	5835.34	Transducer	895	905	Regional
R-44 S1	05/11/11	5835.61	Transducer	895	905	Regional
R-44 S1	05/10/11	5835.6	Transducer	895	905	Regional
R-44 S1	05/09/11	5835.6	Transducer	895	905	Regional
R-44 S1	05/08/11	5835.5	Transducer	895	905	Regional
R-44 S1	05/07/11	5835.46	Transducer	895	905	Regional
R-44 S1	05/06/11	5835.32	Transducer	895	905	Regional
R-44 S1	05/05/11	5835.28	Transducer	895	905	Regional
R-44 S1	05/04/11	5835.25	Transducer	895	905	Regional
R-44 S1	05/03/11	5835.13	Transducer	895	905	Regional
R-44 S1	05/02/11	5835.28	Transducer	895	905	Regional
R-44 S1	05/01/11	5835.58	Transducer	895	905	Regional
R-44 S1	04/30/11	5835.68	Transducer	895	905	Regional
R-44 S1	04/29/11	5835.59	Transducer	895	905	Regional
R-44 S1	04/28/11	5835.35	Transducer	895	905	Regional
R-44 S1	04/27/11	5835.74	Transducer	895	905	Regional
R-44 S1	04/26/11	5835.82	Transducer	895	905	Regional
R-44 S1	04/25/11	5835.75	Transducer	895	905	Regional
R-44 S1	04/24/11	5835.73	Transducer	895	905	Regional
R-44 S1	04/23/11	5835.79	Transducer	895	905	Regional
R-44 S1	04/22/11	5835.8	Transducer	895	905	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S1	04/21/11	5835.72	Transducer	895	905	Regional
R-44 S1	04/20/11	5835.72	Transducer	895	905	Regional
R-44 S1	04/19/11	5835.93	Transducer	895	905	Regional
R-44 S1	04/18/11	5835.83	Transducer	895	905	Regional
R-44 S1	04/17/11	5835.75	Transducer	895	905	Regional
R-44 S1	04/16/11	5835.65	Transducer	895	905	Regional
R-44 S1	04/15/11	5835.7	Transducer	895	905	Regional
R-44 S1	04/14/11	5835.85	Transducer	895	905	Regional
R-44 S1	04/13/11	5835.74	Transducer	895	905	Regional
R-44 S1	04/12/11	5835.57	Transducer	895	905	Regional
R-44 S1	04/11/11	5835.58	Transducer	895	905	Regional
R-44 S1	04/10/11	5835.84	Transducer	895	905	Regional
R-44 S1	04/09/11	5835.92	Transducer	895	905	Regional
R-44 S1	04/08/11	5835.92	Transducer	895	905	Regional
R-44 S1	04/07/11	5835.81	Transducer	895	905	Regional
R-44 S1	04/06/11	5835.83	Transducer	895	905	Regional
R-44 S1	04/05/11	5835.58	Transducer	895	905	Regional
R-44 S1	04/04/11	5835.76	Transducer	895	905	Regional
R-44 S1	04/03/11	5835.85	Transducer	895	905	Regional
R-44 S1	04/02/11	5835.68	Transducer	895	905	Regional
R-44 S1	04/01/11	5835.74	Transducer	895	905	Regional
R-44 S1	03/31/11	5835.74	Transducer	895	905	Regional
R-44 S1	03/30/11	5835.66	Transducer	895	905	Regional
R-44 S1	03/29/11	5835.84	Transducer	895	905	Regional
R-44 S1	03/28/11	5835.88	Transducer	895	905	Regional
R-44 S1	03/27/11	5835.97	Transducer	895	905	Regional
R-44 S1	03/26/11	5835.93	Transducer	895	905	Regional
R-44 S1	03/25/11	5835.81	Transducer	895	905	Regional
R-44 S1	03/24/11	5835.81	Transducer	895	905	Regional
R-44 S1	03/23/11	5835.8	Transducer	895	905	Regional
R-44 S1	03/22/11	5836.01	Transducer	895	905	Regional
R-44 S1	03/21/11	5835.79	Transducer	895	905	Regional
R-44 S1	03/20/11	5835.76	Transducer	895	905	Regional
R-44 S1	03/19/11	5835.64	Transducer	895	905	Regional
R-44 S1	03/18/11	5835.67	Transducer	895	905	Regional
R-44 S1	03/17/11	5835.74	Transducer	895	905	Regional
R-44 S1	03/16/11	5835.66	Transducer	895	905	Regional
R-44 S1	03/15/11	5835.66	Transducer	895	905	Regional
R-44 S1	03/14/11	5835.51	Transducer	895	905	Regional
R-44 S1	03/13/11	5835.73	Transducer	895	905	Regional
R-44 S1	03/12/11	5835.71	Transducer	895	905	Regional
R-44 S1	03/11/11	5835.58	Transducer	895	905	Regional
R-44 S1	03/10/11	5835.37	Transducer	895	905	Regional
R-44 S1	03/09/11	5835.61	Transducer	895	905	Regional
R-44 S1	03/08/11	5836.08	Transducer	895	905	Regional
R-44 S1	03/07/11	5835.97	Transducer	895	905	Regional
R-44 S1	03/06/11	5835.62	Transducer	895	905	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S1	03/05/11	5835.44	Transducer	895	905	Regional
R-44 S1	03/04/11	5835.76	Transducer	895	905	Regional
R-44 S1	03/03/11	5835.61	Transducer	895	905	Regional
R-44 S1	03/02/11	5835.55	Transducer	895	905	Regional
R-44 S1	03/01/11	5835.43	Transducer	895	905	Regional
R-44 S1	02/28/11	5835.67	Transducer	895	905	Regional
R-44 S1	02/27/11	5836	Transducer	895	905	Regional
R-44 S1	02/26/11	5835.88	Transducer	895	905	Regional
R-44 S1	02/25/11	5835.72	Transducer	895	905	Regional
R-44 S1	02/24/11	5835.89	Transducer	895	905	Regional
R-44 S1	02/23/11	5835.78	Transducer	895	905	Regional
R-44 S1	02/22/11	5835.78	Transducer	895	905	Regional
R-44 S1	02/21/11	5835.9	Transducer	895	905	Regional
R-44 S1	02/20/11	5835.97	Transducer	895	905	Regional
R-44 S1	02/19/11	5835.62	Transducer	895	905	Regional
R-44 S1	02/18/11	5835.66	Transducer	895	905	Regional
R-44 S1	02/17/11	5835.88	Transducer	895	905	Regional
R-44 S1	02/16/11	5835.69	Transducer	895	905	Regional
R-44 S1	02/15/11	5835.62	Transducer	895	905	Regional
R-44 S1	02/14/11	5835.5	Transducer	895	905	Regional
R-44 S1	02/13/11	5835.4	Transducer	895	905	Regional
R-44 S1	02/12/11	5835.37	Transducer	895	905	Regional
R-44 S1	02/11/11	5835.61	Transducer	895	905	Regional
R-44 S1	02/10/11	5835.64	Transducer	895	905	Regional
R-44 S1	02/09/11	5835.72	Transducer	895	905	Regional
R-44 S1	02/08/11	5835.91	Transducer	895	905	Regional
R-44 S1	02/07/11	5835.51	Transducer	895	905	Regional
R-44 S1	02/06/11	5835.87	Transducer	895	905	Regional
R-44 S1	02/05/11	5835.73	Transducer	895	905	Regional
R-44 S1	02/04/11	5835.63	Transducer	895	905	Regional
R-44 S1	02/03/11	5835.5	Transducer	895	905	Regional
R-44 S1	02/02/11	5835.73	Transducer	895	905	Regional
R-44 S1	02/01/11	5835.91	Transducer	895	905	Regional
R-44 S1	01/31/11	5835.79	Transducer	895	905	Regional
R-44 S1	01/30/11	5835.69	Transducer	895	905	Regional
R-44 S1	01/29/11	5835.68	Transducer	895	905	Regional
R-44 S1	01/28/11	5835.52	Transducer	895	905	Regional
R-44 S1	01/27/11	5835.47	Transducer	895	905	Regional
R-44 S1	01/26/11	5835.63	Transducer	895	905	Regional
R-44 S1	01/25/11	5835.53	Transducer	895	905	Regional
R-44 S1	01/24/11	5835.69	Transducer	895	905	Regional
R-44 S1	01/23/11	5835.75	Transducer	895	905	Regional
R-44 S1	01/22/11	5835.63	Transducer	895	905	Regional
R-44 S1	01/21/11	5835.61	Transducer	895	905	Regional
R-44 S1	01/20/11	5835.76	Transducer	895	905	Regional
R-44 S1	01/19/11	5835.71	Transducer	895	905	Regional
R-44 S1	01/18/11	5835.76	Transducer	895	905	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S1	01/17/11	5835.66	Transducer	895	905	Regional
R-44 S1	01/16/11	5835.59	Transducer	895	905	Regional
R-44 S1	01/15/11	5835.4	Transducer	895	905	Regional
R-44 S1	01/14/11	5835.49	Transducer	895	905	Regional
R-44 S1	01/13/11	5835.35	Transducer	895	905	Regional
R-44 S1	01/12/11	5835.35	Transducer	895	905	Regional
R-44 S1	01/11/11	5835.42	Transducer	895	905	Regional
R-44 S1	01/10/11	5835.88	Transducer	895	905	Regional
R-44 S1	01/09/11	5835.92	Transducer	895	905	Regional
R-44 S1	01/08/11	5835.72	Transducer	895	905	Regional
R-44 S1	01/07/11	5835.54	Transducer	895	905	Regional
R-44 S1	01/06/11	5835.41	Transducer	895	905	Regional
R-44 S1	01/05/11	5835.48	Transducer	895	905	Regional
R-44 S1	01/04/11	5835.56	Transducer	895	905	Regional
R-44 S1	01/03/11	5835.53	Transducer	895	905	Regional
R-44 S1	01/02/11	5835.38	Transducer	895	905	Regional
R-44 S1	01/01/11	5835.7	Transducer	895	905	Regional
R-44 S1	12/31/10	5836.23	Transducer	895	905	Regional
R-44 S1	12/30/10	5836.22	Transducer	895	905	Regional
R-44 S1	12/29/10	5835.78	Transducer	895	905	Regional
R-44 S1	12/28/10	5835.61	Transducer	895	905	Regional
R-44 S1	12/27/10	5835.62	Transducer	895	905	Regional
R-44 S1	12/26/10	5835.4	Transducer	895	905	Regional
R-44 S1	12/25/10	5835.35	Transducer	895	905	Regional
R-44 S1	12/24/10	5835.55	Transducer	895	905	Regional
R-44 S1	12/23/10	5835.54	Transducer	895	905	Regional
R-44 S1	12/22/10	5835.44	Transducer	895	905	Regional
R-44 S1	12/21/10	5835.61	Transducer	895	905	Regional
R-44 S1	12/20/10	5835.72	Transducer	895	905	Regional
R-44 S1	12/19/10	5835.68	Transducer	895	905	Regional
R-44 S1	12/18/10	5835.64	Transducer	895	905	Regional
R-44 S1	12/17/10	5835.76	Transducer	895	905	Regional
R-44 S1	12/16/10	5835.79	Transducer	895	905	Regional
R-44 S1	12/15/10	5835.81	Transducer	895	905	Regional
R-44 S1	12/14/10	5835.54	Transducer	895	905	Regional
R-44 S1	12/13/10	5835.38	Transducer	895	905	Regional
R-44 S1	12/12/10	5835.38	Transducer	895	905	Regional
R-44 S1	12/11/10	5835.62	Transducer	895	905	Regional
R-44 S1	12/10/10	5835.57	Transducer	895	905	Regional
R-44 S1	12/09/10	5835.47	Transducer	895	905	Regional
R-44 S1	12/08/10	5835.31	Transducer	895	905	Regional
R-44 S1	12/07/10	5835.48	Transducer	895	905	Regional
R-44 S1	12/06/10	5835.3	Transducer	895	905	Regional
R-44 S1	12/05/10	5835.35	Transducer	895	905	Regional
R-44 S1	12/04/10	5835.4	Transducer	895	905	Regional
R-44 S1	12/03/10	5835.34	Transducer	895	905	Regional
R-44 S1	12/02/10	5835.33	Transducer	895	905	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S1	12/01/10	5835.23	Transducer	895	905	Regional
R-44 S1	11/30/10	5835.36	Transducer	895	905	Regional
R-44 S1	11/29/10	5835.88	Transducer	895	905	Regional
R-44 S1	11/28/10	5835.75	Transducer	895	905	Regional
R-44 S1	11/27/10	5835.35	Transducer	895	905	Regional
R-44 S1	11/26/10	5835.36	Transducer	895	905	Regional
R-44 S1	11/25/10	5835.73	Transducer	895	905	Regional
R-44 S1	11/24/10	5835.77	Transducer	895	905	Regional
R-44 S1	11/23/10	5835.44	Transducer	895	905	Regional
R-44 S1	11/22/10	5835.72	Transducer	895	905	Regional
R-44 S1	11/21/10	5835.64	Transducer	895	905	Regional
R-44 S1	11/20/10	5835.52	Transducer	895	905	Regional
R-44 S1	11/19/10	5835.37	Transducer	895	905	Regional
R-44 S1	11/18/10	5835.18	Transducer	895	905	Regional
R-44 S1	11/17/10	5835.68	Transducer	895	905	Regional
R-44 S1	11/16/10	5835.55	Transducer	895	905	Regional
R-44 S1	11/15/10	5835.74	Transducer	895	905	Regional
R-44 S1	11/14/10	5835.53	Transducer	895	905	Regional
R-44 S1	11/13/10	5835.29	Transducer	895	905	Regional
R-44 S1	11/12/10	5835.37	Transducer	895	905	Regional
R-44 S1	11/11/10	5835.61	Transducer	895	905	Regional
R-44 S1	11/10/10	5835.64	Transducer	895	905	Regional
R-44 S1	11/09/10	5835.76	Transducer	895	905	Regional
R-44 S1	11/08/10	5835.47	Transducer	895	905	Regional
R-44 S1	11/07/10	5835.36	Transducer	895	905	Regional
R-44 S1	11/06/10	5835.34	Transducer	895	905	Regional
R-44 S1	11/05/10	5835.28	Transducer	895	905	Regional
R-44 S1	11/04/10	5835.08	Transducer	895	905	Regional
R-44 S1	11/03/10	5835.11	Transducer	895	905	Regional
R-44 S1	11/02/10	5835.07	Transducer	895	905	Regional
R-44 S1	11/01/10	5835.31	Transducer	895	905	Regional
R-44 S1	10/31/10	5835.4	Transducer	895	905	Regional
R-44 S1	10/30/10	5835.24	Transducer	895	905	Regional
R-44 S2	11/15/12	5834.13	Transducer	985.3	995.2	Regional
R-44 S2	11/14/12	5834.06	Transducer	985.3	995.2	Regional
R-44 S2	11/13/12	5834.05	Transducer	985.3	995.2	Regional
R-44 S2	11/12/12	5834.09	Transducer	985.3	995.2	Regional
R-44 S2	11/11/12	5834.52	Transducer	985.3	995.2	Regional
R-44 S2	11/10/12	5834.52	Transducer	985.3	995.2	Regional
R-44 S2	11/09/12	5834.38	Transducer	985.3	995.2	Regional
R-44 S2	11/08/12	5834.25	Transducer	985.3	995.2	Regional
R-44 S2	11/07/12	5834.09	Transducer	985.3	995.2	Regional
R-44 S2	11/06/12	5834.09	Transducer	985.3	995.2	Regional
R-44 S2	11/05/12	5834.06	Transducer	985.3	995.2	Regional
R-44 S2	11/04/12	5834.09	Transducer	985.3	995.2	Regional
R-44 S2	11/03/12	5834.19	Transducer	985.3	995.2	Regional
R-44 S2	11/02/12	5834.22	Transducer	985.3	995.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S2	11/01/12	5834.12	Transducer	985.3	995.2	Regional
R-44 S2	10/31/12	5834.14	Transducer	985.3	995.2	Regional
R-44 S2	10/30/12	5834.1	Transducer	985.3	995.2	Regional
R-44 S2	10/29/12	5834.1	Transducer	985.3	995.2	Regional
R-44 S2	10/28/12	5834.15	Transducer	985.3	995.2	Regional
R-44 S2	10/27/12	5834.06	Transducer	985.3	995.2	Regional
R-44 S2	10/26/12	5834.13	Transducer	985.3	995.2	Regional
R-44 S2	10/25/12	5834.34	Transducer	985.3	995.2	Regional
R-44 S2	10/24/12	5834.3	Transducer	985.3	995.2	Regional
R-44 S2	10/23/12	5834.28	Transducer	985.3	995.2	Regional
R-44 S2	10/22/12	5834.32	Transducer	985.3	995.2	Regional
R-44 S2	10/21/12	5834.36	Transducer	985.3	995.2	Regional
R-44 S2	10/20/12	5834.28	Transducer	985.3	995.2	Regional
R-44 S2	10/19/12	5834.19	Transducer	985.3	995.2	Regional
R-44 S2	10/18/12	5834.26	Transducer	985.3	995.2	Regional
R-44 S2	10/17/12	5834.43	Transducer	985.3	995.2	Regional
R-44 S2	10/16/12	5834.26	Transducer	985.3	995.2	Regional
R-44 S2	10/15/12	5834.08	Transducer	985.3	995.2	Regional
R-44 S2	10/14/12	5834.12	Transducer	985.3	995.2	Regional
R-44 S2	10/13/12	5834.28	Transducer	985.3	995.2	Regional
R-44 S2	10/12/12	5834.19	Transducer	985.3	995.2	Regional
R-44 S2	10/11/12	5834.23	Transducer	985.3	995.2	Regional
R-44 S2	10/10/12	5834.22	Transducer	985.3	995.2	Regional
R-44 S2	10/09/12	5834.29	Transducer	985.3	995.2	Regional
R-44 S2	10/08/12	5834.26	Transducer	985.3	995.2	Regional
R-44 S2	10/07/12	5834.25	Transducer	985.3	995.2	Regional
R-44 S2	10/06/12	5834.29	Transducer	985.3	995.2	Regional
R-44 S2	10/05/12	5834.24	Transducer	985.3	995.2	Regional
R-44 S2	10/04/12	5834.22	Transducer	985.3	995.2	Regional
R-44 S2	10/03/12	5834.32	Transducer	985.3	995.2	Regional
R-44 S2	10/02/12	5834.17	Transducer	985.3	995.2	Regional
R-44 S2	10/01/12	5834.19	Transducer	985.3	995.2	Regional
R-44 S2	09/30/12	5834.19	Transducer	985.3	995.2	Regional
R-44 S2	09/29/12	5834.21	Transducer	985.3	995.2	Regional
R-44 S2	09/28/12	5834.22	Transducer	985.3	995.2	Regional
R-44 S2	09/27/12	5834.25	Transducer	985.3	995.2	Regional
R-44 S2	09/26/12	5834.34	Transducer	985.3	995.2	Regional
R-44 S2	09/25/12	5834.28	Transducer	985.3	995.2	Regional
R-44 S2	09/24/12	5834.19	Transducer	985.3	995.2	Regional
R-44 S2	09/23/12	5834.17	Transducer	985.3	995.2	Regional
R-44 S2	09/22/12	5834.21	Transducer	985.3	995.2	Regional
R-44 S2	09/21/12	5834.24	Transducer	985.3	995.2	Regional
R-44 S2	09/20/12	5834.22	Transducer	985.3	995.2	Regional
R-44 S2	09/19/12	5834.21	Transducer	985.3	995.2	Regional
R-44 S2	09/18/12	5834.2	Transducer	985.3	995.2	Regional
R-44 S2	09/17/12	5834.32	Transducer	985.3	995.2	Regional
R-44 S2	09/16/12	5834.21	Transducer	985.3	995.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S2	09/15/12	5834.06	Transducer	985.3	995.2	Regional
R-44 S2	09/14/12	5834	Transducer	985.3	995.2	Regional
R-44 S2	09/13/12	5834.17	Transducer	985.3	995.2	Regional
R-44 S2	09/12/12	5834.3	Transducer	985.3	995.2	Regional
R-44 S2	09/11/12	5834.28	Transducer	985.3	995.2	Regional
R-44 S2	09/10/12	5834.18	Transducer	985.3	995.2	Regional
R-44 S2	09/09/12	5834.11	Transducer	985.3	995.2	Regional
R-44 S2	09/08/12	5834.13	Transducer	985.3	995.2	Regional
R-44 S2	09/07/12	5834.3	Transducer	985.3	995.2	Regional
R-44 S2	09/06/12	5834.27	Transducer	985.3	995.2	Regional
R-44 S2	09/05/12	5834.29	Transducer	985.3	995.2	Regional
R-44 S2	09/04/12	5834.23	Transducer	985.3	995.2	Regional
R-44 S2	09/03/12	5834.26	Transducer	985.3	995.2	Regional
R-44 S2	09/02/12	5834.23	Transducer	985.3	995.2	Regional
R-44 S2	09/01/12	5834.24	Transducer	985.3	995.2	Regional
R-44 S2	08/31/12	5834.29	Transducer	985.3	995.2	Regional
R-44 S2	08/30/12	5834.28	Transducer	985.3	995.2	Regional
R-44 S2	08/29/12	5834.21	Transducer	985.3	995.2	Regional
R-44 S2	08/28/12	5834.15	Transducer	985.3	995.2	Regional
R-44 S2	08/27/12	5834.2	Transducer	985.3	995.2	Regional
R-44 S2	08/26/12	5834.32	Transducer	985.3	995.2	Regional
R-44 S2	08/25/12	5834.45	Transducer	985.3	995.2	Regional
R-44 S2	08/24/12	5834.4	Transducer	985.3	995.2	Regional
R-44 S2	08/23/12	5834.32	Transducer	985.3	995.2	Regional
R-44 S2	08/22/12	5834.27	Transducer	985.3	995.2	Regional
R-44 S2	08/21/12	5834.31	Transducer	985.3	995.2	Regional
R-44 S2	08/20/12	5834.3	Transducer	985.3	995.2	Regional
R-44 S2	08/19/12	5834.34	Transducer	985.3	995.2	Regional
R-44 S2	08/18/12	5834.31	Transducer	985.3	995.2	Regional
R-44 S2	08/17/12	5834.26	Transducer	985.3	995.2	Regional
R-44 S2	08/16/12	5834.41	Transducer	985.3	995.2	Regional
R-44 S2	08/15/12	5834.43	Transducer	985.3	995.2	Regional
R-44 S2	08/14/12	5834.34	Transducer	985.3	995.2	Regional
R-44 S2	08/13/12	5834.24	Transducer	985.3	995.2	Regional
R-44 S2	08/12/12	5834.37	Transducer	985.3	995.2	Regional
R-44 S2	08/11/12	5834.35	Transducer	985.3	995.2	Regional
R-44 S2	08/10/12	5834.28	Transducer	985.3	995.2	Regional
R-44 S2	08/09/12	5834.23	Transducer	985.3	995.2	Regional
R-44 S2	08/08/12	5834.25	Transducer	985.3	995.2	Regional
R-44 S2	08/07/12	5834.24	Transducer	985.3	995.2	Regional
R-44 S2	08/06/12	5834.06	Transducer	985.3	995.2	Regional
R-44 S2	08/05/12	5834.15	Transducer	985.3	995.2	Regional
R-44 S2	08/04/12	5834.35	Transducer	985.3	995.2	Regional
R-44 S2	08/03/12	5834.26	Transducer	985.3	995.2	Regional
R-44 S2	08/02/12	5834.29	Transducer	985.3	995.2	Regional
R-44 S2	08/01/12	5834.23	Transducer	985.3	995.2	Regional
R-44 S2	07/31/12	5834.29	Transducer	985.3	995.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S2	07/30/12	5834.28	Transducer	985.3	995.2	Regional
R-44 S2	07/29/12	5834.23	Transducer	985.3	995.2	Regional
R-44 S2	07/28/12	5834.23	Transducer	985.3	995.2	Regional
R-44 S2	07/27/12	5834.29	Transducer	985.3	995.2	Regional
R-44 S2	07/26/12	5834.4	Transducer	985.3	995.2	Regional
R-44 S2	07/25/12	5834.4	Transducer	985.3	995.2	Regional
R-44 S2	07/24/12	5834.29	Transducer	985.3	995.2	Regional
R-44 S2	07/23/12	5834.25	Transducer	985.3	995.2	Regional
R-44 S2	07/22/12	5834.23	Transducer	985.3	995.2	Regional
R-44 S2	07/21/12	5834.2	Transducer	985.3	995.2	Regional
R-44 S2	07/20/12	5834.2	Transducer	985.3	995.2	Regional
R-44 S2	07/19/12	5834.26	Transducer	985.3	995.2	Regional
R-44 S2	07/18/12	5834.37	Transducer	985.3	995.2	Regional
R-44 S2	07/17/12	5834.43	Transducer	985.3	995.2	Regional
R-44 S2	07/16/12	5834.38	Transducer	985.3	995.2	Regional
R-44 S2	07/15/12	5834.34	Transducer	985.3	995.2	Regional
R-44 S2	07/14/12	5834.31	Transducer	985.3	995.2	Regional
R-44 S2	07/13/12	5834.3	Transducer	985.3	995.2	Regional
R-44 S2	07/12/12	5834.29	Transducer	985.3	995.2	Regional
R-44 S2	07/11/12	5834.23	Transducer	985.3	995.2	Regional
R-44 S2	07/10/12	5834.24	Transducer	985.3	995.2	Regional
R-44 S2	07/09/12	5834.23	Transducer	985.3	995.2	Regional
R-44 S2	07/08/12	5834.21	Transducer	985.3	995.2	Regional
R-44 S2	07/07/12	5834.26	Transducer	985.3	995.2	Regional
R-44 S2	07/06/12	5834.33	Transducer	985.3	995.2	Regional
R-44 S2	07/05/12	5834.38	Transducer	985.3	995.2	Regional
R-44 S2	07/04/12	5834.4	Transducer	985.3	995.2	Regional
R-44 S2	07/03/12	5834.38	Transducer	985.3	995.2	Regional
R-44 S2	07/02/12	5834.39	Transducer	985.3	995.2	Regional
R-44 S2	07/01/12	5834.42	Transducer	985.3	995.2	Regional
R-44 S2	06/30/12	5834.41	Transducer	985.3	995.2	Regional
R-44 S2	06/29/12	5834.29	Transducer	985.3	995.2	Regional
R-44 S2	06/28/12	5834.34	Transducer	985.3	995.2	Regional
R-44 S2	06/27/12	5834.46	Transducer	985.3	995.2	Regional
R-44 S2	06/26/12	5834.39	Transducer	985.3	995.2	Regional
R-44 S2	06/25/12	5834.31	Transducer	985.3	995.2	Regional
R-44 S2	06/24/12	5834.38	Transducer	985.3	995.2	Regional
R-44 S2	06/23/12	5834.47	Transducer	985.3	995.2	Regional
R-44 S2	06/22/12	5834.34	Transducer	985.3	995.2	Regional
R-44 S2	06/21/12	5834.43	Transducer	985.3	995.2	Regional
R-44 S2	06/20/12	5834.613	Transducer	985.3	995.2	Regional
R-44 S2	06/20/12	5834.54	Transducer	985.3	995.2	Regional
R-44 S2	06/20/12	5834.54	Manual	985.3	995.2	Regional
R-44 S2	06/19/12	5834.607	Transducer	985.3	995.2	Regional
R-44 S2	06/18/12	5834.541	Transducer	985.3	995.2	Regional
R-44 S2	06/17/12	5834.292	Transducer	985.3	995.2	Regional
R-44 S2	06/16/12	5834.443	Transducer	985.3	995.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S2	06/15/12	5834.563	Transducer	985.3	995.2	Regional
R-44 S2	06/14/12	5834.58	Transducer	985.3	995.2	Regional
R-44 S2	06/13/12	5834.493	Transducer	985.3	995.2	Regional
R-44 S2	06/12/12	5834.384	Transducer	985.3	995.2	Regional
R-44 S2	06/11/12	5834.507	Transducer	985.3	995.2	Regional
R-44 S2	06/10/12	5834.704	Transducer	985.3	995.2	Regional
R-44 S2	06/09/12	5834.658	Transducer	985.3	995.2	Regional
R-44 S2	06/08/12	5834.554	Transducer	985.3	995.2	Regional
R-44 S2	06/07/12	5834.646	Transducer	985.3	995.2	Regional
R-44 S2	06/06/12	5834.625	Transducer	985.3	995.2	Regional
R-44 S2	06/05/12	5834.54	Transducer	985.3	995.2	Regional
R-44 S2	06/04/12	5834.531	Transducer	985.3	995.2	Regional
R-44 S2	06/03/12	5834.629	Transducer	985.3	995.2	Regional
R-44 S2	06/02/12	5834.66	Transducer	985.3	995.2	Regional
R-44 S2	06/01/12	5834.605	Transducer	985.3	995.2	Regional
R-44 S2	05/31/12	5834.671	Transducer	985.3	995.2	Regional
R-44 S2	05/30/12	5834.657	Transducer	985.3	995.2	Regional
R-44 S2	05/29/12	5834.623	Transducer	985.3	995.2	Regional
R-44 S2	05/28/12	5834.653	Transducer	985.3	995.2	Regional
R-44 S2	05/27/12	5834.775	Transducer	985.3	995.2	Regional
R-44 S2	05/26/12	5834.813	Transducer	985.3	995.2	Regional
R-44 S2	05/25/12	5834.949	Transducer	985.3	995.2	Regional
R-44 S2	05/24/12	5835.092	Transducer	985.3	995.2	Regional
R-44 S2	05/23/12	5834.905	Transducer	985.3	995.2	Regional
R-44 S2	05/22/12	5834.63	Transducer	985.3	995.2	Regional
R-44 S2	05/21/12	5834.527	Transducer	985.3	995.2	Regional
R-44 S2	05/20/12	5834.698	Transducer	985.3	995.2	Regional
R-44 S2	05/19/12	5834.927	Transducer	985.3	995.2	Regional
R-44 S2	05/18/12	5834.932	Transducer	985.3	995.2	Regional
R-44 S2	05/17/12	5834.752	Transducer	985.3	995.2	Regional
R-44 S2	05/16/12	5834.596	Transducer	985.3	995.2	Regional
R-44 S2	05/15/12	5834.586	Transducer	985.3	995.2	Regional
R-44 S2	05/14/12	5834.603	Transducer	985.3	995.2	Regional
R-44 S2	05/13/12	5834.543	Transducer	985.3	995.2	Regional
R-44 S2	05/12/12	5834.611	Transducer	985.3	995.2	Regional
R-44 S2	05/11/12	5834.877	Transducer	985.3	995.2	Regional
R-44 S2	05/10/12	5834.76	Transducer	985.3	995.2	Regional
R-44 S2	05/09/12	5834.63	Transducer	985.3	995.2	Regional
R-44 S2	05/08/12	5834.644	Transducer	985.3	995.2	Regional
R-44 S2	05/07/12	5834.761	Transducer	985.3	995.2	Regional
R-44 S2	05/06/12	5834.832	Transducer	985.3	995.2	Regional
R-44 S2	05/05/12	5834.826	Transducer	985.3	995.2	Regional
R-44 S2	05/04/12	5834.813	Transducer	985.3	995.2	Regional
R-44 S2	05/03/12	5834.887	Transducer	985.3	995.2	Regional
R-44 S2	05/02/12	5834.955	Transducer	985.3	995.2	Regional
R-44 S2	05/01/12	5834.932	Transducer	985.3	995.2	Regional
R-44 S2	04/30/12	5834.855	Transducer	985.3	995.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S2	04/29/12	5834.945	Transducer	985.3	995.2	Regional
R-44 S2	04/28/12	5834.982	Transducer	985.3	995.2	Regional
R-44 S2	04/27/12	5835.026	Transducer	985.3	995.2	Regional
R-44 S2	04/26/12	5834.85	Transducer	985.3	995.2	Regional
R-44 S2	04/25/12	5834.911	Transducer	985.3	995.2	Regional
R-44 S2	04/24/12	5834.826	Transducer	985.3	995.2	Regional
R-44 S2	04/23/12	5834.707	Transducer	985.3	995.2	Regional
R-44 S2	04/22/12	5834.758	Transducer	985.3	995.2	Regional
R-44 S2	04/21/12	5834.811	Transducer	985.3	995.2	Regional
R-44 S2	04/20/12	5834.891	Transducer	985.3	995.2	Regional
R-44 S2	04/19/12	5834.953	Transducer	985.3	995.2	Regional
R-44 S2	04/18/12	5834.815	Transducer	985.3	995.2	Regional
R-44 S2	04/17/12	5834.733	Transducer	985.3	995.2	Regional
R-44 S2	04/16/12	5834.894	Transducer	985.3	995.2	Regional
R-44 S2	04/15/12	5835.233	Transducer	985.3	995.2	Regional
R-44 S2	04/14/12	5835.25	Transducer	985.3	995.2	Regional
R-44 S2	04/13/12	5835.043	Transducer	985.3	995.2	Regional
R-44 S2	04/12/12	5835.06	Transducer	985.3	995.2	Regional
R-44 S2	04/11/12	5834.854	Transducer	985.3	995.2	Regional
R-44 S2	04/10/12	5834.806	Transducer	985.3	995.2	Regional
R-44 S2	04/09/12	5834.727	Transducer	985.3	995.2	Regional
R-44 S2	04/08/12	5834.6	Transducer	985.3	995.2	Regional
R-44 S2	04/07/12	5834.841	Transducer	985.3	995.2	Regional
R-44 S2	04/06/12	5834.985	Transducer	985.3	995.2	Regional
R-44 S2	04/05/12	5834.954	Transducer	985.3	995.2	Regional
R-44 S2	04/04/12	5834.932	Transducer	985.3	995.2	Regional
R-44 S2	04/03/12	5835.109	Transducer	985.3	995.2	Regional
R-44 S2	04/02/12	5835.223	Transducer	985.3	995.2	Regional
R-44 S2	04/01/12	5835.027	Transducer	985.3	995.2	Regional
R-44 S2	03/31/12	5834.931	Transducer	985.3	995.2	Regional
R-44 S2	03/30/12	5834.954	Transducer	985.3	995.2	Regional
R-44 S2	03/29/12	5834.954	Transducer	985.3	995.2	Regional
R-44 S2	03/28/12	5834.881	Transducer	985.3	995.2	Regional
R-44 S2	03/27/12	5834.917	Transducer	985.3	995.2	Regional
R-44 S2	03/26/12	5834.937	Transducer	985.3	995.2	Regional
R-44 S2	03/25/12	5834.831	Transducer	985.3	995.2	Regional
R-44 S2	03/24/12	5834.832	Transducer	985.3	995.2	Regional
R-44 S2	03/23/12	5834.918	Transducer	985.3	995.2	Regional
R-44 S2	03/22/12	5834.985	Transducer	985.3	995.2	Regional
R-44 S2	03/21/12	5834.993	Transducer	985.3	995.2	Regional
R-44 S2	03/20/12	5835.28	Transducer	985.3	995.2	Regional
R-44 S2	03/19/12	5835.294	Transducer	985.3	995.2	Regional
R-44 S2	03/18/12	5835.193	Transducer	985.3	995.2	Regional
R-44 S2	03/17/12	5835.033	Transducer	985.3	995.2	Regional
R-44 S2	03/16/12	5834.897	Transducer	985.3	995.2	Regional
R-44 S2	03/15/12	5834.86	Transducer	985.3	995.2	Regional
R-44 S2	03/14/12	5834.917	Transducer	985.3	995.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S2	03/13/12	5834.879	Transducer	985.3	995.2	Regional
R-44 S2	03/12/12	5835.019	Transducer	985.3	995.2	Regional
R-44 S2	03/11/12	5835.079	Transducer	985.3	995.2	Regional
R-44 S2	03/10/12	5834.742	Transducer	985.3	995.2	Regional
R-44 S2	03/09/12	5834.569	Transducer	985.3	995.2	Regional
R-44 S2	03/08/12	5835.051	Transducer	985.3	995.2	Regional
R-44 S2	03/07/12	5835.258	Transducer	985.3	995.2	Regional
R-44 S2	03/07/12	5835.238	Transducer	985.3	995.2	Regional
R-44 S2	03/06/12	5834.891	Transducer	985.3	995.2	Regional
R-44 S2	03/05/12	5834.715	Transducer	985.3	995.2	Regional
R-44 S2	03/04/12	5834.735	Transducer	985.3	995.2	Regional
R-44 S2	03/03/12	5834.893	Transducer	985.3	995.2	Regional
R-44 S2	03/02/12	5835.132	Transducer	985.3	995.2	Regional
R-44 S2	03/01/12	5834.991	Transducer	985.3	995.2	Regional
R-44 S2	02/29/12	5834.871	Transducer	985.3	995.2	Regional
R-44 S2	02/28/12	5834.988	Transducer	985.3	995.2	Regional
R-44 S2	02/27/12	5834.831	Transducer	985.3	995.2	Regional
R-44 S2	02/26/12	5834.941	Transducer	985.3	995.2	Regional
R-44 S2	02/25/12	5834.632	Transducer	985.3	995.2	Regional
R-44 S2	02/24/12	5834.809	Transducer	985.3	995.2	Regional
R-44 S2	02/23/12	5835.014	Transducer	985.3	995.2	Regional
R-44 S2	02/22/12	5834.753	Transducer	985.3	995.2	Regional
R-44 S2	02/21/12	5834.756	Transducer	985.3	995.2	Regional
R-44 S2	02/20/12	5835.078	Transducer	985.3	995.2	Regional
R-44 S2	02/19/12	5834.892	Transducer	985.3	995.2	Regional
R-44 S2	02/18/12	5834.899	Transducer	985.3	995.2	Regional
R-44 S2	02/17/12	5834.837	Transducer	985.3	995.2	Regional
R-44 S2	02/16/12	5834.855	Transducer	985.3	995.2	Regional
R-44 S2	02/15/12	5835.197	Transducer	985.3	995.2	Regional
R-44 S2	02/14/12	5835.125	Transducer	985.3	995.2	Regional
R-44 S2	02/13/12	5835.18	Transducer	985.3	995.2	Regional
R-44 S2	02/12/12	5834.849	Transducer	985.3	995.2	Regional
R-44 S2	02/11/12	5834.825	Transducer	985.3	995.2	Regional
R-44 S2	02/10/12	5834.834	Transducer	985.3	995.2	Regional
R-44 S2	02/09/12	5834.828	Transducer	985.3	995.2	Regional
R-44 S2	02/08/12	5834.718	Transducer	985.3	995.2	Regional
R-44 S2	02/07/12	5834.903	Transducer	985.3	995.2	Regional
R-44 S2	02/06/12	5834.813	Transducer	985.3	995.2	Regional
R-44 S2	02/05/12	5834.7	Transducer	985.3	995.2	Regional
R-44 S2	02/04/12	5834.813	Transducer	985.3	995.2	Regional
R-44 S2	02/03/12	5835.117	Transducer	985.3	995.2	Regional
R-44 S2	02/02/12	5834.923	Transducer	985.3	995.2	Regional
R-44 S2	02/01/12	5834.85	Transducer	985.3	995.2	Regional
R-44 S2	01/31/12	5834.97	Transducer	985.3	995.2	Regional
R-44 S2	01/30/12	5834.784	Transducer	985.3	995.2	Regional
R-44 S2	01/29/12	5834.656	Transducer	985.3	995.2	Regional
R-44 S2	01/28/12	5834.729	Transducer	985.3	995.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S2	01/27/12	5834.977	Transducer	985.3	995.2	Regional
R-44 S2	01/26/12	5834.819	Transducer	985.3	995.2	Regional
R-44 S2	01/25/12	5834.836	Transducer	985.3	995.2	Regional
R-44 S2	01/24/12	5835.053	Transducer	985.3	995.2	Regional
R-44 S2	01/23/12	5834.921	Transducer	985.3	995.2	Regional
R-44 S2	01/22/12	5835.32	Transducer	985.3	995.2	Regional
R-44 S2	01/21/12	5834.926	Transducer	985.3	995.2	Regional
R-44 S2	01/20/12	5835.071	Transducer	985.3	995.2	Regional
R-44 S2	01/19/12	5834.91	Transducer	985.3	995.2	Regional
R-44 S2	01/18/12	5834.828	Transducer	985.3	995.2	Regional
R-44 S2	01/17/12	5835.036	Transducer	985.3	995.2	Regional
R-44 S2	01/16/12	5835.027	Transducer	985.3	995.2	Regional
R-44 S2	01/15/12	5834.819	Transducer	985.3	995.2	Regional
R-44 S2	01/14/12	5834.764	Transducer	985.3	995.2	Regional
R-44 S2	01/13/12	5834.935	Transducer	985.3	995.2	Regional
R-44 S2	01/12/12	5834.944	Transducer	985.3	995.2	Regional
R-44 S2	01/11/12	5835.04	Transducer	985.3	995.2	Regional
R-44 S2	01/10/12	5834.848	Transducer	985.3	995.2	Regional
R-44 S2	01/09/12	5834.868	Transducer	985.3	995.2	Regional
R-44 S2	01/08/12	5835.096	Transducer	985.3	995.2	Regional
R-44 S2	01/07/12	5834.985	Transducer	985.3	995.2	Regional
R-44 S2	01/06/12	5834.973	Transducer	985.3	995.2	Regional
R-44 S2	01/05/12	5834.646	Transducer	985.3	995.2	Regional
R-44 S2	01/04/12	5834.73	Transducer	985.3	995.2	Regional
R-44 S2	01/03/12	5834.588	Transducer	985.3	995.2	Regional
R-44 S2	01/02/12	5834.521	Transducer	985.3	995.2	Regional
R-44 S2	01/01/12	5834.695	Transducer	985.3	995.2	Regional
R-44 S2	12/31/11	5834.929	Transducer	985.3	995.2	Regional
R-44 S2	12/30/11	5834.887	Transducer	985.3	995.2	Regional
R-44 S2	12/29/11	5834.802	Transducer	985.3	995.2	Regional
R-44 S2	12/28/11	5834.844	Transducer	985.3	995.2	Regional
R-44 S2	12/27/11	5834.764	Transducer	985.3	995.2	Regional
R-44 S2	12/26/11	5834.795	Transducer	985.3	995.2	Regional
R-44 S2	12/25/11	5834.642	Transducer	985.3	995.2	Regional
R-44 S2	12/24/11	5834.708	Transducer	985.3	995.2	Regional
R-44 S2	12/23/11	5834.812	Transducer	985.3	995.2	Regional
R-44 S2	12/22/11	5835.092	Transducer	985.3	995.2	Regional
R-44 S2	12/21/11	5835.085	Transducer	985.3	995.2	Regional
R-44 S2	12/20/11	5835.039	Transducer	985.3	995.2	Regional
R-44 S2	12/19/11	5835.128	Transducer	985.3	995.2	Regional
R-44 S2	12/18/11	5834.704	Transducer	985.3	995.2	Regional
R-44 S2	12/17/11	5834.61	Transducer	985.3	995.2	Regional
R-44 S2	12/16/11	5834.752	Transducer	985.3	995.2	Regional
R-44 S2	12/15/11	5834.871	Transducer	985.3	995.2	Regional
R-44 S2	12/14/11	5835.07	Transducer	985.3	995.2	Regional
R-44 S2	12/13/11	5834.949	Transducer	985.3	995.2	Regional
R-44 S2	12/12/11	5834.939	Transducer	985.3	995.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S2	12/11/11	5834.792	Transducer	985.3	995.2	Regional
R-44 S2	12/10/11	5834.652	Transducer	985.3	995.2	Regional
R-44 S2	12/09/11	5834.841	Transducer	985.3	995.2	Regional
R-44 S2	12/08/11	5834.858	Transducer	985.3	995.2	Regional
R-44 S2	12/07/11	5834.752	Transducer	985.3	995.2	Regional
R-44 S2	12/06/11	5834.819	Transducer	985.3	995.2	Regional
R-44 S2	12/05/11	5834.983	Transducer	985.3	995.2	Regional
R-44 S2	12/04/11	5834.942	Transducer	985.3	995.2	Regional
R-44 S2	12/03/11	5835.133	Transducer	985.3	995.2	Regional
R-44 S2	12/02/11	5834.798	Transducer	985.3	995.2	Regional
R-44 S2	12/01/11	5835.068	Transducer	985.3	995.2	Regional
R-44 S2	11/30/11	5834.723	Transducer	985.3	995.2	Regional
R-44 S2	11/29/11	5834.696	Transducer	985.3	995.2	Regional
R-44 S2	11/28/11	5834.583	Transducer	985.3	995.2	Regional
R-44 S2	11/27/11	5834.478	Transducer	985.3	995.2	Regional
R-44 S2	11/26/11	5834.896	Transducer	985.3	995.2	Regional
R-44 S2	11/25/11	5834.843	Transducer	985.3	995.2	Regional
R-44 S2	11/24/11	5834.68	Transducer	985.3	995.2	Regional
R-44 S2	11/23/11	5834.583	Transducer	985.3	995.2	Regional
R-44 S2	11/22/11	5834.732	Transducer	985.3	995.2	Regional
R-44 S2	11/21/11	5834.825	Transducer	985.3	995.2	Regional
R-44 S2	11/20/11	5834.922	Transducer	985.3	995.2	Regional
R-44 S2	11/19/11	5835.071	Transducer	985.3	995.2	Regional
R-44 S2	11/18/11	5834.872	Transducer	985.3	995.2	Regional
R-44 S2	11/17/11	5834.631	Transducer	985.3	995.2	Regional
R-44 S2	11/16/11	5834.905	Transducer	985.3	995.2	Regional
R-44 S2	11/15/11	5834.937	Transducer	985.3	995.2	Regional
R-44 S2	11/14/11	5834.998	Transducer	985.3	995.2	Regional
R-44 S2	11/13/11	5834.997	Transducer	985.3	995.2	Regional
R-44 S2	11/12/11	5834.932	Transducer	985.3	995.2	Regional
R-44 S2	11/11/11	5834.656	Transducer	985.3	995.2	Regional
R-44 S2	11/10/11	5834.477	Transducer	985.3	995.2	Regional
R-44 S2	11/09/11	5834.64	Transducer	985.3	995.2	Regional
R-44 S2	11/08/11	5834.988	Transducer	985.3	995.2	Regional
R-44 S2	11/07/11	5834.918	Transducer	985.3	995.2	Regional
R-44 S2	11/06/11	5835	Transducer	985.3	995.2	Regional
R-44 S2	11/05/11	5835.106	Transducer	985.3	995.2	Regional
R-44 S2	11/04/11	5834.786	Transducer	985.3	995.2	Regional
R-44 S2	11/03/11	5834.566	Transducer	985.3	995.2	Regional
R-44 S2	11/02/11	5834.999	Transducer	985.3	995.2	Regional
R-44 S2	11/01/11	5834.785	Transducer	985.3	995.2	Regional
R-44 S2	10/31/11	5834.631	Transducer	985.3	995.2	Regional
R-44 S2	10/30/11	5834.736	Transducer	985.3	995.2	Regional
R-44 S2	10/29/11	5834.637	Transducer	985.3	995.2	Regional
R-44 S2	10/28/11	5834.743	Transducer	985.3	995.2	Regional
R-44 S2	10/27/11	5834.887	Transducer	985.3	995.2	Regional
R-44 S2	10/26/11	5834.811	Transducer	985.3	995.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S2	10/25/11	5834.728	Transducer	985.3	995.2	Regional
R-44 S2	10/24/11	5834.633	Transducer	985.3	995.2	Regional
R-44 S2	10/23/11	5834.674	Transducer	985.3	995.2	Regional
R-44 S2	10/22/11	5834.661	Transducer	985.3	995.2	Regional
R-44 S2	10/21/11	5834.668	Transducer	985.3	995.2	Regional
R-44 S2	10/20/11	5834.771	Transducer	985.3	995.2	Regional
R-44 S2	10/19/11	5834.608	Transducer	985.3	995.2	Regional
R-44 S2	10/18/11	5834.663	Transducer	985.3	995.2	Regional
R-44 S2	10/17/11	5834.733	Transducer	985.3	995.2	Regional
R-44 S2	10/16/11	5834.631	Transducer	985.3	995.2	Regional
R-44 S2	10/15/11	5834.65	Transducer	985.3	995.2	Regional
R-44 S2	10/14/11	5834.721	Transducer	985.3	995.2	Regional
R-44 S2	10/13/11	5834.638	Transducer	985.3	995.2	Regional
R-44 S2	10/12/11	5834.783	Transducer	985.3	995.2	Regional
R-44 S2	10/11/11	5834.791	Transducer	985.3	995.2	Regional
R-44 S2	10/10/11	5834.716	Transducer	985.3	995.2	Regional
R-44 S2	10/09/11	5834.752	Transducer	985.3	995.2	Regional
R-44 S2	10/08/11	5834.92	Transducer	985.3	995.2	Regional
R-44 S2	10/07/11	5834.922	Transducer	985.3	995.2	Regional
R-44 S2	10/06/11	5834.951	Transducer	985.3	995.2	Regional
R-44 S2	10/05/11	5834.781	Transducer	985.3	995.2	Regional
R-44 S2	10/04/11	5834.647	Transducer	985.3	995.2	Regional
R-44 S2	10/03/11	5834.61	Transducer	985.3	995.2	Regional
R-44 S2	10/02/11	5834.594	Transducer	985.3	995.2	Regional
R-44 S2	10/01/11	5834.585	Transducer	985.3	995.2	Regional
R-44 S2	09/30/11	5834.466	Transducer	985.3	995.2	Regional
R-44 S2	09/29/11	5834.649	Transducer	985.3	995.2	Regional
R-44 S2	09/28/11	5834.583	Transducer	985.3	995.2	Regional
R-44 S2	09/27/11	5834.669	Transducer	985.3	995.2	Regional
R-44 S2	09/26/11	5834.779	Transducer	985.3	995.2	Regional
R-44 S2	09/25/11	5834.747	Transducer	985.3	995.2	Regional
R-44 S2	09/24/11	5834.614	Transducer	985.3	995.2	Regional
R-44 S2	09/23/11	5834.574	Transducer	985.3	995.2	Regional
R-44 S2	09/22/11	5834.682	Transducer	985.3	995.2	Regional
R-44 S2	09/21/11	5834.681	Transducer	985.3	995.2	Regional
R-44 S2	09/20/11	5834.664	Transducer	985.3	995.2	Regional
R-44 S2	09/19/11	5834.575	Transducer	985.3	995.2	Regional
R-44 S2	09/18/11	5834.638	Transducer	985.3	995.2	Regional
R-44 S2	09/17/11	5834.689	Transducer	985.3	995.2	Regional
R-44 S2	09/16/11	5834.695	Transducer	985.3	995.2	Regional
R-44 S2	09/15/11	5834.659	Transducer	985.3	995.2	Regional
R-44 S2	09/14/11	5834.623	Transducer	985.3	995.2	Regional
R-44 S2	09/13/11	5834.531	Transducer	985.3	995.2	Regional
R-44 S2	09/12/11	5834.489	Transducer	985.3	995.2	Regional
R-44 S2	09/11/11	5834.509	Transducer	985.3	995.2	Regional
R-44 S2	09/10/11	5834.549	Transducer	985.3	995.2	Regional
R-44 S2	09/09/11	5834.511	Transducer	985.3	995.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S2	09/08/11	5834.416	Transducer	985.3	995.2	Regional
R-44 S2	09/07/11	5834.554	Transducer	985.3	995.2	Regional
R-44 S2	09/06/11	5834.541	Transducer	985.3	995.2	Regional
R-44 S2	09/05/11	5834.472	Transducer	985.3	995.2	Regional
R-44 S2	09/04/11	5834.552	Transducer	985.3	995.2	Regional
R-44 S2	09/03/11	5834.66	Transducer	985.3	995.2	Regional
R-44 S2	09/02/11	5834.576	Transducer	985.3	995.2	Regional
R-44 S2	09/01/11	5834.596	Transducer	985.3	995.2	Regional
R-44 S2	08/31/11	5834.669	Transducer	985.3	995.2	Regional
R-44 S2	08/30/11	5834.658	Transducer	985.3	995.2	Regional
R-44 S2	08/29/11	5834.618	Transducer	985.3	995.2	Regional
R-44 S2	08/28/11	5834.555	Transducer	985.3	995.2	Regional
R-44 S2	08/27/11	5834.479	Transducer	985.3	995.2	Regional
R-44 S2	08/26/11	5834.492	Transducer	985.3	995.2	Regional
R-44 S2	08/25/11	5834.519	Transducer	985.3	995.2	Regional
R-44 S2	08/24/11	5834.583	Transducer	985.3	995.2	Regional
R-44 S2	08/23/11	5834.549	Transducer	985.3	995.2	Regional
R-44 S2	08/22/11	5834.475	Transducer	985.3	995.2	Regional
R-44 S2	08/21/11	5834.538	Transducer	985.3	995.2	Regional
R-44 S2	08/20/11	5834.607	Transducer	985.3	995.2	Regional
R-44 S2	08/19/11	5834.57	Transducer	985.3	995.2	Regional
R-44 S2	08/19/11	5834.622	Transducer	985.3	995.2	Regional
R-44 S2	08/18/11	5834.43	Transducer	985.3	995.2	Regional
R-44 S2	08/17/11	5834.48	Transducer	985.3	995.2	Regional
R-44 S2	08/16/11	5834.6	Transducer	985.3	995.2	Regional
R-44 S2	08/15/11	5834.56	Transducer	985.3	995.2	Regional
R-44 S2	08/14/11	5834.43	Transducer	985.3	995.2	Regional
R-44 S2	08/13/11	5834.56	Transducer	985.3	995.2	Regional
R-44 S2	08/12/11	5834.6	Transducer	985.3	995.2	Regional
R-44 S2	08/11/11	5834.62	Transducer	985.3	995.2	Regional
R-44 S2	08/10/11	5834.67	Transducer	985.3	995.2	Regional
R-44 S2	08/09/11	5834.63	Transducer	985.3	995.2	Regional
R-44 S2	08/08/11	5834.64	Transducer	985.3	995.2	Regional
R-44 S2	08/07/11	5834.6	Transducer	985.3	995.2	Regional
R-44 S2	08/06/11	5834.56	Transducer	985.3	995.2	Regional
R-44 S2	08/05/11	5834.56	Transducer	985.3	995.2	Regional
R-44 S2	08/04/11	5834.55	Transducer	985.3	995.2	Regional
R-44 S2	08/03/11	5834.53	Transducer	985.3	995.2	Regional
R-44 S2	08/02/11	5834.48	Transducer	985.3	995.2	Regional
R-44 S2	08/01/11	5834.4	Transducer	985.3	995.2	Regional
R-44 S2	07/31/11	5834.37	Transducer	985.3	995.2	Regional
R-44 S2	07/30/11	5834.37	Transducer	985.3	995.2	Regional
R-44 S2	07/29/11	5834.46	Transducer	985.3	995.2	Regional
R-44 S2	07/28/11	5834.54	Transducer	985.3	995.2	Regional
R-44 S2	07/27/11	5834.55	Transducer	985.3	995.2	Regional
R-44 S2	07/26/11	5834.46	Transducer	985.3	995.2	Regional
R-44 S2	07/25/11	5834.32	Transducer	985.3	995.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S2	07/24/11	5834.36	Transducer	985.3	995.2	Regional
R-44 S2	07/23/11	5834.45	Transducer	985.3	995.2	Regional
R-44 S2	07/22/11	5834.48	Transducer	985.3	995.2	Regional
R-44 S2	07/21/11	5834.45	Transducer	985.3	995.2	Regional
R-44 S2	07/20/11	5834.39	Transducer	985.3	995.2	Regional
R-44 S2	07/19/11	5834.29	Transducer	985.3	995.2	Regional
R-44 S2	07/18/11	5834.24	Transducer	985.3	995.2	Regional
R-44 S2	07/17/11	5834.34	Transducer	985.3	995.2	Regional
R-44 S2	07/16/11	5834.48	Transducer	985.3	995.2	Regional
R-44 S2	07/15/11	5834.51	Transducer	985.3	995.2	Regional
R-44 S2	07/14/11	5834.48	Transducer	985.3	995.2	Regional
R-44 S2	07/13/11	5834.44	Transducer	985.3	995.2	Regional
R-44 S2	07/12/11	5834.42	Transducer	985.3	995.2	Regional
R-44 S2	07/11/11	5834.43	Transducer	985.3	995.2	Regional
R-44 S2	07/10/11	5834.46	Transducer	985.3	995.2	Regional
R-44 S2	07/09/11	5834.52	Transducer	985.3	995.2	Regional
R-44 S2	07/08/11	5834.48	Transducer	985.3	995.2	Regional
R-44 S2	07/07/11	5834.42	Transducer	985.3	995.2	Regional
R-44 S2	07/06/11	5834.42	Transducer	985.3	995.2	Regional
R-44 S2	07/05/11	5834.42	Transducer	985.3	995.2	Regional
R-44 S2	07/04/11	5834.42	Transducer	985.3	995.2	Regional
R-44 S2	07/03/11	5834.37	Transducer	985.3	995.2	Regional
R-44 S2	07/02/11	5834.43	Transducer	985.3	995.2	Regional
R-44 S2	07/01/11	5834.47	Transducer	985.3	995.2	Regional
R-44 S2	06/30/11	5834.47	Transducer	985.3	995.2	Regional
R-44 S2	06/29/11	5834.38	Transducer	985.3	995.2	Regional
R-44 S2	06/28/11	5834.36	Transducer	985.3	995.2	Regional
R-44 S2	06/27/11	5834.52	Transducer	985.3	995.2	Regional
R-44 S2	06/26/11	5834.55	Transducer	985.3	995.2	Regional
R-44 S2	06/25/11	5834.59	Transducer	985.3	995.2	Regional
R-44 S2	06/24/11	5834.59	Transducer	985.3	995.2	Regional
R-44 S2	06/23/11	5834.51	Transducer	985.3	995.2	Regional
R-44 S2	06/22/11	5834.53	Transducer	985.3	995.2	Regional
R-44 S2	06/21/11	5834.65	Transducer	985.3	995.2	Regional
R-44 S2	06/20/11	5834.82	Transducer	985.3	995.2	Regional
R-44 S2	06/19/11	5834.7	Transducer	985.3	995.2	Regional
R-44 S2	06/18/11	5834.65	Transducer	985.3	995.2	Regional
R-44 S2	06/17/11	5834.78	Transducer	985.3	995.2	Regional
R-44 S2	06/16/11	5834.73	Transducer	985.3	995.2	Regional
R-44 S2	06/15/11	5834.57	Transducer	985.3	995.2	Regional
R-44 S2	06/14/11	5834.62	Transducer	985.3	995.2	Regional
R-44 S2	06/13/11	5834.66	Transducer	985.3	995.2	Regional
R-44 S2	06/12/11	5834.72	Transducer	985.3	995.2	Regional
R-44 S2	06/11/11	5834.67	Transducer	985.3	995.2	Regional
R-44 S2	06/10/11	5834.7	Transducer	985.3	995.2	Regional
R-44 S2	06/09/11	5834.75	Transducer	985.3	995.2	Regional
R-44 S2	06/08/11	5834.74	Transducer	985.3	995.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S2	06/07/11	5834.74	Transducer	985.3	995.2	Regional
R-44 S2	06/06/11	5834.55	Transducer	985.3	995.2	Regional
R-44 S2	06/05/11	5834.45	Transducer	985.3	995.2	Regional
R-44 S2	06/04/11	5834.62	Transducer	985.3	995.2	Regional
R-44 S2	06/03/11	5834.73	Transducer	985.3	995.2	Regional
R-44 S2	06/02/11	5834.65	Transducer	985.3	995.2	Regional
R-44 S2	06/01/11	5834.46	Transducer	985.3	995.2	Regional
R-44 S2	05/31/11	5834.59	Transducer	985.3	995.2	Regional
R-44 S2	05/30/11	5835.03	Transducer	985.3	995.2	Regional
R-44 S2	05/29/11	5835.02	Transducer	985.3	995.2	Regional
R-44 S2	05/28/11	5834.94	Transducer	985.3	995.2	Regional
R-44 S2	05/27/11	5834.88	Transducer	985.3	995.2	Regional
R-44 S2	05/26/11	5834.73	Transducer	985.3	995.2	Regional
R-44 S2	05/25/11	5834.85	Transducer	985.3	995.2	Regional
R-44 S2	05/24/11	5835	Transducer	985.3	995.2	Regional
R-44 S2	05/23/11	5834.91	Transducer	985.3	995.2	Regional
R-44 S2	05/22/11	5834.89	Transducer	985.3	995.2	Regional
R-44 S2	05/21/11	5834.93	Transducer	985.3	995.2	Regional
R-44 S2	05/20/11	5835.03	Transducer	985.3	995.2	Regional
R-44 S2	05/19/11	5835.21	Transducer	985.3	995.2	Regional
R-44 S2	05/18/11	5835.17	Transducer	985.3	995.2	Regional
R-44 S2	05/17/11	5835.1	Transducer	985.3	995.2	Regional
R-44 S2	05/16/11	5834.94	Transducer	985.3	995.2	Regional
R-44 S2	05/15/11	5834.97	Transducer	985.3	995.2	Regional
R-44 S2	05/14/11	5834.85	Transducer	985.3	995.2	Regional
R-44 S2	05/13/11	5834.92	Transducer	985.3	995.2	Regional
R-44 S2	05/12/11	5835.13	Transducer	985.3	995.2	Regional
R-44 S2	05/11/11	5835.38	Transducer	985.3	995.2	Regional
R-44 S2	05/10/11	5835.38	Transducer	985.3	995.2	Regional
R-44 S2	05/09/11	5835.36	Transducer	985.3	995.2	Regional
R-44 S2	05/08/11	5835.26	Transducer	985.3	995.2	Regional
R-44 S2	05/07/11	5835.22	Transducer	985.3	995.2	Regional
R-44 S2	05/06/11	5835.08	Transducer	985.3	995.2	Regional
R-44 S2	05/05/11	5835.05	Transducer	985.3	995.2	Regional
R-44 S2	05/04/11	5835.01	Transducer	985.3	995.2	Regional
R-44 S2	05/03/11	5834.91	Transducer	985.3	995.2	Regional
R-44 S2	05/02/11	5835.06	Transducer	985.3	995.2	Regional
R-44 S2	05/01/11	5835.35	Transducer	985.3	995.2	Regional
R-44 S2	04/30/11	5835.46	Transducer	985.3	995.2	Regional
R-44 S2	04/29/11	5835.34	Transducer	985.3	995.2	Regional
R-44 S2	04/28/11	5835.14	Transducer	985.3	995.2	Regional
R-44 S2	04/27/11	5835.51	Transducer	985.3	995.2	Regional
R-44 S2	04/26/11	5835.59	Transducer	985.3	995.2	Regional
R-44 S2	04/25/11	5835.53	Transducer	985.3	995.2	Regional
R-44 S2	04/24/11	5835.52	Transducer	985.3	995.2	Regional
R-44 S2	04/23/11	5835.6	Transducer	985.3	995.2	Regional
R-44 S2	04/22/11	5835.64	Transducer	985.3	995.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S2	04/21/11	5835.59	Transducer	985.3	995.2	Regional
R-44 S2	04/20/11	5835.61	Transducer	985.3	995.2	Regional
R-44 S2	04/19/11	5835.8	Transducer	985.3	995.2	Regional
R-44 S2	04/18/11	5835.7	Transducer	985.3	995.2	Regional
R-44 S2	04/17/11	5835.63	Transducer	985.3	995.2	Regional
R-44 S2	04/16/11	5835.54	Transducer	985.3	995.2	Regional
R-44 S2	04/15/11	5835.6	Transducer	985.3	995.2	Regional
R-44 S2	04/14/11	5835.74	Transducer	985.3	995.2	Regional
R-44 S2	04/13/11	5835.64	Transducer	985.3	995.2	Regional
R-44 S2	04/12/11	5835.46	Transducer	985.3	995.2	Regional
R-44 S2	04/11/11	5835.49	Transducer	985.3	995.2	Regional
R-44 S2	04/10/11	5835.74	Transducer	985.3	995.2	Regional
R-44 S2	04/09/11	5835.81	Transducer	985.3	995.2	Regional
R-44 S2	04/08/11	5835.81	Transducer	985.3	995.2	Regional
R-44 S2	04/07/11	5835.69	Transducer	985.3	995.2	Regional
R-44 S2	04/06/11	5835.72	Transducer	985.3	995.2	Regional
R-44 S2	04/05/11	5835.48	Transducer	985.3	995.2	Regional
R-44 S2	04/04/11	5835.67	Transducer	985.3	995.2	Regional
R-44 S2	04/03/11	5835.73	Transducer	985.3	995.2	Regional
R-44 S2	04/02/11	5835.57	Transducer	985.3	995.2	Regional
R-44 S2	04/01/11	5835.64	Transducer	985.3	995.2	Regional
R-44 S2	03/31/11	5835.63	Transducer	985.3	995.2	Regional
R-44 S2	03/30/11	5835.57	Transducer	985.3	995.2	Regional
R-44 S2	03/29/11	5835.74	Transducer	985.3	995.2	Regional
R-44 S2	03/28/11	5835.77	Transducer	985.3	995.2	Regional
R-44 S2	03/27/11	5835.87	Transducer	985.3	995.2	Regional
R-44 S2	03/26/11	5835.84	Transducer	985.3	995.2	Regional
R-44 S2	03/25/11	5835.72	Transducer	985.3	995.2	Regional
R-44 S2	03/24/11	5835.7	Transducer	985.3	995.2	Regional
R-44 S2	03/23/11	5835.7	Transducer	985.3	995.2	Regional
R-44 S2	03/22/11	5835.88	Transducer	985.3	995.2	Regional
R-44 S2	03/21/11	5835.67	Transducer	985.3	995.2	Regional
R-44 S2	03/20/11	5835.65	Transducer	985.3	995.2	Regional
R-44 S2	03/19/11	5835.53	Transducer	985.3	995.2	Regional
R-44 S2	03/18/11	5835.57	Transducer	985.3	995.2	Regional
R-44 S2	03/17/11	5835.63	Transducer	985.3	995.2	Regional
R-44 S2	03/16/11	5835.55	Transducer	985.3	995.2	Regional
R-44 S2	03/15/11	5835.56	Transducer	985.3	995.2	Regional
R-44 S2	03/14/11	5835.42	Transducer	985.3	995.2	Regional
R-44 S2	03/13/11	5835.63	Transducer	985.3	995.2	Regional
R-44 S2	03/12/11	5835.61	Transducer	985.3	995.2	Regional
R-44 S2	03/11/11	5835.48	Transducer	985.3	995.2	Regional
R-44 S2	03/10/11	5835.29	Transducer	985.3	995.2	Regional
R-44 S2	03/09/11	5835.53	Transducer	985.3	995.2	Regional
R-44 S2	03/08/11	5835.97	Transducer	985.3	995.2	Regional
R-44 S2	03/07/11	5835.85	Transducer	985.3	995.2	Regional
R-44 S2	03/06/11	5835.5	Transducer	985.3	995.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S2	03/05/11	5835.35	Transducer	985.3	995.2	Regional
R-44 S2	03/04/11	5835.64	Transducer	985.3	995.2	Regional
R-44 S2	03/03/11	5835.51	Transducer	985.3	995.2	Regional
R-44 S2	03/02/11	5835.44	Transducer	985.3	995.2	Regional
R-44 S2	03/01/11	5835.34	Transducer	985.3	995.2	Regional
R-44 S2	02/28/11	5835.6	Transducer	985.3	995.2	Regional
R-44 S2	02/27/11	5835.89	Transducer	985.3	995.2	Regional
R-44 S2	02/26/11	5835.77	Transducer	985.3	995.2	Regional
R-44 S2	02/25/11	5835.63	Transducer	985.3	995.2	Regional
R-44 S2	02/24/11	5835.79	Transducer	985.3	995.2	Regional
R-44 S2	02/23/11	5835.69	Transducer	985.3	995.2	Regional
R-44 S2	02/22/11	5835.68	Transducer	985.3	995.2	Regional
R-44 S2	02/21/11	5835.79	Transducer	985.3	995.2	Regional
R-44 S2	02/20/11	5835.85	Transducer	985.3	995.2	Regional
R-44 S2	02/19/11	5835.51	Transducer	985.3	995.2	Regional
R-44 S2	02/18/11	5835.56	Transducer	985.3	995.2	Regional
R-44 S2	02/17/11	5835.76	Transducer	985.3	995.2	Regional
R-44 S2	02/16/11	5835.56	Transducer	985.3	995.2	Regional
R-44 S2	02/15/11	5835.5	Transducer	985.3	995.2	Regional
R-44 S2	02/14/11	5835.39	Transducer	985.3	995.2	Regional
R-44 S2	02/13/11	5835.29	Transducer	985.3	995.2	Regional
R-44 S2	02/12/11	5835.29	Transducer	985.3	995.2	Regional
R-44 S2	02/11/11	5835.52	Transducer	985.3	995.2	Regional
R-44 S2	02/10/11	5835.53	Transducer	985.3	995.2	Regional
R-44 S2	02/09/11	5835.64	Transducer	985.3	995.2	Regional
R-44 S2	02/08/11	5835.79	Transducer	985.3	995.2	Regional
R-44 S2	02/07/11	5835.42	Transducer	985.3	995.2	Regional
R-44 S2	02/06/11	5835.75	Transducer	985.3	995.2	Regional
R-44 S2	02/05/11	5835.62	Transducer	985.3	995.2	Regional
R-44 S2	02/04/11	5835.52	Transducer	985.3	995.2	Regional
R-44 S2	02/03/11	5835.41	Transducer	985.3	995.2	Regional
R-44 S2	02/02/11	5835.63	Transducer	985.3	995.2	Regional
R-44 S2	02/01/11	5835.8	Transducer	985.3	995.2	Regional
R-44 S2	01/31/11	5835.69	Transducer	985.3	995.2	Regional
R-44 S2	01/30/11	5835.59	Transducer	985.3	995.2	Regional
R-44 S2	01/29/11	5835.58	Transducer	985.3	995.2	Regional
R-44 S2	01/28/11	5835.42	Transducer	985.3	995.2	Regional
R-44 S2	01/27/11	5835.38	Transducer	985.3	995.2	Regional
R-44 S2	01/26/11	5835.54	Transducer	985.3	995.2	Regional
R-44 S2	01/25/11	5835.43	Transducer	985.3	995.2	Regional
R-44 S2	01/24/11	5835.59	Transducer	985.3	995.2	Regional
R-44 S2	01/23/11	5835.65	Transducer	985.3	995.2	Regional
R-44 S2	01/22/11	5835.52	Transducer	985.3	995.2	Regional
R-44 S2	01/21/11	5835.5	Transducer	985.3	995.2	Regional
R-44 S2	01/20/11	5835.65	Transducer	985.3	995.2	Regional
R-44 S2	01/19/11	5835.59	Transducer	985.3	995.2	Regional
R-44 S2	01/18/11	5835.64	Transducer	985.3	995.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S2	01/17/11	5835.55	Transducer	985.3	995.2	Regional
R-44 S2	01/16/11	5835.47	Transducer	985.3	995.2	Regional
R-44 S2	01/15/11	5835.31	Transducer	985.3	995.2	Regional
R-44 S2	01/14/11	5835.39	Transducer	985.3	995.2	Regional
R-44 S2	01/13/11	5835.26	Transducer	985.3	995.2	Regional
R-44 S2	01/12/11	5835.26	Transducer	985.3	995.2	Regional
R-44 S2	01/11/11	5835.34	Transducer	985.3	995.2	Regional
R-44 S2	01/10/11	5835.78	Transducer	985.3	995.2	Regional
R-44 S2	01/09/11	5835.8	Transducer	985.3	995.2	Regional
R-44 S2	01/08/11	5835.6	Transducer	985.3	995.2	Regional
R-44 S2	01/07/11	5835.42	Transducer	985.3	995.2	Regional
R-44 S2	01/06/11	5835.3	Transducer	985.3	995.2	Regional
R-44 S2	01/05/11	5835.38	Transducer	985.3	995.2	Regional
R-44 S2	01/04/11	5835.45	Transducer	985.3	995.2	Regional
R-44 S2	01/03/11	5835.42	Transducer	985.3	995.2	Regional
R-44 S2	01/02/11	5835.31	Transducer	985.3	995.2	Regional
R-44 S2	01/01/11	5835.63	Transducer	985.3	995.2	Regional
R-44 S2	12/31/10	5836.12	Transducer	985.3	995.2	Regional
R-44 S2	12/30/10	5836.08	Transducer	985.3	995.2	Regional
R-44 S2	12/29/10	5835.66	Transducer	985.3	995.2	Regional
R-44 S2	12/28/10	5835.49	Transducer	985.3	995.2	Regional
R-44 S2	12/27/10	5835.5	Transducer	985.3	995.2	Regional
R-44 S2	12/26/10	5835.29	Transducer	985.3	995.2	Regional
R-44 S2	12/25/10	5835.24	Transducer	985.3	995.2	Regional
R-44 S2	12/24/10	5835.44	Transducer	985.3	995.2	Regional
R-44 S2	12/23/10	5835.42	Transducer	985.3	995.2	Regional
R-44 S2	12/22/10	5835.34	Transducer	985.3	995.2	Regional
R-44 S2	12/21/10	5835.5	Transducer	985.3	995.2	Regional
R-44 S2	12/20/10	5835.61	Transducer	985.3	995.2	Regional
R-44 S2	12/19/10	5835.57	Transducer	985.3	995.2	Regional
R-44 S2	12/18/10	5835.55	Transducer	985.3	995.2	Regional
R-44 S2	12/17/10	5835.67	Transducer	985.3	995.2	Regional
R-44 S2	12/16/10	5835.69	Transducer	985.3	995.2	Regional
R-44 S2	12/15/10	5835.69	Transducer	985.3	995.2	Regional
R-44 S2	12/14/10	5835.43	Transducer	985.3	995.2	Regional
R-44 S2	12/13/10	5835.28	Transducer	985.3	995.2	Regional
R-44 S2	12/12/10	5835.3	Transducer	985.3	995.2	Regional
R-44 S2	12/11/10	5835.52	Transducer	985.3	995.2	Regional
R-44 S2	12/10/10	5835.45	Transducer	985.3	995.2	Regional
R-44 S2	12/09/10	5835.35	Transducer	985.3	995.2	Regional
R-44 S2	12/08/10	5835.21	Transducer	985.3	995.2	Regional
R-44 S2	12/07/10	5835.35	Transducer	985.3	995.2	Regional
R-44 S2	12/06/10	5835.18	Transducer	985.3	995.2	Regional
R-44 S2	12/05/10	5835.24	Transducer	985.3	995.2	Regional
R-44 S2	12/04/10	5835.3	Transducer	985.3	995.2	Regional
R-44 S2	12/03/10	5835.24	Transducer	985.3	995.2	Regional
R-44 S2	12/02/10	5835.24	Transducer	985.3	995.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-44 S2	12/01/10	5835.15	Transducer	985.3	995.2	Regional
R-44 S2	11/30/10	5835.3	Transducer	985.3	995.2	Regional
R-44 S2	11/29/10	5835.79	Transducer	985.3	995.2	Regional
R-44 S2	11/28/10	5835.62	Transducer	985.3	995.2	Regional
R-44 S2	11/27/10	5835.27	Transducer	985.3	995.2	Regional
R-44 S2	11/26/10	5835.28	Transducer	985.3	995.2	Regional
R-44 S2	11/25/10	5835.63	Transducer	985.3	995.2	Regional
R-44 S2	11/24/10	5835.64	Transducer	985.3	995.2	Regional
R-44 S2	11/23/10	5835.34	Transducer	985.3	995.2	Regional
R-44 S2	11/22/10	5835.6	Transducer	985.3	995.2	Regional
R-44 S2	11/21/10	5835.52	Transducer	985.3	995.2	Regional
R-44 S2	11/20/10	5835.41	Transducer	985.3	995.2	Regional
R-44 S2	11/19/10	5835.26	Transducer	985.3	995.2	Regional
R-44 S2	11/18/10	5835.1	Transducer	985.3	995.2	Regional
R-44 S2	11/17/10	5835.58	Transducer	985.3	995.2	Regional
R-44 S2	11/16/10	5835.45	Transducer	985.3	995.2	Regional
R-44 S2	11/15/10	5835.61	Transducer	985.3	995.2	Regional
R-44 S2	11/14/10	5835.41	Transducer	985.3	995.2	Regional
R-44 S2	11/13/10	5835.19	Transducer	985.3	995.2	Regional
R-44 S2	11/12/10	5835.25	Transducer	985.3	995.2	Regional
R-44 S2	11/11/10	5835.5	Transducer	985.3	995.2	Regional
R-44 S2	11/10/10	5835.51	Transducer	985.3	995.2	Regional
R-44 S2	11/09/10	5835.62	Transducer	985.3	995.2	Regional
R-44 S2	11/08/10	5835.34	Transducer	985.3	995.2	Regional
R-44 S2	11/07/10	5835.22	Transducer	985.3	995.2	Regional
R-44 S2	11/06/10	5835.21	Transducer	985.3	995.2	Regional
R-44 S2	11/05/10	5835.15	Transducer	985.3	995.2	Regional
R-44 S2	11/04/10	5834.97	Transducer	985.3	995.2	Regional
R-44 S2	11/03/10	5835.01	Transducer	985.3	995.2	Regional
R-44 S2	11/02/10	5834.97	Transducer	985.3	995.2	Regional
R-44 S2	11/01/10	5835.19	Transducer	985.3	995.2	Regional
R-44 S2	10/31/10	5835.28	Transducer	985.3	995.2	Regional
R-44 S2	10/30/10	5835.13	Transducer	985.3	995.2	Regional
R-45 S1	11/15/12	5834.18	Transducer	880	890	Regional
R-45 S1	11/14/12	5834.1	Transducer	880	890	Regional
R-45 S1	11/13/12	5834.08	Transducer	880	890	Regional
R-45 S1	11/12/12	5834.08	Transducer	880	890	Regional
R-45 S1	11/11/12	5834.55	Transducer	880	890	Regional
R-45 S1	11/10/12	5834.58	Transducer	880	890	Regional
R-45 S1	11/09/12	5834.43	Transducer	880	890	Regional
R-45 S1	11/08/12	5834.3	Transducer	880	890	Regional
R-45 S1	11/07/12	5834.13	Transducer	880	890	Regional
R-45 S1	11/06/12	5834.15	Transducer	880	890	Regional
R-45 S1	11/05/12	5834.11	Transducer	880	890	Regional
R-45 S1	11/04/12	5834.14	Transducer	880	890	Regional
R-45 S1	11/03/12	5834.25	Transducer	880	890	Regional
R-45 S1	11/02/12	5834.3	Transducer	880	890	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S1	11/01/12	5834.18	Transducer	880	890	Regional
R-45 S1	10/31/12	5834.2	Transducer	880	890	Regional
R-45 S1	10/30/12	5834.18	Transducer	880	890	Regional
R-45 S1	10/29/12	5834.16	Transducer	880	890	Regional
R-45 S1	10/28/12	5834.22	Transducer	880	890	Regional
R-45 S1	10/27/12	5834.12	Transducer	880	890	Regional
R-45 S1	10/26/12	5834.16	Transducer	880	890	Regional
R-45 S1	10/25/12	5834.38	Transducer	880	890	Regional
R-45 S1	10/24/12	5834.36	Transducer	880	890	Regional
R-45 S1	10/23/12	5834.34	Transducer	880	890	Regional
R-45 S1	10/22/12	5834.38	Transducer	880	890	Regional
R-45 S1	10/21/12	5834.44	Transducer	880	890	Regional
R-45 S1	10/20/12	5834.34	Transducer	880	890	Regional
R-45 S1	10/19/12	5834.25	Transducer	880	890	Regional
R-45 S1	10/18/12	5834.33	Transducer	880	890	Regional
R-45 S1	10/17/12	5834.52	Transducer	880	890	Regional
R-45 S1	10/16/12	5834.35	Transducer	880	890	Regional
R-45 S1	10/15/12	5834.15	Transducer	880	890	Regional
R-45 S1	10/14/12	5834.18	Transducer	880	890	Regional
R-45 S1	10/13/12	5834.35	Transducer	880	890	Regional
R-45 S1	10/12/12	5834.25	Transducer	880	890	Regional
R-45 S1	10/11/12	5834.29	Transducer	880	890	Regional
R-45 S1	10/10/12	5834.27	Transducer	880	890	Regional
R-45 S1	10/09/12	5834.36	Transducer	880	890	Regional
R-45 S1	10/08/12	5834.33	Transducer	880	890	Regional
R-45 S1	10/07/12	5834.32	Transducer	880	890	Regional
R-45 S1	10/06/12	5834.37	Transducer	880	890	Regional
R-45 S1	10/05/12	5834.31	Transducer	880	890	Regional
R-45 S1	10/04/12	5834.3	Transducer	880	890	Regional
R-45 S1	10/03/12	5834.41	Transducer	880	890	Regional
R-45 S1	10/02/12	5834.25	Transducer	880	890	Regional
R-45 S1	10/01/12	5834.26	Transducer	880	890	Regional
R-45 S1	09/30/12	5834.27	Transducer	880	890	Regional
R-45 S1	09/29/12	5834.28	Transducer	880	890	Regional
R-45 S1	09/28/12	5834.29	Transducer	880	890	Regional
R-45 S1	09/27/12	5834.32	Transducer	880	890	Regional
R-45 S1	09/26/12	5834.43	Transducer	880	890	Regional
R-45 S1	09/25/12	5834.36	Transducer	880	890	Regional
R-45 S1	09/24/12	5834.27	Transducer	880	890	Regional
R-45 S1	09/23/12	5834.25	Transducer	880	890	Regional
R-45 S1	09/22/12	5834.28	Transducer	880	890	Regional
R-45 S1	09/21/12	5834.33	Transducer	880	890	Regional
R-45 S1	09/20/12	5834.3	Transducer	880	890	Regional
R-45 S1	09/19/12	5834.29	Transducer	880	890	Regional
R-45 S1	09/18/12	5834.29	Transducer	880	890	Regional
R-45 S1	09/17/12	5834.43	Transducer	880	890	Regional
R-45 S1	09/16/12	5834.31	Transducer	880	890	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S1	09/15/12	5834.14	Transducer	880	890	Regional
R-45 S1	09/14/12	5834.06	Transducer	880	890	Regional
R-45 S1	09/13/12	5834.24	Transducer	880	890	Regional
R-45 S1	09/12/12	5834.39	Transducer	880	890	Regional
R-45 S1	09/11/12	5834.37	Transducer	880	890	Regional
R-45 S1	09/10/12	5834.26	Transducer	880	890	Regional
R-45 S1	09/09/12	5834.18	Transducer	880	890	Regional
R-45 S1	09/08/12	5834.19	Transducer	880	890	Regional
R-45 S1	09/07/12	5834.38	Transducer	880	890	Regional
R-45 S1	09/06/12	5834.35	Transducer	880	890	Regional
R-45 S1	09/05/12	5834.39	Transducer	880	890	Regional
R-45 S1	09/04/12	5834.32	Transducer	880	890	Regional
R-45 S1	09/03/12	5834.35	Transducer	880	890	Regional
R-45 S1	09/02/12	5834.32	Transducer	880	890	Regional
R-45 S1	09/01/12	5834.31	Transducer	880	890	Regional
R-45 S1	08/31/12	5834.37	Transducer	880	890	Regional
R-45 S1	08/30/12	5834.35	Transducer	880	890	Regional
R-45 S1	08/29/12	5834.26	Transducer	880	890	Regional
R-45 S1	08/28/12	5834.18	Transducer	880	890	Regional
R-45 S1	08/27/12	5834.23	Transducer	880	890	Regional
R-45 S1	08/26/12	5834.37	Transducer	880	890	Regional
R-45 S1	08/25/12	5834.5	Transducer	880	890	Regional
R-45 S1	08/24/12	5834.47	Transducer	880	890	Regional
R-45 S1	08/23/12	5834.39	Transducer	880	890	Regional
R-45 S1	08/22/12	5834.34	Transducer	880	890	Regional
R-45 S1	08/21/12	5834.39	Transducer	880	890	Regional
R-45 S1	08/20/12	5834.37	Transducer	880	890	Regional
R-45 S1	08/19/12	5834.41	Transducer	880	890	Regional
R-45 S1	08/18/12	5834.38	Transducer	880	890	Regional
R-45 S1	08/17/12	5834.31	Transducer	880	890	Regional
R-45 S1	08/16/12	5834.45	Transducer	880	890	Regional
R-45 S1	08/15/12	5834.47	Transducer	880	890	Regional
R-45 S1	08/14/12	5834.38	Transducer	880	890	Regional
R-45 S1	08/13/12	5834.28	Transducer	880	890	Regional
R-45 S1	08/12/12	5834.42	Transducer	880	890	Regional
R-45 S1	08/11/12	5834.4	Transducer	880	890	Regional
R-45 S1	08/10/12	5834.33	Transducer	880	890	Regional
R-45 S1	08/09/12	5834.28	Transducer	880	890	Regional
R-45 S1	08/08/12	5834.32	Transducer	880	890	Regional
R-45 S1	08/07/12	5834.33	Transducer	880	890	Regional
R-45 S1	08/06/12	5834.14	Transducer	880	890	Regional
R-45 S1	08/05/12	5834.24	Transducer	880	890	Regional
R-45 S1	08/04/12	5834.45	Transducer	880	890	Regional
R-45 S1	08/03/12	5834.37	Transducer	880	890	Regional
R-45 S1	08/02/12	5834.4	Transducer	880	890	Regional
R-45 S1	08/01/12	5834.33	Transducer	880	890	Regional
R-45 S1	07/31/12	5834.38	Transducer	880	890	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S1	07/30/12	5834.38	Transducer	880	890	Regional
R-45 S1	07/29/12	5834.3	Transducer	880	890	Regional
R-45 S1	07/28/12	5834.29	Transducer	880	890	Regional
R-45 S1	07/27/12	5834.36	Transducer	880	890	Regional
R-45 S1	07/26/12	5834.49	Transducer	880	890	Regional
R-45 S1	07/25/12	5834.49	Transducer	880	890	Regional
R-45 S1	07/24/12	5834.38	Transducer	880	890	Regional
R-45 S1	07/23/12	5834.35	Transducer	880	890	Regional
R-45 S1	07/22/12	5834.33	Transducer	880	890	Regional
R-45 S1	07/21/12	5834.29	Transducer	880	890	Regional
R-45 S1	07/20/12	5834.28	Transducer	880	890	Regional
R-45 S1	07/19/12	5834.34	Transducer	880	890	Regional
R-45 S1	07/18/12	5834.46	Transducer	880	890	Regional
R-45 S1	07/17/12	5834.52	Transducer	880	890	Regional
R-45 S1	07/16/12	5834.47	Transducer	880	890	Regional
R-45 S1	07/15/12	5834.42	Transducer	880	890	Regional
R-45 S1	07/14/12	5834.38	Transducer	880	890	Regional
R-45 S1	07/13/12	5834.38	Transducer	880	890	Regional
R-45 S1	07/12/12	5834.38	Transducer	880	890	Regional
R-45 S1	07/11/12	5834.32	Transducer	880	890	Regional
R-45 S1	07/10/12	5834.32	Transducer	880	890	Regional
R-45 S1	07/09/12	5834.32	Transducer	880	890	Regional
R-45 S1	07/08/12	5834.29	Transducer	880	890	Regional
R-45 S1	07/07/12	5834.33	Transducer	880	890	Regional
R-45 S1	07/06/12	5834.4	Transducer	880	890	Regional
R-45 S1	07/05/12	5834.46	Transducer	880	890	Regional
R-45 S1	07/04/12	5834.5	Transducer	880	890	Regional
R-45 S1	07/03/12	5834.47	Transducer	880	890	Regional
R-45 S1	07/02/12	5834.49	Transducer	880	890	Regional
R-45 S1	07/01/12	5834.51	Transducer	880	890	Regional
R-45 S1	06/30/12	5834.51	Transducer	880	890	Regional
R-45 S1	06/29/12	5834.37	Transducer	880	890	Regional
R-45 S1	06/28/12	5834.39	Transducer	880	890	Regional
R-45 S1	06/27/12	5834.51	Transducer	880	890	Regional
R-45 S1	06/26/12	5834.46	Transducer	880	890	Regional
R-45 S1	06/25/12	5834.37	Transducer	880	890	Regional
R-45 S1	06/24/12	5834.44	Transducer	880	890	Regional
R-45 S1	06/23/12	5834.56	Transducer	880	890	Regional
R-45 S1	06/22/12	5834.4	Transducer	880	890	Regional
R-45 S1	06/21/12	5834.48	Transducer	880	890	Regional
R-45 S1	06/20/12	5834.7	Transducer	880	890	Regional
R-45 S1	06/19/12	5834.7	Transducer	880	890	Regional
R-45 S1	06/18/12	5834.7	Transducer	880	890	Regional
R-45 S1	06/18/12	5834.7	Manual	880	890	Regional
R-45 S1	06/18/12	5834.402	Transducer	880	890	Regional
R-45 S1	06/17/12	5834.129	Transducer	880	890	Regional
R-45 S1	06/16/12	5834.275	Transducer	880	890	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S1	06/15/12	5834.406	Transducer	880	890	Regional
R-45 S1	06/14/12	5834.425	Transducer	880	890	Regional
R-45 S1	06/13/12	5834.324	Transducer	880	890	Regional
R-45 S1	06/12/12	5834.196	Transducer	880	890	Regional
R-45 S1	06/11/12	5834.323	Transducer	880	890	Regional
R-45 S1	06/10/12	5834.523	Transducer	880	890	Regional
R-45 S1	06/09/12	5834.487	Transducer	880	890	Regional
R-45 S1	06/08/12	5834.355	Transducer	880	890	Regional
R-45 S1	06/07/12	5834.465	Transducer	880	890	Regional
R-45 S1	06/06/12	5834.437	Transducer	880	890	Regional
R-45 S1	06/05/12	5834.354	Transducer	880	890	Regional
R-45 S1	06/04/12	5834.339	Transducer	880	890	Regional
R-45 S1	06/03/12	5834.42	Transducer	880	890	Regional
R-45 S1	06/02/12	5834.457	Transducer	880	890	Regional
R-45 S1	06/01/12	5834.397	Transducer	880	890	Regional
R-45 S1	05/31/12	5834.452	Transducer	880	890	Regional
R-45 S1	05/30/12	5834.433	Transducer	880	890	Regional
R-45 S1	05/29/12	5834.377	Transducer	880	890	Regional
R-45 S1	05/28/12	5834.411	Transducer	880	890	Regional
R-45 S1	05/27/12	5834.536	Transducer	880	890	Regional
R-45 S1	05/26/12	5834.581	Transducer	880	890	Regional
R-45 S1	05/25/12	5834.713	Transducer	880	890	Regional
R-45 S1	05/24/12	5834.871	Transducer	880	890	Regional
R-45 S1	05/23/12	5834.698	Transducer	880	890	Regional
R-45 S1	05/22/12	5834.4	Transducer	880	890	Regional
R-45 S1	05/21/12	5834.289	Transducer	880	890	Regional
R-45 S1	05/20/12	5834.463	Transducer	880	890	Regional
R-45 S1	05/19/12	5834.703	Transducer	880	890	Regional
R-45 S1	05/18/12	5834.718	Transducer	880	890	Regional
R-45 S1	05/17/12	5834.546	Transducer	880	890	Regional
R-45 S1	05/16/12	5834.379	Transducer	880	890	Regional
R-45 S1	05/15/12	5834.354	Transducer	880	890	Regional
R-45 S1	05/14/12	5834.369	Transducer	880	890	Regional
R-45 S1	05/13/12	5834.288	Transducer	880	890	Regional
R-45 S1	05/12/12	5834.356	Transducer	880	890	Regional
R-45 S1	05/11/12	5834.645	Transducer	880	890	Regional
R-45 S1	05/10/12	5834.551	Transducer	880	890	Regional
R-45 S1	05/09/12	5834.411	Transducer	880	890	Regional
R-45 S1	05/08/12	5834.435	Transducer	880	890	Regional
R-45 S1	05/07/12	5834.547	Transducer	880	890	Regional
R-45 S1	05/06/12	5834.614	Transducer	880	890	Regional
R-45 S1	05/05/12	5834.597	Transducer	880	890	Regional
R-45 S1	05/04/12	5834.567	Transducer	880	890	Regional
R-45 S1	05/03/12	5834.647	Transducer	880	890	Regional
R-45 S1	05/02/12	5834.715	Transducer	880	890	Regional
R-45 S1	05/01/12	5834.712	Transducer	880	890	Regional
R-45 S1	04/30/12	5834.612	Transducer	880	890	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S1	04/29/12	5834.711	Transducer	880	890	Regional
R-45 S1	04/28/12	5834.737	Transducer	880	890	Regional
R-45 S1	04/27/12	5834.789	Transducer	880	890	Regional
R-45 S1	04/26/12	5834.602	Transducer	880	890	Regional
R-45 S1	04/25/12	5834.674	Transducer	880	890	Regional
R-45 S1	04/24/12	5834.591	Transducer	880	890	Regional
R-45 S1	04/23/12	5834.453	Transducer	880	890	Regional
R-45 S1	04/22/12	5834.503	Transducer	880	890	Regional
R-45 S1	04/21/12	5834.545	Transducer	880	890	Regional
R-45 S1	04/20/12	5834.622	Transducer	880	890	Regional
R-45 S1	04/19/12	5834.7	Transducer	880	890	Regional
R-45 S1	04/18/12	5834.554	Transducer	880	890	Regional
R-45 S1	04/17/12	5834.457	Transducer	880	890	Regional
R-45 S1	04/16/12	5834.592	Transducer	880	890	Regional
R-45 S1	04/15/12	5834.955	Transducer	880	890	Regional
R-45 S1	04/14/12	5834.993	Transducer	880	890	Regional
R-45 S1	04/13/12	5834.77	Transducer	880	890	Regional
R-45 S1	04/12/12	5834.808	Transducer	880	890	Regional
R-45 S1	04/11/12	5834.604	Transducer	880	890	Regional
R-45 S1	04/10/12	5834.567	Transducer	880	890	Regional
R-45 S1	04/09/12	5834.485	Transducer	880	890	Regional
R-45 S1	04/08/12	5834.318	Transducer	880	890	Regional
R-45 S1	04/07/12	5834.562	Transducer	880	890	Regional
R-45 S1	04/06/12	5834.721	Transducer	880	890	Regional
R-45 S1	04/05/12	5834.692	Transducer	880	890	Regional
R-45 S1	04/04/12	5834.655	Transducer	880	890	Regional
R-45 S1	04/03/12	5834.834	Transducer	880	890	Regional
R-45 S1	04/02/12	5834.979	Transducer	880	890	Regional
R-45 S1	04/01/12	5834.775	Transducer	880	890	Regional
R-45 S1	03/31/12	5834.659	Transducer	880	890	Regional
R-45 S1	03/30/12	5834.685	Transducer	880	890	Regional
R-45 S1	03/29/12	5834.702	Transducer	880	890	Regional
R-45 S1	03/28/12	5834.63	Transducer	880	890	Regional
R-45 S1	03/27/12	5834.664	Transducer	880	890	Regional
R-45 S1	03/26/12	5834.695	Transducer	880	890	Regional
R-45 S1	03/25/12	5834.568	Transducer	880	890	Regional
R-45 S1	03/24/12	5834.568	Transducer	880	890	Regional
R-45 S1	03/23/12	5834.644	Transducer	880	890	Regional
R-45 S1	03/22/12	5834.71	Transducer	880	890	Regional
R-45 S1	03/21/12	5834.702	Transducer	880	890	Regional
R-45 S1	03/20/12	5835.012	Transducer	880	890	Regional
R-45 S1	03/19/12	5835.039	Transducer	880	890	Regional
R-45 S1	03/18/12	5834.932	Transducer	880	890	Regional
R-45 S1	03/17/12	5834.772	Transducer	880	890	Regional
R-45 S1	03/16/12	5834.638	Transducer	880	890	Regional
R-45 S1	03/15/12	5834.582	Transducer	880	890	Regional
R-45 S1	03/14/12	5834.651	Transducer	880	890	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S1	03/13/12	5834.603	Transducer	880	890	Regional
R-45 S1	03/12/12	5834.753	Transducer	880	890	Regional
R-45 S1	03/11/12	5834.839	Transducer	880	890	Regional
R-45 S1	03/10/12	5834.491	Transducer	880	890	Regional
R-45 S1	03/09/12	5834.28	Transducer	880	890	Regional
R-45 S1	03/08/12	5834.775	Transducer	880	890	Regional
R-45 S1	03/07/12	5835.005	Transducer	880	890	Regional
R-45 S1	03/07/12	5835	Transducer	880	890	Regional
R-45 S1	03/06/12	5834.655	Transducer	880	890	Regional
R-45 S1	03/05/12	5834.454	Transducer	880	890	Regional
R-45 S1	03/04/12	5834.451	Transducer	880	890	Regional
R-45 S1	03/03/12	5834.604	Transducer	880	890	Regional
R-45 S1	03/02/12	5834.868	Transducer	880	890	Regional
R-45 S1	03/01/12	5834.735	Transducer	880	890	Regional
R-45 S1	02/29/12	5834.604	Transducer	880	890	Regional
R-45 S1	02/28/12	5834.754	Transducer	880	890	Regional
R-45 S1	02/27/12	5834.586	Transducer	880	890	Regional
R-45 S1	02/26/12	5834.711	Transducer	880	890	Regional
R-45 S1	02/25/12	5834.421	Transducer	880	890	Regional
R-45 S1	02/24/12	5834.584	Transducer	880	890	Regional
R-45 S1	02/23/12	5834.833	Transducer	880	890	Regional
R-45 S1	02/22/12	5834.557	Transducer	880	890	Regional
R-45 S1	02/21/12	5834.55	Transducer	880	890	Regional
R-45 S1	02/20/12	5834.887	Transducer	880	890	Regional
R-45 S1	02/19/12	5834.704	Transducer	880	890	Regional
R-45 S1	02/18/12	5834.706	Transducer	880	890	Regional
R-45 S1	02/17/12	5834.632	Transducer	880	890	Regional
R-45 S1	02/16/12	5834.638	Transducer	880	890	Regional
R-45 S1	02/15/12	5834.982	Transducer	880	890	Regional
R-45 S1	02/14/12	5834.915	Transducer	880	890	Regional
R-45 S1	02/13/12	5834.997	Transducer	880	890	Regional
R-45 S1	02/12/12	5834.653	Transducer	880	890	Regional
R-45 S1	02/11/12	5834.631	Transducer	880	890	Regional
R-45 S1	02/10/12	5834.63	Transducer	880	890	Regional
R-45 S1	02/09/12	5834.639	Transducer	880	890	Regional
R-45 S1	02/08/12	5834.517	Transducer	880	890	Regional
R-45 S1	02/07/12	5834.715	Transducer	880	890	Regional
R-45 S1	02/06/12	5834.63	Transducer	880	890	Regional
R-45 S1	02/05/12	5834.483	Transducer	880	890	Regional
R-45 S1	02/04/12	5834.594	Transducer	880	890	Regional
R-45 S1	02/03/12	5834.916	Transducer	880	890	Regional
R-45 S1	02/02/12	5834.724	Transducer	880	890	Regional
R-45 S1	02/01/12	5834.629	Transducer	880	890	Regional
R-45 S1	01/31/12	5834.776	Transducer	880	890	Regional
R-45 S1	01/30/12	5834.595	Transducer	880	890	Regional
R-45 S1	01/29/12	5834.442	Transducer	880	890	Regional
R-45 S1	01/28/12	5834.508	Transducer	880	890	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S1	01/27/12	5834.787	Transducer	880	890	Regional
R-45 S1	01/26/12	5834.617	Transducer	880	890	Regional
R-45 S1	01/25/12	5834.623	Transducer	880	890	Regional
R-45 S1	01/24/12	5834.875	Transducer	880	890	Regional
R-45 S1	01/23/12	5834.706	Transducer	880	890	Regional
R-45 S1	01/22/12	5835.141	Transducer	880	890	Regional
R-45 S1	01/21/12	5834.717	Transducer	880	890	Regional
R-45 S1	01/20/12	5834.874	Transducer	880	890	Regional
R-45 S1	01/19/12	5834.701	Transducer	880	890	Regional
R-45 S1	01/18/12	5834.607	Transducer	880	890	Regional
R-45 S1	01/17/12	5834.817	Transducer	880	890	Regional
R-45 S1	01/16/12	5834.831	Transducer	880	890	Regional
R-45 S1	01/15/12	5834.616	Transducer	880	890	Regional
R-45 S1	01/14/12	5834.546	Transducer	880	890	Regional
R-45 S1	01/13/12	5834.72	Transducer	880	890	Regional
R-45 S1	01/12/12	5834.73	Transducer	880	890	Regional
R-45 S1	01/11/12	5834.851	Transducer	880	890	Regional
R-45 S1	01/10/12	5834.661	Transducer	880	890	Regional
R-45 S1	01/09/12	5834.66	Transducer	880	890	Regional
R-45 S1	01/08/12	5834.909	Transducer	880	890	Regional
R-45 S1	01/07/12	5834.798	Transducer	880	890	Regional
R-45 S1	01/06/12	5834.812	Transducer	880	890	Regional
R-45 S1	01/05/12	5834.464	Transducer	880	890	Regional
R-45 S1	01/04/12	5834.545	Transducer	880	890	Regional
R-45 S1	01/03/12	5834.405	Transducer	880	890	Regional
R-45 S1	01/02/12	5834.31	Transducer	880	890	Regional
R-45 S1	01/01/12	5834.458	Transducer	880	890	Regional
R-45 S1	12/31/11	5834.733	Transducer	880	890	Regional
R-45 S1	12/30/11	5834.689	Transducer	880	890	Regional
R-45 S1	12/29/11	5834.603	Transducer	880	890	Regional
R-45 S1	12/28/11	5834.645	Transducer	880	890	Regional
R-45 S1	12/27/11	5834.559	Transducer	880	890	Regional
R-45 S1	12/26/11	5834.605	Transducer	880	890	Regional
R-45 S1	12/25/11	5834.418	Transducer	880	890	Regional
R-45 S1	12/24/11	5834.479	Transducer	880	890	Regional
R-45 S1	12/23/11	5834.564	Transducer	880	890	Regional
R-45 S1	12/22/11	5834.853	Transducer	880	890	Regional
R-45 S1	12/21/11	5834.855	Transducer	880	890	Regional
R-45 S1	12/20/11	5834.808	Transducer	880	890	Regional
R-45 S1	12/19/11	5834.938	Transducer	880	890	Regional
R-45 S1	12/18/11	5834.484	Transducer	880	890	Regional
R-45 S1	12/17/11	5834.369	Transducer	880	890	Regional
R-45 S1	12/16/11	5834.512	Transducer	880	890	Regional
R-45 S1	12/15/11	5834.629	Transducer	880	890	Regional
R-45 S1	12/14/11	5834.845	Transducer	880	890	Regional
R-45 S1	12/13/11	5834.738	Transducer	880	890	Regional
R-45 S1	12/12/11	5834.738	Transducer	880	890	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S1	12/11/11	5834.59	Transducer	880	890	Regional
R-45 S1	12/10/11	5834.434	Transducer	880	890	Regional
R-45 S1	12/09/11	5834.615	Transducer	880	890	Regional
R-45 S1	12/08/11	5834.649	Transducer	880	890	Regional
R-45 S1	12/07/11	5834.514	Transducer	880	890	Regional
R-45 S1	12/06/11	5834.581	Transducer	880	890	Regional
R-45 S1	12/05/11	5834.748	Transducer	880	890	Regional
R-45 S1	12/04/11	5834.706	Transducer	880	890	Regional
R-45 S1	12/03/11	5834.931	Transducer	880	890	Regional
R-45 S1	12/02/11	5834.567	Transducer	880	890	Regional
R-45 S1	12/01/11	5834.878	Transducer	880	890	Regional
R-45 S1	11/30/11	5834.534	Transducer	880	890	Regional
R-45 S1	11/29/11	5834.498	Transducer	880	890	Regional
R-45 S1	11/28/11	5834.385	Transducer	880	890	Regional
R-45 S1	11/27/11	5834.261	Transducer	880	890	Regional
R-45 S1	11/26/11	5834.697	Transducer	880	890	Regional
R-45 S1	11/25/11	5834.653	Transducer	880	890	Regional
R-45 S1	11/24/11	5834.485	Transducer	880	890	Regional
R-45 S1	11/23/11	5834.352	Transducer	880	890	Regional
R-45 S1	11/22/11	5834.502	Transducer	880	890	Regional
R-45 S1	11/21/11	5834.594	Transducer	880	890	Regional
R-45 S1	11/20/11	5834.688	Transducer	880	890	Regional
R-45 S1	11/19/11	5834.866	Transducer	880	890	Regional
R-45 S1	11/18/11	5834.662	Transducer	880	890	Regional
R-45 S1	11/17/11	5834.394	Transducer	880	890	Regional
R-45 S1	11/16/11	5834.682	Transducer	880	890	Regional
R-45 S1	11/15/11	5834.72	Transducer	880	890	Regional
R-45 S1	11/14/11	5834.788	Transducer	880	890	Regional
R-45 S1	11/13/11	5834.805	Transducer	880	890	Regional
R-45 S1	11/12/11	5834.754	Transducer	880	890	Regional
R-45 S1	11/11/11	5834.463	Transducer	880	890	Regional
R-45 S1	11/10/11	5834.251	Transducer	880	890	Regional
R-45 S1	11/09/11	5834.402	Transducer	880	890	Regional
R-45 S1	11/08/11	5834.771	Transducer	880	890	Regional
R-45 S1	11/07/11	5834.699	Transducer	880	890	Regional
R-45 S1	11/06/11	5834.769	Transducer	880	890	Regional
R-45 S1	11/05/11	5834.919	Transducer	880	890	Regional
R-45 S1	11/04/11	5834.585	Transducer	880	890	Regional
R-45 S1	11/03/11	5834.342	Transducer	880	890	Regional
R-45 S1	11/02/11	5834.806	Transducer	880	890	Regional
R-45 S1	11/01/11	5834.589	Transducer	880	890	Regional
R-45 S1	10/31/11	5834.428	Transducer	880	890	Regional
R-45 S1	10/30/11	5834.53	Transducer	880	890	Regional
R-45 S1	10/29/11	5834.43	Transducer	880	890	Regional
R-45 S1	10/28/11	5834.534	Transducer	880	890	Regional
R-45 S1	10/27/11	5834.686	Transducer	880	890	Regional
R-45 S1	10/26/11	5834.621	Transducer	880	890	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S1	10/25/11	5834.54	Transducer	880	890	Regional
R-45 S1	10/24/11	5834.431	Transducer	880	890	Regional
R-45 S1	10/23/11	5834.462	Transducer	880	890	Regional
R-45 S1	10/22/11	5834.45	Transducer	880	890	Regional
R-45 S1	10/21/11	5834.465	Transducer	880	890	Regional
R-45 S1	10/20/11	5834.586	Transducer	880	890	Regional
R-45 S1	10/19/11	5834.411	Transducer	880	890	Regional
R-45 S1	10/18/11	5834.46	Transducer	880	890	Regional
R-45 S1	10/17/11	5834.554	Transducer	880	890	Regional
R-45 S1	10/16/11	5834.44	Transducer	880	890	Regional
R-45 S1	10/15/11	5834.457	Transducer	880	890	Regional
R-45 S1	10/14/11	5834.53	Transducer	880	890	Regional
R-45 S1	10/13/11	5834.441	Transducer	880	890	Regional
R-45 S1	10/12/11	5834.574	Transducer	880	890	Regional
R-45 S1	10/11/11	5834.605	Transducer	880	890	Regional
R-45 S1	10/10/11	5834.517	Transducer	880	890	Regional
R-45 S1	10/09/11	5834.542	Transducer	880	890	Regional
R-45 S1	10/08/11	5834.713	Transducer	880	890	Regional
R-45 S1	10/07/11	5834.719	Transducer	880	890	Regional
R-45 S1	10/06/11	5834.778	Transducer	880	890	Regional
R-45 S1	10/05/11	5834.606	Transducer	880	890	Regional
R-45 S1	10/04/11	5834.468	Transducer	880	890	Regional
R-45 S1	10/03/11	5834.435	Transducer	880	890	Regional
R-45 S1	10/02/11	5834.417	Transducer	880	890	Regional
R-45 S1	10/01/11	5834.408	Transducer	880	890	Regional
R-45 S1	09/30/11	5834.285	Transducer	880	890	Regional
R-45 S1	09/29/11	5834.479	Transducer	880	890	Regional
R-45 S1	09/28/11	5834.408	Transducer	880	890	Regional
R-45 S1	09/27/11	5834.487	Transducer	880	890	Regional
R-45 S1	09/26/11	5834.607	Transducer	880	890	Regional
R-45 S1	09/25/11	5834.575	Transducer	880	890	Regional
R-45 S1	09/24/11	5834.436	Transducer	880	890	Regional
R-45 S1	09/23/11	5834.38	Transducer	880	890	Regional
R-45 S1	09/22/11	5834.488	Transducer	880	890	Regional
R-45 S1	09/21/11	5834.496	Transducer	880	890	Regional
R-45 S1	09/20/11	5834.479	Transducer	880	890	Regional
R-45 S1	09/19/11	5834.383	Transducer	880	890	Regional
R-45 S1	09/18/11	5834.448	Transducer	880	890	Regional
R-45 S1	09/17/11	5834.513	Transducer	880	890	Regional
R-45 S1	09/16/11	5834.526	Transducer	880	890	Regional
R-45 S1	09/15/11	5834.489	Transducer	880	890	Regional
R-45 S1	09/14/11	5834.465	Transducer	880	890	Regional
R-45 S1	09/13/11	5834.373	Transducer	880	890	Regional
R-45 S1	09/12/11	5834.313	Transducer	880	890	Regional
R-45 S1	09/11/11	5834.341	Transducer	880	890	Regional
R-45 S1	09/10/11	5834.378	Transducer	880	890	Regional
R-45 S1	09/09/11	5834.341	Transducer	880	890	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S1	09/08/11	5834.227	Transducer	880	890	Regional
R-45 S1	09/07/11	5834.379	Transducer	880	890	Regional
R-45 S1	09/06/11	5834.38	Transducer	880	890	Regional
R-45 S1	09/05/11	5834.305	Transducer	880	890	Regional
R-45 S1	09/04/11	5834.383	Transducer	880	890	Regional
R-45 S1	09/03/11	5834.498	Transducer	880	890	Regional
R-45 S1	09/02/11	5834.412	Transducer	880	890	Regional
R-45 S1	09/01/11	5834.436	Transducer	880	890	Regional
R-45 S1	08/31/11	5834.51	Transducer	880	890	Regional
R-45 S1	08/30/11	5834.496	Transducer	880	890	Regional
R-45 S1	08/29/11	5834.469	Transducer	880	890	Regional
R-45 S1	08/28/11	5834.399	Transducer	880	890	Regional
R-45 S1	08/27/11	5834.317	Transducer	880	890	Regional
R-45 S1	08/26/11	5834.319	Transducer	880	890	Regional
R-45 S1	08/25/11	5834.34	Transducer	880	890	Regional
R-45 S1	08/24/11	5834.407	Transducer	880	890	Regional
R-45 S1	08/23/11	5834.39	Transducer	880	890	Regional
R-45 S1	08/22/11	5834.299	Transducer	880	890	Regional
R-45 S1	08/21/11	5834.378	Transducer	880	890	Regional
R-45 S1	08/20/11	5834.449	Transducer	880	890	Regional
R-45 S1	08/19/11	5834.493	Transducer	880	890	Regional
R-45 S1	08/19/11	5834.42	Transducer	880	890	Regional
R-45 S1	08/18/11	5834.27	Transducer	880	890	Regional
R-45 S1	08/17/11	5834.31	Transducer	880	890	Regional
R-45 S1	08/16/11	5834.45	Transducer	880	890	Regional
R-45 S1	08/15/11	5834.41	Transducer	880	890	Regional
R-45 S1	08/14/11	5834.26	Transducer	880	890	Regional
R-45 S1	08/13/11	5834.39	Transducer	880	890	Regional
R-45 S1	08/12/11	5834.44	Transducer	880	890	Regional
R-45 S1	08/11/11	5834.45	Transducer	880	890	Regional
R-45 S1	08/10/11	5834.51	Transducer	880	890	Regional
R-45 S1	08/09/11	5834.48	Transducer	880	890	Regional
R-45 S1	08/08/11	5834.48	Transducer	880	890	Regional
R-45 S1	08/07/11	5834.44	Transducer	880	890	Regional
R-45 S1	08/06/11	5834.41	Transducer	880	890	Regional
R-45 S1	08/05/11	5834.41	Transducer	880	890	Regional
R-45 S1	08/04/11	5834.4	Transducer	880	890	Regional
R-45 S1	08/03/11	5834.37	Transducer	880	890	Regional
R-45 S1	08/02/11	5834.34	Transducer	880	890	Regional
R-45 S1	08/01/11	5834.26	Transducer	880	890	Regional
R-45 S1	07/31/11	5834.23	Transducer	880	890	Regional
R-45 S1	07/30/11	5834.23	Transducer	880	890	Regional
R-45 S1	07/29/11	5834.32	Transducer	880	890	Regional
R-45 S1	07/28/11	5834.42	Transducer	880	890	Regional
R-45 S1	07/27/11	5834.44	Transducer	880	890	Regional
R-45 S1	07/26/11	5834.36	Transducer	880	890	Regional
R-45 S1	07/25/11	5834.24	Transducer	880	890	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S1	07/24/11	5834.3	Transducer	880	890	Regional
R-45 S1	07/23/11	5834.41	Transducer	880	890	Regional
R-45 S1	07/22/11	5834.44	Transducer	880	890	Regional
R-45 S1	07/21/11	5834.42	Transducer	880	890	Regional
R-45 S1	07/20/11	5834.37	Transducer	880	890	Regional
R-45 S1	07/19/11	5834.27	Transducer	880	890	Regional
R-45 S1	07/18/11	5834.22	Transducer	880	890	Regional
R-45 S1	07/17/11	5834.31	Transducer	880	890	Regional
R-45 S1	07/16/11	5834.45	Transducer	880	890	Regional
R-45 S1	07/15/11	5834.49	Transducer	880	890	Regional
R-45 S1	07/14/11	5834.46	Transducer	880	890	Regional
R-45 S1	07/13/11	5834.42	Transducer	880	890	Regional
R-45 S1	07/12/11	5834.4	Transducer	880	890	Regional
R-45 S1	07/11/11	5834.41	Transducer	880	890	Regional
R-45 S1	07/10/11	5834.44	Transducer	880	890	Regional
R-45 S1	07/09/11	5834.5	Transducer	880	890	Regional
R-45 S1	07/08/11	5834.46	Transducer	880	890	Regional
R-45 S1	07/07/11	5834.39	Transducer	880	890	Regional
R-45 S1	07/06/11	5834.38	Transducer	880	890	Regional
R-45 S1	07/05/11	5834.38	Transducer	880	890	Regional
R-45 S1	07/04/11	5834.39	Transducer	880	890	Regional
R-45 S1	07/03/11	5834.33	Transducer	880	890	Regional
R-45 S1	07/02/11	5834.4	Transducer	880	890	Regional
R-45 S1	07/01/11	5834.46	Transducer	880	890	Regional
R-45 S1	06/30/11	5834.45	Transducer	880	890	Regional
R-45 S1	06/29/11	5834.37	Transducer	880	890	Regional
R-45 S1	06/28/11	5834.34	Transducer	880	890	Regional
R-45 S1	06/27/11	5834.5	Transducer	880	890	Regional
R-45 S1	06/26/11	5834.51	Transducer	880	890	Regional
R-45 S1	06/25/11	5834.56	Transducer	880	890	Regional
R-45 S1	06/24/11	5834.56	Transducer	880	890	Regional
R-45 S1	06/23/11	5834.48	Transducer	880	890	Regional
R-45 S1	06/22/11	5834.49	Transducer	880	890	Regional
R-45 S1	06/21/11	5834.6	Transducer	880	890	Regional
R-45 S1	06/20/11	5834.76	Transducer	880	890	Regional
R-45 S1	06/19/11	5834.66	Transducer	880	890	Regional
R-45 S1	06/18/11	5834.6	Transducer	880	890	Regional
R-45 S1	06/17/11	5834.74	Transducer	880	890	Regional
R-45 S1	06/16/11	5834.71	Transducer	880	890	Regional
R-45 S1	06/15/11	5834.53	Transducer	880	890	Regional
R-45 S1	06/14/11	5834.58	Transducer	880	890	Regional
R-45 S1	06/13/11	5834.62	Transducer	880	890	Regional
R-45 S1	06/12/11	5834.69	Transducer	880	890	Regional
R-45 S1	06/11/11	5834.63	Transducer	880	890	Regional
R-45 S1	06/10/11	5834.66	Transducer	880	890	Regional
R-45 S1	06/09/11	5834.7	Transducer	880	890	Regional
R-45 S1	06/08/11	5834.69	Transducer	880	890	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S1	06/07/11	5834.7	Transducer	880	890	Regional
R-45 S1	06/06/11	5834.52	Transducer	880	890	Regional
R-45 S1	06/05/11	5834.39	Transducer	880	890	Regional
R-45 S1	06/04/11	5834.57	Transducer	880	890	Regional
R-45 S1	06/03/11	5834.67	Transducer	880	890	Regional
R-45 S1	06/02/11	5834.6	Transducer	880	890	Regional
R-45 S1	06/01/11	5834.39	Transducer	880	890	Regional
R-45 S1	05/31/11	5834.49	Transducer	880	890	Regional
R-45 S1	05/30/11	5834.97	Transducer	880	890	Regional
R-45 S1	05/29/11	5834.97	Transducer	880	890	Regional
R-45 S1	05/28/11	5834.87	Transducer	880	890	Regional
R-45 S1	05/27/11	5834.81	Transducer	880	890	Regional
R-45 S1	05/26/11	5834.65	Transducer	880	890	Regional
R-45 S1	05/25/11	5834.77	Transducer	880	890	Regional
R-45 S1	05/24/11	5834.93	Transducer	880	890	Regional
R-45 S1	05/23/11	5834.83	Transducer	880	890	Regional
R-45 S1	05/22/11	5834.81	Transducer	880	890	Regional
R-45 S1	05/21/11	5834.83	Transducer	880	890	Regional
R-45 S1	05/20/11	5834.94	Transducer	880	890	Regional
R-45 S1	05/19/11	5835.13	Transducer	880	890	Regional
R-45 S1	05/18/11	5835.11	Transducer	880	890	Regional
R-45 S1	05/17/11	5835.03	Transducer	880	890	Regional
R-45 S1	05/16/11	5834.87	Transducer	880	890	Regional
R-45 S1	05/15/11	5834.89	Transducer	880	890	Regional
R-45 S1	05/14/11	5834.76	Transducer	880	890	Regional
R-45 S1	05/13/11	5834.75	Transducer	880	890	Regional
R-45 S1	05/12/11	5834.96	Transducer	880	890	Regional
R-45 S1	05/11/11	5835.23	Transducer	880	890	Regional
R-45 S1	05/10/11	5835.21	Transducer	880	890	Regional
R-45 S1	05/09/11	5835.23	Transducer	880	890	Regional
R-45 S1	05/08/11	5835.12	Transducer	880	890	Regional
R-45 S1	05/07/11	5835.09	Transducer	880	890	Regional
R-45 S1	05/06/11	5834.94	Transducer	880	890	Regional
R-45 S1	05/05/11	5834.9	Transducer	880	890	Regional
R-45 S1	05/04/11	5834.87	Transducer	880	890	Regional
R-45 S1	05/03/11	5834.74	Transducer	880	890	Regional
R-45 S1	05/02/11	5834.88	Transducer	880	890	Regional
R-45 S1	05/01/11	5835.18	Transducer	880	890	Regional
R-45 S1	04/30/11	5835.29	Transducer	880	890	Regional
R-45 S1	04/29/11	5835.19	Transducer	880	890	Regional
R-45 S1	04/28/11	5834.94	Transducer	880	890	Regional
R-45 S1	04/27/11	5835.33	Transducer	880	890	Regional
R-45 S1	04/26/11	5835.41	Transducer	880	890	Regional
R-45 S1	04/25/11	5835.34	Transducer	880	890	Regional
R-45 S1	04/24/11	5835.32	Transducer	880	890	Regional
R-45 S1	04/23/11	5835.38	Transducer	880	890	Regional
R-45 S1	04/22/11	5835.38	Transducer	880	890	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S1	04/21/11	5835.29	Transducer	880	890	Regional
R-45 S1	04/20/11	5835.29	Transducer	880	890	Regional
R-45 S1	04/19/11	5835.51	Transducer	880	890	Regional
R-45 S1	04/18/11	5835.4	Transducer	880	890	Regional
R-45 S1	04/17/11	5835.33	Transducer	880	890	Regional
R-45 S1	04/16/11	5835.23	Transducer	880	890	Regional
R-45 S1	04/15/11	5835.28	Transducer	880	890	Regional
R-45 S1	04/14/11	5835.44	Transducer	880	890	Regional
R-45 S1	04/13/11	5835.33	Transducer	880	890	Regional
R-45 S1	04/12/11	5835.15	Transducer	880	890	Regional
R-45 S1	04/11/11	5835.15	Transducer	880	890	Regional
R-45 S1	04/10/11	5835.41	Transducer	880	890	Regional
R-45 S1	04/09/11	5835.49	Transducer	880	890	Regional
R-45 S1	04/08/11	5835.5	Transducer	880	890	Regional
R-45 S1	04/07/11	5835.39	Transducer	880	890	Regional
R-45 S1	04/06/11	5835.42	Transducer	880	890	Regional
R-45 S1	04/05/11	5835.16	Transducer	880	890	Regional
R-45 S1	04/04/11	5835.33	Transducer	880	890	Regional
R-45 S1	04/03/11	5835.43	Transducer	880	890	Regional
R-45 S1	04/02/11	5835.26	Transducer	880	890	Regional
R-45 S1	04/01/11	5835.33	Transducer	880	890	Regional
R-45 S1	03/31/11	5835.31	Transducer	880	890	Regional
R-45 S1	03/30/11	5835.24	Transducer	880	890	Regional
R-45 S1	03/29/11	5835.42	Transducer	880	890	Regional
R-45 S1	03/28/11	5835.46	Transducer	880	890	Regional
R-45 S1	03/27/11	5835.55	Transducer	880	890	Regional
R-45 S1	03/26/11	5835.51	Transducer	880	890	Regional
R-45 S1	03/25/11	5835.4	Transducer	880	890	Regional
R-45 S1	03/24/11	5835.39	Transducer	880	890	Regional
R-45 S1	03/23/11	5835.38	Transducer	880	890	Regional
R-45 S1	03/22/11	5835.59	Transducer	880	890	Regional
R-45 S1	03/21/11	5835.38	Transducer	880	890	Regional
R-45 S1	03/20/11	5835.35	Transducer	880	890	Regional
R-45 S1	03/19/11	5835.23	Transducer	880	890	Regional
R-45 S1	03/18/11	5835.27	Transducer	880	890	Regional
R-45 S1	03/17/11	5835.33	Transducer	880	890	Regional
R-45 S1	03/16/11	5835.26	Transducer	880	890	Regional
R-45 S1	03/15/11	5835.26	Transducer	880	890	Regional
R-45 S1	03/14/11	5835.1	Transducer	880	890	Regional
R-45 S1	03/13/11	5835.32	Transducer	880	890	Regional
R-45 S1	03/12/11	5835.31	Transducer	880	890	Regional
R-45 S1	03/11/11	5835.18	Transducer	880	890	Regional
R-45 S1	03/10/11	5834.95	Transducer	880	890	Regional
R-45 S1	03/09/11	5835.19	Transducer	880	890	Regional
R-45 S1	03/08/11	5835.67	Transducer	880	890	Regional
R-45 S1	03/07/11	5835.57	Transducer	880	890	Regional
R-45 S1	03/06/11	5835.21	Transducer	880	890	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S1	03/05/11	5835.03	Transducer	880	890	Regional
R-45 S1	03/04/11	5835.35	Transducer	880	890	Regional
R-45 S1	03/03/11	5835.21	Transducer	880	890	Regional
R-45 S1	03/02/11	5835.13	Transducer	880	890	Regional
R-45 S1	03/01/11	5835	Transducer	880	890	Regional
R-45 S1	02/28/11	5835.25	Transducer	880	890	Regional
R-45 S1	02/27/11	5835.59	Transducer	880	890	Regional
R-45 S1	02/26/11	5835.46	Transducer	880	890	Regional
R-45 S1	02/25/11	5835.3	Transducer	880	890	Regional
R-45 S1	02/24/11	5835.48	Transducer	880	890	Regional
R-45 S1	02/23/11	5835.37	Transducer	880	890	Regional
R-45 S1	02/22/11	5835.37	Transducer	880	890	Regional
R-45 S1	02/21/11	5835.49	Transducer	880	890	Regional
R-45 S1	02/20/11	5835.57	Transducer	880	890	Regional
R-45 S1	02/19/11	5835.21	Transducer	880	890	Regional
R-45 S1	02/18/11	5835.25	Transducer	880	890	Regional
R-45 S1	02/17/11	5835.48	Transducer	880	890	Regional
R-45 S1	02/16/11	5835.29	Transducer	880	890	Regional
R-45 S1	02/15/11	5835.23	Transducer	880	890	Regional
R-45 S1	02/14/11	5835.1	Transducer	880	890	Regional
R-45 S1	02/13/11	5834.99	Transducer	880	890	Regional
R-45 S1	02/12/11	5834.97	Transducer	880	890	Regional
R-45 S1	02/11/11	5835.2	Transducer	880	890	Regional
R-45 S1	02/10/11	5835.23	Transducer	880	890	Regional
R-45 S1	02/09/11	5835.31	Transducer	880	890	Regional
R-45 S1	02/08/11	5835.5	Transducer	880	890	Regional
R-45 S1	02/07/11	5835.1	Transducer	880	890	Regional
R-45 S1	02/06/11	5835.45	Transducer	880	890	Regional
R-45 S1	02/05/11	5835.32	Transducer	880	890	Regional
R-45 S1	02/04/11	5835.23	Transducer	880	890	Regional
R-45 S1	02/03/11	5835.1	Transducer	880	890	Regional
R-45 S1	02/02/11	5835.31	Transducer	880	890	Regional
R-45 S1	02/01/11	5835.49	Transducer	880	890	Regional
R-45 S1	01/31/11	5835.39	Transducer	880	890	Regional
R-45 S1	01/30/11	5835.28	Transducer	880	890	Regional
R-45 S1	01/29/11	5835.29	Transducer	880	890	Regional
R-45 S1	01/28/11	5835.11	Transducer	880	890	Regional
R-45 S1	01/27/11	5835.06	Transducer	880	890	Regional
R-45 S1	01/26/11	5835.23	Transducer	880	890	Regional
R-45 S1	01/25/11	5835.12	Transducer	880	890	Regional
R-45 S1	01/24/11	5835.29	Transducer	880	890	Regional
R-45 S1	01/23/11	5835.34	Transducer	880	890	Regional
R-45 S1	01/22/11	5835.23	Transducer	880	890	Regional
R-45 S1	01/21/11	5835.21	Transducer	880	890	Regional
R-45 S1	01/20/11	5835.36	Transducer	880	890	Regional
R-45 S1	01/19/11	5835.31	Transducer	880	890	Regional
R-45 S1	01/18/11	5835.36	Transducer	880	890	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S1	01/17/11	5835.27	Transducer	880	890	Regional
R-45 S1	01/16/11	5835.2	Transducer	880	890	Regional
R-45 S1	01/15/11	5835.02	Transducer	880	890	Regional
R-45 S1	01/14/11	5835.1	Transducer	880	890	Regional
R-45 S1	01/13/11	5834.96	Transducer	880	890	Regional
R-45 S1	01/12/11	5834.95	Transducer	880	890	Regional
R-45 S1	01/11/11	5835.01	Transducer	880	890	Regional
R-45 S1	01/10/11	5835.48	Transducer	880	890	Regional
R-45 S1	01/09/11	5835.53	Transducer	880	890	Regional
R-45 S1	01/08/11	5835.32	Transducer	880	890	Regional
R-45 S1	01/07/11	5835.14	Transducer	880	890	Regional
R-45 S1	01/06/11	5835.01	Transducer	880	890	Regional
R-45 S1	01/05/11	5835.08	Transducer	880	890	Regional
R-45 S1	01/04/11	5835.15	Transducer	880	890	Regional
R-45 S1	01/03/11	5835.12	Transducer	880	890	Regional
R-45 S1	01/02/11	5834.97	Transducer	880	890	Regional
R-45 S1	01/01/11	5835.28	Transducer	880	890	Regional
R-45 S1	12/31/10	5835.82	Transducer	880	890	Regional
R-45 S1	12/30/10	5835.81	Transducer	880	890	Regional
R-45 S1	12/29/10	5835.39	Transducer	880	890	Regional
R-45 S1	12/28/10	5835.21	Transducer	880	890	Regional
R-45 S1	12/27/10	5835.23	Transducer	880	890	Regional
R-45 S1	12/26/10	5835.02	Transducer	880	890	Regional
R-45 S1	12/25/10	5834.95	Transducer	880	890	Regional
R-45 S1	12/24/10	5835.16	Transducer	880	890	Regional
R-45 S1	12/23/10	5835.15	Transducer	880	890	Regional
R-45 S1	12/22/10	5835.05	Transducer	880	890	Regional
R-45 S1	12/21/10	5835.2	Transducer	880	890	Regional
R-45 S1	12/20/10	5835.33	Transducer	880	890	Regional
R-45 S1	12/19/10	5835.27	Transducer	880	890	Regional
R-45 S1	12/18/10	5835.24	Transducer	880	890	Regional
R-45 S1	12/17/10	5835.36	Transducer	880	890	Regional
R-45 S1	12/16/10	5835.39	Transducer	880	890	Regional
R-45 S1	12/15/10	5835.42	Transducer	880	890	Regional
R-45 S1	12/14/10	5835.16	Transducer	880	890	Regional
R-45 S1	12/13/10	5834.99	Transducer	880	890	Regional
R-45 S1	12/12/10	5834.99	Transducer	880	890	Regional
R-45 S1	12/11/10	5835.23	Transducer	880	890	Regional
R-45 S1	12/10/10	5835.18	Transducer	880	890	Regional
R-45 S1	12/09/10	5835.09	Transducer	880	890	Regional
R-45 S1	12/08/10	5834.93	Transducer	880	890	Regional
R-45 S1	12/07/10	5835.1	Transducer	880	890	Regional
R-45 S1	12/06/10	5834.91	Transducer	880	890	Regional
R-45 S1	12/05/10	5834.98	Transducer	880	890	Regional
R-45 S1	12/04/10	5835.02	Transducer	880	890	Regional
R-45 S1	12/03/10	5834.96	Transducer	880	890	Regional
R-45 S1	12/02/10	5834.94	Transducer	880	890	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S1	12/01/10	5834.83	Transducer	880	890	Regional
R-45 S1	11/30/10	5834.95	Transducer	880	890	Regional
R-45 S1	11/29/10	5835.49	Transducer	880	890	Regional
R-45 S1	11/28/10	5835.35	Transducer	880	890	Regional
R-45 S1	11/27/10	5834.96	Transducer	880	890	Regional
R-45 S1	11/26/10	5834.96	Transducer	880	890	Regional
R-45 S1	11/25/10	5835.33	Transducer	880	890	Regional
R-45 S1	11/24/10	5835.37	Transducer	880	890	Regional
R-45 S1	11/23/10	5835.04	Transducer	880	890	Regional
R-45 S1	11/22/10	5835.33	Transducer	880	890	Regional
R-45 S1	11/21/10	5835.25	Transducer	880	890	Regional
R-45 S1	11/20/10	5835.13	Transducer	880	890	Regional
R-45 S1	11/19/10	5834.98	Transducer	880	890	Regional
R-45 S1	11/18/10	5834.78	Transducer	880	890	Regional
R-45 S1	11/17/10	5835.28	Transducer	880	890	Regional
R-45 S1	11/16/10	5835.15	Transducer	880	890	Regional
R-45 S1	11/15/10	5835.34	Transducer	880	890	Regional
R-45 S1	11/14/10	5835.14	Transducer	880	890	Regional
R-45 S1	11/13/10	5834.89	Transducer	880	890	Regional
R-45 S1	11/12/10	5834.96	Transducer	880	890	Regional
R-45 S1	11/11/10	5835.21	Transducer	880	890	Regional
R-45 S1	11/10/10	5835.23	Transducer	880	890	Regional
R-45 S1	11/09/10	5835.36	Transducer	880	890	Regional
R-45 S1	11/08/10	5835.08	Transducer	880	890	Regional
R-45 S1	11/07/10	5834.97	Transducer	880	890	Regional
R-45 S1	11/06/10	5834.96	Transducer	880	890	Regional
R-45 S1	11/05/10	5834.89	Transducer	880	890	Regional
R-45 S1	11/04/10	5834.7	Transducer	880	890	Regional
R-45 S1	11/03/10	5834.73	Transducer	880	890	Regional
R-45 S1	11/02/10	5834.68	Transducer	880	890	Regional
R-45 S1	11/01/10	5834.91	Transducer	880	890	Regional
R-45 S1	10/31/10	5835.01	Transducer	880	890	Regional
R-45 S1	10/30/10	5834.86	Transducer	880	890	Regional
R-45 S2	11/15/12	5833.94	Transducer	974.9	994.9	Regional
R-45 S2	11/14/12	5833.94	Transducer	974.9	994.9	Regional
R-45 S2	11/13/12	5833.94	Transducer	974.9	994.9	Regional
R-45 S2	11/12/12	5833.98	Transducer	974.9	994.9	Regional
R-45 S2	11/11/12	5834.33	Transducer	974.9	994.9	Regional
R-45 S2	11/10/12	5834.22	Transducer	974.9	994.9	Regional
R-45 S2	11/09/12	5834.1	Transducer	974.9	994.9	Regional
R-45 S2	11/08/12	5833.99	Transducer	974.9	994.9	Regional
R-45 S2	11/07/12	5833.88	Transducer	974.9	994.9	Regional
R-45 S2	11/06/12	5834.06	Transducer	974.9	994.9	Regional
R-45 S2	11/05/12	5834.07	Transducer	974.9	994.9	Regional
R-45 S2	11/04/12	5834.06	Transducer	974.9	994.9	Regional
R-45 S2	11/03/12	5834.07	Transducer	974.9	994.9	Regional
R-45 S2	11/02/12	5834.07	Transducer	974.9	994.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S2	11/01/12	5834.07	Transducer	974.9	994.9	Regional
R-45 S2	10/31/12	5834.07	Transducer	974.9	994.9	Regional
R-45 S2	10/30/12	5834.08	Transducer	974.9	994.9	Regional
R-45 S2	10/29/12	5834.08	Transducer	974.9	994.9	Regional
R-45 S2	10/28/12	5834.08	Transducer	974.9	994.9	Regional
R-45 S2	10/27/12	5834.08	Transducer	974.9	994.9	Regional
R-45 S2	10/26/12	5834.09	Transducer	974.9	994.9	Regional
R-45 S2	10/25/12	5834.09	Transducer	974.9	994.9	Regional
R-45 S2	10/24/12	5834.09	Transducer	974.9	994.9	Regional
R-45 S2	10/23/12	5834.09	Transducer	974.9	994.9	Regional
R-45 S2	10/22/12	5834.09	Transducer	974.9	994.9	Regional
R-45 S2	10/21/12	5834.09	Transducer	974.9	994.9	Regional
R-45 S2	10/20/12	5834.09	Transducer	974.9	994.9	Regional
R-45 S2	10/19/12	5834.08	Transducer	974.9	994.9	Regional
R-45 S2	10/18/12	5834.09	Transducer	974.9	994.9	Regional
R-45 S2	10/17/12	5834.09	Transducer	974.9	994.9	Regional
R-45 S2	10/16/12	5834.08	Transducer	974.9	994.9	Regional
R-45 S2	10/15/12	5834.08	Transducer	974.9	994.9	Regional
R-45 S2	10/14/12	5834.09	Transducer	974.9	994.9	Regional
R-45 S2	10/13/12	5834.09	Transducer	974.9	994.9	Regional
R-45 S2	10/12/12	5834.1	Transducer	974.9	994.9	Regional
R-45 S2	10/11/12	5834.09	Transducer	974.9	994.9	Regional
R-45 S2	10/10/12	5834.1	Transducer	974.9	994.9	Regional
R-45 S2	10/09/12	5834.1	Transducer	974.9	994.9	Regional
R-45 S2	10/08/12	5834.1	Transducer	974.9	994.9	Regional
R-45 S2	10/07/12	5834.1	Transducer	974.9	994.9	Regional
R-45 S2	10/06/12	5834.1	Transducer	974.9	994.9	Regional
R-45 S2	10/05/12	5834.1	Transducer	974.9	994.9	Regional
R-45 S2	10/04/12	5834.1	Transducer	974.9	994.9	Regional
R-45 S2	10/03/12	5834.1	Transducer	974.9	994.9	Regional
R-45 S2	10/02/12	5834.1	Transducer	974.9	994.9	Regional
R-45 S2	10/01/12	5834.1	Transducer	974.9	994.9	Regional
R-45 S2	09/30/12	5834.1	Transducer	974.9	994.9	Regional
R-45 S2	09/29/12	5834.11	Transducer	974.9	994.9	Regional
R-45 S2	09/28/12	5834.1	Transducer	974.9	994.9	Regional
R-45 S2	09/27/12	5834.11	Transducer	974.9	994.9	Regional
R-45 S2	09/26/12	5834.11	Transducer	974.9	994.9	Regional
R-45 S2	09/25/12	5834.11	Transducer	974.9	994.9	Regional
R-45 S2	09/24/12	5834.11	Transducer	974.9	994.9	Regional
R-45 S2	09/23/12	5834.11	Transducer	974.9	994.9	Regional
R-45 S2	09/22/12	5834.12	Transducer	974.9	994.9	Regional
R-45 S2	09/21/12	5834.12	Transducer	974.9	994.9	Regional
R-45 S2	09/20/12	5834.12	Transducer	974.9	994.9	Regional
R-45 S2	09/19/12	5834.12	Transducer	974.9	994.9	Regional
R-45 S2	09/18/12	5834.13	Transducer	974.9	994.9	Regional
R-45 S2	09/17/12	5834.12	Transducer	974.9	994.9	Regional
R-45 S2	09/16/12	5834.13	Transducer	974.9	994.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S2	09/15/12	5834.13	Transducer	974.9	994.9	Regional
R-45 S2	09/14/12	5834.13	Transducer	974.9	994.9	Regional
R-45 S2	09/13/12	5834.14	Transducer	974.9	994.9	Regional
R-45 S2	09/12/12	5834.14	Transducer	974.9	994.9	Regional
R-45 S2	09/11/12	5834.14	Transducer	974.9	994.9	Regional
R-45 S2	09/10/12	5834.14	Transducer	974.9	994.9	Regional
R-45 S2	09/09/12	5834.14	Transducer	974.9	994.9	Regional
R-45 S2	09/08/12	5834.15	Transducer	974.9	994.9	Regional
R-45 S2	09/07/12	5834.15	Transducer	974.9	994.9	Regional
R-45 S2	09/06/12	5834.15	Transducer	974.9	994.9	Regional
R-45 S2	09/05/12	5834.15	Transducer	974.9	994.9	Regional
R-45 S2	09/04/12	5834.15	Transducer	974.9	994.9	Regional
R-45 S2	09/03/12	5834.16	Transducer	974.9	994.9	Regional
R-45 S2	09/02/12	5834.16	Transducer	974.9	994.9	Regional
R-45 S2	09/01/12	5834.16	Transducer	974.9	994.9	Regional
R-45 S2	08/31/12	5834.16	Transducer	974.9	994.9	Regional
R-45 S2	08/30/12	5834.16	Transducer	974.9	994.9	Regional
R-45 S2	08/29/12	5834.17	Transducer	974.9	994.9	Regional
R-45 S2	08/28/12	5834.17	Transducer	974.9	994.9	Regional
R-45 S2	08/27/12	5834.17	Transducer	974.9	994.9	Regional
R-45 S2	08/26/12	5834.17	Transducer	974.9	994.9	Regional
R-45 S2	08/25/12	5834.17	Transducer	974.9	994.9	Regional
R-45 S2	08/24/12	5834.17	Transducer	974.9	994.9	Regional
R-45 S2	08/23/12	5834.17	Transducer	974.9	994.9	Regional
R-45 S2	08/22/12	5834.18	Transducer	974.9	994.9	Regional
R-45 S2	08/21/12	5834.18	Transducer	974.9	994.9	Regional
R-45 S2	08/20/12	5834.18	Transducer	974.9	994.9	Regional
R-45 S2	08/19/12	5834.18	Transducer	974.9	994.9	Regional
R-45 S2	08/18/12	5834.18	Transducer	974.9	994.9	Regional
R-45 S2	08/17/12	5834.18	Transducer	974.9	994.9	Regional
R-45 S2	08/16/12	5834.19	Transducer	974.9	994.9	Regional
R-45 S2	08/15/12	5834.18	Transducer	974.9	994.9	Regional
R-45 S2	08/14/12	5834.18	Transducer	974.9	994.9	Regional
R-45 S2	08/13/12	5834.19	Transducer	974.9	994.9	Regional
R-45 S2	08/12/12	5834.19	Transducer	974.9	994.9	Regional
R-45 S2	08/11/12	5834.19	Transducer	974.9	994.9	Regional
R-45 S2	08/10/12	5834.19	Transducer	974.9	994.9	Regional
R-45 S2	08/09/12	5834.19	Transducer	974.9	994.9	Regional
R-45 S2	08/08/12	5834.2	Transducer	974.9	994.9	Regional
R-45 S2	08/07/12	5834.2	Transducer	974.9	994.9	Regional
R-45 S2	08/06/12	5834.2	Transducer	974.9	994.9	Regional
R-45 S2	08/05/12	5834.21	Transducer	974.9	994.9	Regional
R-45 S2	08/04/12	5834.21	Transducer	974.9	994.9	Regional
R-45 S2	08/03/12	5834.21	Transducer	974.9	994.9	Regional
R-45 S2	08/02/12	5834.21	Transducer	974.9	994.9	Regional
R-45 S2	08/01/12	5834.22	Transducer	974.9	994.9	Regional
R-45 S2	07/31/12	5834.22	Transducer	974.9	994.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S2	07/30/12	5834.22	Transducer	974.9	994.9	Regional
R-45 S2	07/29/12	5834.22	Transducer	974.9	994.9	Regional
R-45 S2	07/28/12	5834.23	Transducer	974.9	994.9	Regional
R-45 S2	07/27/12	5834.23	Transducer	974.9	994.9	Regional
R-45 S2	07/26/12	5834.23	Transducer	974.9	994.9	Regional
R-45 S2	07/25/12	5834.23	Transducer	974.9	994.9	Regional
R-45 S2	07/24/12	5834.24	Transducer	974.9	994.9	Regional
R-45 S2	07/23/12	5834.24	Transducer	974.9	994.9	Regional
R-45 S2	07/22/12	5834.24	Transducer	974.9	994.9	Regional
R-45 S2	07/21/12	5834.24	Transducer	974.9	994.9	Regional
R-45 S2	07/20/12	5834.25	Transducer	974.9	994.9	Regional
R-45 S2	07/19/12	5834.25	Transducer	974.9	994.9	Regional
R-45 S2	07/18/12	5834.26	Transducer	974.9	994.9	Regional
R-45 S2	07/17/12	5834.26	Transducer	974.9	994.9	Regional
R-45 S2	07/16/12	5834.26	Transducer	974.9	994.9	Regional
R-45 S2	07/15/12	5834.26	Transducer	974.9	994.9	Regional
R-45 S2	07/14/12	5834.27	Transducer	974.9	994.9	Regional
R-45 S2	07/13/12	5834.27	Transducer	974.9	994.9	Regional
R-45 S2	07/12/12	5834.27	Transducer	974.9	994.9	Regional
R-45 S2	07/11/12	5834.27	Transducer	974.9	994.9	Regional
R-45 S2	07/10/12	5834.28	Transducer	974.9	994.9	Regional
R-45 S2	07/09/12	5834.29	Transducer	974.9	994.9	Regional
R-45 S2	07/08/12	5834.29	Transducer	974.9	994.9	Regional
R-45 S2	07/07/12	5834.3	Transducer	974.9	994.9	Regional
R-45 S2	07/06/12	5834.31	Transducer	974.9	994.9	Regional
R-45 S2	07/05/12	5834.31	Transducer	974.9	994.9	Regional
R-45 S2	07/04/12	5834.31	Transducer	974.9	994.9	Regional
R-45 S2	07/03/12	5834.32	Transducer	974.9	994.9	Regional
R-45 S2	07/02/12	5834.32	Transducer	974.9	994.9	Regional
R-45 S2	07/01/12	5834.32	Transducer	974.9	994.9	Regional
R-45 S2	06/30/12	5834.32	Transducer	974.9	994.9	Regional
R-45 S2	06/29/12	5834.33	Transducer	974.9	994.9	Regional
R-45 S2	06/28/12	5834.34	Transducer	974.9	994.9	Regional
R-45 S2	06/27/12	5834.34	Transducer	974.9	994.9	Regional
R-45 S2	06/26/12	5834.34	Transducer	974.9	994.9	Regional
R-45 S2	06/25/12	5834.35	Transducer	974.9	994.9	Regional
R-45 S2	06/24/12	5834.36	Transducer	974.9	994.9	Regional
R-45 S2	06/23/12	5834.37	Transducer	974.9	994.9	Regional
R-45 S2	06/22/12	5834.38	Transducer	974.9	994.9	Regional
R-45 S2	06/21/12	5834.4	Transducer	974.9	994.9	Regional
R-45 S2	06/20/12	5834.43	Transducer	974.9	994.9	Regional
R-45 S2	06/19/12	5834.43	Transducer	974.9	994.9	Regional
R-45 S2	06/18/12	5834.43	Transducer	974.9	994.9	Regional
R-45 S2	06/18/12	5834.43	Manual	974.9	994.9	Regional
R-45 S2	06/18/12	5834.316	Transducer	974.9	994.9	Regional
R-45 S2	06/17/12	5834.189	Transducer	974.9	994.9	Regional
R-45 S2	06/16/12	5834.347	Transducer	974.9	994.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S2	06/15/12	5834.372	Transducer	974.9	994.9	Regional
R-45 S2	06/14/12	5834.386	Transducer	974.9	994.9	Regional
R-45 S2	06/13/12	5834.267	Transducer	974.9	994.9	Regional
R-45 S2	06/12/12	5834.219	Transducer	974.9	994.9	Regional
R-45 S2	06/11/12	5834.307	Transducer	974.9	994.9	Regional
R-45 S2	06/10/12	5834.501	Transducer	974.9	994.9	Regional
R-45 S2	06/09/12	5834.429	Transducer	974.9	994.9	Regional
R-45 S2	06/08/12	5834.355	Transducer	974.9	994.9	Regional
R-45 S2	06/07/12	5834.47	Transducer	974.9	994.9	Regional
R-45 S2	06/06/12	5834.432	Transducer	974.9	994.9	Regional
R-45 S2	06/05/12	5834.321	Transducer	974.9	994.9	Regional
R-45 S2	06/04/12	5834.286	Transducer	974.9	994.9	Regional
R-45 S2	06/03/12	5834.493	Transducer	974.9	994.9	Regional
R-45 S2	06/02/12	5834.476	Transducer	974.9	994.9	Regional
R-45 S2	06/01/12	5834.443	Transducer	974.9	994.9	Regional
R-45 S2	05/31/12	5834.475	Transducer	974.9	994.9	Regional
R-45 S2	05/30/12	5834.397	Transducer	974.9	994.9	Regional
R-45 S2	05/29/12	5834.414	Transducer	974.9	994.9	Regional
R-45 S2	05/28/12	5834.463	Transducer	974.9	994.9	Regional
R-45 S2	05/27/12	5834.544	Transducer	974.9	994.9	Regional
R-45 S2	05/26/12	5834.566	Transducer	974.9	994.9	Regional
R-45 S2	05/25/12	5834.694	Transducer	974.9	994.9	Regional
R-45 S2	05/24/12	5834.848	Transducer	974.9	994.9	Regional
R-45 S2	05/23/12	5834.663	Transducer	974.9	994.9	Regional
R-45 S2	05/22/12	5834.387	Transducer	974.9	994.9	Regional
R-45 S2	05/21/12	5834.283	Transducer	974.9	994.9	Regional
R-45 S2	05/20/12	5834.459	Transducer	974.9	994.9	Regional
R-45 S2	05/19/12	5834.686	Transducer	974.9	994.9	Regional
R-45 S2	05/18/12	5834.684	Transducer	974.9	994.9	Regional
R-45 S2	05/17/12	5834.535	Transducer	974.9	994.9	Regional
R-45 S2	05/16/12	5834.419	Transducer	974.9	994.9	Regional
R-45 S2	05/15/12	5834.407	Transducer	974.9	994.9	Regional
R-45 S2	05/14/12	5834.371	Transducer	974.9	994.9	Regional
R-45 S2	05/13/12	5834.317	Transducer	974.9	994.9	Regional
R-45 S2	05/12/12	5834.356	Transducer	974.9	994.9	Regional
R-45 S2	05/11/12	5834.619	Transducer	974.9	994.9	Regional
R-45 S2	05/10/12	5834.552	Transducer	974.9	994.9	Regional
R-45 S2	05/09/12	5834.392	Transducer	974.9	994.9	Regional
R-45 S2	05/08/12	5834.417	Transducer	974.9	994.9	Regional
R-45 S2	05/07/12	5834.518	Transducer	974.9	994.9	Regional
R-45 S2	05/06/12	5834.587	Transducer	974.9	994.9	Regional
R-45 S2	05/05/12	5834.567	Transducer	974.9	994.9	Regional
R-45 S2	05/04/12	5834.546	Transducer	974.9	994.9	Regional
R-45 S2	05/03/12	5834.645	Transducer	974.9	994.9	Regional
R-45 S2	05/02/12	5834.718	Transducer	974.9	994.9	Regional
R-45 S2	05/01/12	5834.681	Transducer	974.9	994.9	Regional
R-45 S2	04/30/12	5834.6	Transducer	974.9	994.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S2	04/29/12	5834.696	Transducer	974.9	994.9	Regional
R-45 S2	04/28/12	5834.73	Transducer	974.9	994.9	Regional
R-45 S2	04/27/12	5834.77	Transducer	974.9	994.9	Regional
R-45 S2	04/26/12	5834.593	Transducer	974.9	994.9	Regional
R-45 S2	04/25/12	5834.659	Transducer	974.9	994.9	Regional
R-45 S2	04/24/12	5834.568	Transducer	974.9	994.9	Regional
R-45 S2	04/23/12	5834.443	Transducer	974.9	994.9	Regional
R-45 S2	04/22/12	5834.494	Transducer	974.9	994.9	Regional
R-45 S2	04/21/12	5834.549	Transducer	974.9	994.9	Regional
R-45 S2	04/20/12	5834.636	Transducer	974.9	994.9	Regional
R-45 S2	04/19/12	5834.701	Transducer	974.9	994.9	Regional
R-45 S2	04/18/12	5834.556	Transducer	974.9	994.9	Regional
R-45 S2	04/17/12	5834.457	Transducer	974.9	994.9	Regional
R-45 S2	04/16/12	5834.607	Transducer	974.9	994.9	Regional
R-45 S2	04/15/12	5834.957	Transducer	974.9	994.9	Regional
R-45 S2	04/14/12	5834.975	Transducer	974.9	994.9	Regional
R-45 S2	04/13/12	5834.77	Transducer	974.9	994.9	Regional
R-45 S2	04/12/12	5834.791	Transducer	974.9	994.9	Regional
R-45 S2	04/11/12	5834.609	Transducer	974.9	994.9	Regional
R-45 S2	04/10/12	5834.524	Transducer	974.9	994.9	Regional
R-45 S2	04/09/12	5834.458	Transducer	974.9	994.9	Regional
R-45 S2	04/08/12	5834.349	Transducer	974.9	994.9	Regional
R-45 S2	04/07/12	5834.572	Transducer	974.9	994.9	Regional
R-45 S2	04/06/12	5834.725	Transducer	974.9	994.9	Regional
R-45 S2	04/05/12	5834.704	Transducer	974.9	994.9	Regional
R-45 S2	04/04/12	5834.649	Transducer	974.9	994.9	Regional
R-45 S2	04/03/12	5834.858	Transducer	974.9	994.9	Regional
R-45 S2	04/02/12	5834.968	Transducer	974.9	994.9	Regional
R-45 S2	04/01/12	5834.765	Transducer	974.9	994.9	Regional
R-45 S2	03/31/12	5834.673	Transducer	974.9	994.9	Regional
R-45 S2	03/30/12	5834.694	Transducer	974.9	994.9	Regional
R-45 S2	03/29/12	5834.698	Transducer	974.9	994.9	Regional
R-45 S2	03/28/12	5834.611	Transducer	974.9	994.9	Regional
R-45 S2	03/27/12	5834.665	Transducer	974.9	994.9	Regional
R-45 S2	03/26/12	5834.69	Transducer	974.9	994.9	Regional
R-45 S2	03/25/12	5834.573	Transducer	974.9	994.9	Regional
R-45 S2	03/24/12	5834.589	Transducer	974.9	994.9	Regional
R-45 S2	03/23/12	5834.65	Transducer	974.9	994.9	Regional
R-45 S2	03/22/12	5834.716	Transducer	974.9	994.9	Regional
R-45 S2	03/21/12	5834.714	Transducer	974.9	994.9	Regional
R-45 S2	03/20/12	5835.097	Transducer	974.9	994.9	Regional
R-45 S2	03/19/12	5835.122	Transducer	974.9	994.9	Regional
R-45 S2	03/18/12	5834.915	Transducer	974.9	994.9	Regional
R-45 S2	03/17/12	5834.767	Transducer	974.9	994.9	Regional
R-45 S2	03/16/12	5834.681	Transducer	974.9	994.9	Regional
R-45 S2	03/15/12	5834.719	Transducer	974.9	994.9	Regional
R-45 S2	03/14/12	5834.754	Transducer	974.9	994.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S2	03/13/12	5834.8	Transducer	974.9	994.9	Regional
R-45 S2	03/12/12	5834.861	Transducer	974.9	994.9	Regional
R-45 S2	03/11/12	5834.794	Transducer	974.9	994.9	Regional
R-45 S2	03/10/12	5834.485	Transducer	974.9	994.9	Regional
R-45 S2	03/09/12	5834.542	Transducer	974.9	994.9	Regional
R-45 S2	03/08/12	5834.988	Transducer	974.9	994.9	Regional
R-45 S2	03/07/12	5834.997	Transducer	974.9	994.9	Regional
R-45 S2	03/07/12	5835	Transducer	974.9	994.9	Regional
R-45 S2	03/06/12	5834.655	Transducer	974.9	994.9	Regional
R-45 S2	03/05/12	5834.454	Transducer	974.9	994.9	Regional
R-45 S2	03/04/12	5834.451	Transducer	974.9	994.9	Regional
R-45 S2	03/03/12	5834.604	Transducer	974.9	994.9	Regional
R-45 S2	03/02/12	5834.868	Transducer	974.9	994.9	Regional
R-45 S2	03/01/12	5834.735	Transducer	974.9	994.9	Regional
R-45 S2	02/29/12	5834.604	Transducer	974.9	994.9	Regional
R-45 S2	02/28/12	5834.754	Transducer	974.9	994.9	Regional
R-45 S2	02/27/12	5834.586	Transducer	974.9	994.9	Regional
R-45 S2	02/26/12	5834.711	Transducer	974.9	994.9	Regional
R-45 S2	02/25/12	5834.421	Transducer	974.9	994.9	Regional
R-45 S2	02/24/12	5834.584	Transducer	974.9	994.9	Regional
R-45 S2	02/23/12	5834.833	Transducer	974.9	994.9	Regional
R-45 S2	02/22/12	5834.557	Transducer	974.9	994.9	Regional
R-45 S2	02/21/12	5834.55	Transducer	974.9	994.9	Regional
R-45 S2	02/20/12	5834.887	Transducer	974.9	994.9	Regional
R-45 S2	02/19/12	5834.704	Transducer	974.9	994.9	Regional
R-45 S2	02/18/12	5834.706	Transducer	974.9	994.9	Regional
R-45 S2	02/17/12	5834.632	Transducer	974.9	994.9	Regional
R-45 S2	02/16/12	5834.638	Transducer	974.9	994.9	Regional
R-45 S2	02/15/12	5834.982	Transducer	974.9	994.9	Regional
R-45 S2	02/14/12	5834.915	Transducer	974.9	994.9	Regional
R-45 S2	02/13/12	5834.997	Transducer	974.9	994.9	Regional
R-45 S2	02/12/12	5834.653	Transducer	974.9	994.9	Regional
R-45 S2	02/11/12	5834.631	Transducer	974.9	994.9	Regional
R-45 S2	02/10/12	5834.63	Transducer	974.9	994.9	Regional
R-45 S2	02/09/12	5834.639	Transducer	974.9	994.9	Regional
R-45 S2	02/08/12	5834.524	Transducer	974.9	994.9	Regional
R-45 S2	02/07/12	5834.691	Transducer	974.9	994.9	Regional
R-45 S2	02/06/12	5834.572	Transducer	974.9	994.9	Regional
R-45 S2	02/05/12	5834.489	Transducer	974.9	994.9	Regional
R-45 S2	02/04/12	5834.579	Transducer	974.9	994.9	Regional
R-45 S2	02/03/12	5834.901	Transducer	974.9	994.9	Regional
R-45 S2	02/02/12	5834.65	Transducer	974.9	994.9	Regional
R-45 S2	02/01/12	5834.72	Transducer	974.9	994.9	Regional
R-45 S2	01/31/12	5834.75	Transducer	974.9	994.9	Regional
R-45 S2	01/30/12	5834.516	Transducer	974.9	994.9	Regional
R-45 S2	01/29/12	5834.445	Transducer	974.9	994.9	Regional
R-45 S2	01/28/12	5834.561	Transducer	974.9	994.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S2	01/27/12	5834.691	Transducer	974.9	994.9	Regional
R-45 S2	01/26/12	5834.603	Transducer	974.9	994.9	Regional
R-45 S2	01/25/12	5834.699	Transducer	974.9	994.9	Regional
R-45 S2	01/24/12	5834.77	Transducer	974.9	994.9	Regional
R-45 S2	01/23/12	5834.717	Transducer	974.9	994.9	Regional
R-45 S2	01/22/12	5835.065	Transducer	974.9	994.9	Regional
R-45 S2	01/21/12	5834.685	Transducer	974.9	994.9	Regional
R-45 S2	01/20/12	5834.801	Transducer	974.9	994.9	Regional
R-45 S2	01/19/12	5834.686	Transducer	974.9	994.9	Regional
R-45 S2	01/18/12	5834.602	Transducer	974.9	994.9	Regional
R-45 S2	01/17/12	5834.801	Transducer	974.9	994.9	Regional
R-45 S2	01/16/12	5834.754	Transducer	974.9	994.9	Regional
R-45 S2	01/15/12	5834.538	Transducer	974.9	994.9	Regional
R-45 S2	01/14/12	5834.595	Transducer	974.9	994.9	Regional
R-45 S2	01/13/12	5834.696	Transducer	974.9	994.9	Regional
R-45 S2	01/12/12	5834.744	Transducer	974.9	994.9	Regional
R-45 S2	01/11/12	5834.762	Transducer	974.9	994.9	Regional
R-45 S2	01/10/12	5834.598	Transducer	974.9	994.9	Regional
R-45 S2	01/09/12	5834.644	Transducer	974.9	994.9	Regional
R-45 S2	01/08/12	5834.889	Transducer	974.9	994.9	Regional
R-45 S2	01/07/12	5834.784	Transducer	974.9	994.9	Regional
R-45 S2	01/06/12	5834.714	Transducer	974.9	994.9	Regional
R-45 S2	01/05/12	5834.383	Transducer	974.9	994.9	Regional
R-45 S2	01/04/12	5834.512	Transducer	974.9	994.9	Regional
R-45 S2	01/03/12	5834.299	Transducer	974.9	994.9	Regional
R-45 S2	01/02/12	5834.292	Transducer	974.9	994.9	Regional
R-45 S2	01/01/12	5834.442	Transducer	974.9	994.9	Regional
R-45 S2	12/31/11	5834.688	Transducer	974.9	994.9	Regional
R-45 S2	12/30/11	5834.714	Transducer	974.9	994.9	Regional
R-45 S2	12/29/11	5834.6	Transducer	974.9	994.9	Regional
R-45 S2	12/28/11	5834.634	Transducer	974.9	994.9	Regional
R-45 S2	12/27/11	5834.624	Transducer	974.9	994.9	Regional
R-45 S2	12/26/11	5834.508	Transducer	974.9	994.9	Regional
R-45 S2	12/25/11	5834.454	Transducer	974.9	994.9	Regional
R-45 S2	12/24/11	5834.479	Transducer	974.9	994.9	Regional
R-45 S2	12/23/11	5834.568	Transducer	974.9	994.9	Regional
R-45 S2	12/22/11	5834.847	Transducer	974.9	994.9	Regional
R-45 S2	12/21/11	5834.81	Transducer	974.9	994.9	Regional
R-45 S2	12/20/11	5834.779	Transducer	974.9	994.9	Regional
R-45 S2	12/19/11	5834.871	Transducer	974.9	994.9	Regional
R-45 S2	12/18/11	5834.436	Transducer	974.9	994.9	Regional
R-45 S2	12/17/11	5834.401	Transducer	974.9	994.9	Regional
R-45 S2	12/16/11	5834.551	Transducer	974.9	994.9	Regional
R-45 S2	12/15/11	5834.634	Transducer	974.9	994.9	Regional
R-45 S2	12/14/11	5834.847	Transducer	974.9	994.9	Regional
R-45 S2	12/13/11	5834.712	Transducer	974.9	994.9	Regional
R-45 S2	12/12/11	5834.727	Transducer	974.9	994.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S2	12/11/11	5834.536	Transducer	974.9	994.9	Regional
R-45 S2	12/10/11	5834.456	Transducer	974.9	994.9	Regional
R-45 S2	12/09/11	5834.621	Transducer	974.9	994.9	Regional
R-45 S2	12/08/11	5834.601	Transducer	974.9	994.9	Regional
R-45 S2	12/07/11	5834.521	Transducer	974.9	994.9	Regional
R-45 S2	12/06/11	5834.575	Transducer	974.9	994.9	Regional
R-45 S2	12/05/11	5834.737	Transducer	974.9	994.9	Regional
R-45 S2	12/04/11	5834.704	Transducer	974.9	994.9	Regional
R-45 S2	12/03/11	5834.883	Transducer	974.9	994.9	Regional
R-45 S2	12/02/11	5834.564	Transducer	974.9	994.9	Regional
R-45 S2	12/01/11	5834.84	Transducer	974.9	994.9	Regional
R-45 S2	11/30/11	5834.48	Transducer	974.9	994.9	Regional
R-45 S2	11/29/11	5834.477	Transducer	974.9	994.9	Regional
R-45 S2	11/28/11	5834.333	Transducer	974.9	994.9	Regional
R-45 S2	11/27/11	5834.258	Transducer	974.9	994.9	Regional
R-45 S2	11/26/11	5834.674	Transducer	974.9	994.9	Regional
R-45 S2	11/25/11	5834.613	Transducer	974.9	994.9	Regional
R-45 S2	11/24/11	5834.444	Transducer	974.9	994.9	Regional
R-45 S2	11/23/11	5834.34	Transducer	974.9	994.9	Regional
R-45 S2	11/22/11	5834.484	Transducer	974.9	994.9	Regional
R-45 S2	11/21/11	5834.567	Transducer	974.9	994.9	Regional
R-45 S2	11/20/11	5834.671	Transducer	974.9	994.9	Regional
R-45 S2	11/19/11	5834.823	Transducer	974.9	994.9	Regional
R-45 S2	11/18/11	5834.617	Transducer	974.9	994.9	Regional
R-45 S2	11/17/11	5834.393	Transducer	974.9	994.9	Regional
R-45 S2	11/16/11	5834.68	Transducer	974.9	994.9	Regional
R-45 S2	11/15/11	5834.699	Transducer	974.9	994.9	Regional
R-45 S2	11/14/11	5834.822	Transducer	974.9	994.9	Regional
R-45 S2	11/13/11	5834.783	Transducer	974.9	994.9	Regional
R-45 S2	11/12/11	5834.684	Transducer	974.9	994.9	Regional
R-45 S2	11/11/11	5834.38	Transducer	974.9	994.9	Regional
R-45 S2	11/10/11	5834.26	Transducer	974.9	994.9	Regional
R-45 S2	11/09/11	5834.437	Transducer	974.9	994.9	Regional
R-45 S2	11/08/11	5834.739	Transducer	974.9	994.9	Regional
R-45 S2	11/07/11	5834.667	Transducer	974.9	994.9	Regional
R-45 S2	11/06/11	5834.748	Transducer	974.9	994.9	Regional
R-45 S2	11/05/11	5834.838	Transducer	974.9	994.9	Regional
R-45 S2	11/04/11	5834.529	Transducer	974.9	994.9	Regional
R-45 S2	11/03/11	5834.328	Transducer	974.9	994.9	Regional
R-45 S2	11/02/11	5834.762	Transducer	974.9	994.9	Regional
R-45 S2	11/01/11	5834.547	Transducer	974.9	994.9	Regional
R-45 S2	10/31/11	5834.396	Transducer	974.9	994.9	Regional
R-45 S2	10/30/11	5834.533	Transducer	974.9	994.9	Regional
R-45 S2	10/29/11	5834.403	Transducer	974.9	994.9	Regional
R-45 S2	10/28/11	5834.521	Transducer	974.9	994.9	Regional
R-45 S2	10/27/11	5834.65	Transducer	974.9	994.9	Regional
R-45 S2	10/26/11	5834.574	Transducer	974.9	994.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S2	10/25/11	5834.502	Transducer	974.9	994.9	Regional
R-45 S2	10/24/11	5834.41	Transducer	974.9	994.9	Regional
R-45 S2	10/23/11	5834.44	Transducer	974.9	994.9	Regional
R-45 S2	10/22/11	5834.425	Transducer	974.9	994.9	Regional
R-45 S2	10/21/11	5834.443	Transducer	974.9	994.9	Regional
R-45 S2	10/20/11	5834.541	Transducer	974.9	994.9	Regional
R-45 S2	10/19/11	5834.368	Transducer	974.9	994.9	Regional
R-45 S2	10/18/11	5834.429	Transducer	974.9	994.9	Regional
R-45 S2	10/17/11	5834.495	Transducer	974.9	994.9	Regional
R-45 S2	10/16/11	5834.406	Transducer	974.9	994.9	Regional
R-45 S2	10/15/11	5834.433	Transducer	974.9	994.9	Regional
R-45 S2	10/14/11	5834.488	Transducer	974.9	994.9	Regional
R-45 S2	10/13/11	5834.425	Transducer	974.9	994.9	Regional
R-45 S2	10/12/11	5834.561	Transducer	974.9	994.9	Regional
R-45 S2	10/11/11	5834.565	Transducer	974.9	994.9	Regional
R-45 S2	10/10/11	5834.511	Transducer	974.9	994.9	Regional
R-45 S2	10/09/11	5834.545	Transducer	974.9	994.9	Regional
R-45 S2	10/08/11	5834.696	Transducer	974.9	994.9	Regional
R-45 S2	10/07/11	5834.712	Transducer	974.9	994.9	Regional
R-45 S2	10/06/11	5834.721	Transducer	974.9	994.9	Regional
R-45 S2	10/05/11	5834.55	Transducer	974.9	994.9	Regional
R-45 S2	10/04/11	5834.417	Transducer	974.9	994.9	Regional
R-45 S2	10/03/11	5834.394	Transducer	974.9	994.9	Regional
R-45 S2	10/02/11	5834.382	Transducer	974.9	994.9	Regional
R-45 S2	10/01/11	5834.377	Transducer	974.9	994.9	Regional
R-45 S2	09/30/11	5834.255	Transducer	974.9	994.9	Regional
R-45 S2	09/29/11	5834.437	Transducer	974.9	994.9	Regional
R-45 S2	09/28/11	5834.356	Transducer	974.9	994.9	Regional
R-45 S2	09/27/11	5834.452	Transducer	974.9	994.9	Regional
R-45 S2	09/26/11	5834.566	Transducer	974.9	994.9	Regional
R-45 S2	09/25/11	5834.528	Transducer	974.9	994.9	Regional
R-45 S2	09/24/11	5834.38	Transducer	974.9	994.9	Regional
R-45 S2	09/23/11	5834.359	Transducer	974.9	994.9	Regional
R-45 S2	09/22/11	5834.467	Transducer	974.9	994.9	Regional
R-45 S2	09/21/11	5834.467	Transducer	974.9	994.9	Regional
R-45 S2	09/20/11	5834.445	Transducer	974.9	994.9	Regional
R-45 S2	09/19/11	5834.362	Transducer	974.9	994.9	Regional
R-45 S2	09/18/11	5834.423	Transducer	974.9	994.9	Regional
R-45 S2	09/17/11	5834.478	Transducer	974.9	994.9	Regional
R-45 S2	09/16/11	5834.488	Transducer	974.9	994.9	Regional
R-45 S2	09/15/11	5834.452	Transducer	974.9	994.9	Regional
R-45 S2	09/14/11	5834.419	Transducer	974.9	994.9	Regional
R-45 S2	09/13/11	5834.32	Transducer	974.9	994.9	Regional
R-45 S2	09/12/11	5834.273	Transducer	974.9	994.9	Regional
R-45 S2	09/11/11	5834.3	Transducer	974.9	994.9	Regional
R-45 S2	09/10/11	5834.339	Transducer	974.9	994.9	Regional
R-45 S2	09/09/11	5834.303	Transducer	974.9	994.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S2	09/08/11	5834.201	Transducer	974.9	994.9	Regional
R-45 S2	09/07/11	5834.341	Transducer	974.9	994.9	Regional
R-45 S2	09/06/11	5834.334	Transducer	974.9	994.9	Regional
R-45 S2	09/05/11	5834.267	Transducer	974.9	994.9	Regional
R-45 S2	09/04/11	5834.342	Transducer	974.9	994.9	Regional
R-45 S2	09/03/11	5834.451	Transducer	974.9	994.9	Regional
R-45 S2	09/02/11	5834.363	Transducer	974.9	994.9	Regional
R-45 S2	09/01/11	5834.389	Transducer	974.9	994.9	Regional
R-45 S2	08/31/11	5834.468	Transducer	974.9	994.9	Regional
R-45 S2	08/30/11	5834.455	Transducer	974.9	994.9	Regional
R-45 S2	08/29/11	5834.41	Transducer	974.9	994.9	Regional
R-45 S2	08/28/11	5834.348	Transducer	974.9	994.9	Regional
R-45 S2	08/27/11	5834.275	Transducer	974.9	994.9	Regional
R-45 S2	08/26/11	5834.289	Transducer	974.9	994.9	Regional
R-45 S2	08/25/11	5834.313	Transducer	974.9	994.9	Regional
R-45 S2	08/24/11	5834.382	Transducer	974.9	994.9	Regional
R-45 S2	08/23/11	5834.345	Transducer	974.9	994.9	Regional
R-45 S2	08/22/11	5834.284	Transducer	974.9	994.9	Regional
R-45 S2	08/21/11	5834.339	Transducer	974.9	994.9	Regional
R-45 S2	08/20/11	5834.409	Transducer	974.9	994.9	Regional
R-45 S2	08/19/11	5834.39	Transducer	974.9	994.9	Regional
R-45 S2	08/19/11	5834.446	Transducer	974.9	994.9	Regional
R-45 S2	08/18/11	5834.23	Transducer	974.9	994.9	Regional
R-45 S2	08/17/11	5834.29	Transducer	974.9	994.9	Regional
R-45 S2	08/16/11	5834.42	Transducer	974.9	994.9	Regional
R-45 S2	08/15/11	5834.39	Transducer	974.9	994.9	Regional
R-45 S2	08/14/11	5834.24	Transducer	974.9	994.9	Regional
R-45 S2	08/13/11	5834.37	Transducer	974.9	994.9	Regional
R-45 S2	08/12/11	5834.42	Transducer	974.9	994.9	Regional
R-45 S2	08/11/11	5834.43	Transducer	974.9	994.9	Regional
R-45 S2	08/10/11	5834.5	Transducer	974.9	994.9	Regional
R-45 S2	08/09/11	5834.45	Transducer	974.9	994.9	Regional
R-45 S2	08/08/11	5834.45	Transducer	974.9	994.9	Regional
R-45 S2	08/07/11	5834.41	Transducer	974.9	994.9	Regional
R-45 S2	08/06/11	5834.37	Transducer	974.9	994.9	Regional
R-45 S2	08/05/11	5834.38	Transducer	974.9	994.9	Regional
R-45 S2	08/04/11	5834.38	Transducer	974.9	994.9	Regional
R-45 S2	08/03/11	5834.35	Transducer	974.9	994.9	Regional
R-45 S2	08/02/11	5834.31	Transducer	974.9	994.9	Regional
R-45 S2	08/01/11	5834.24	Transducer	974.9	994.9	Regional
R-45 S2	07/31/11	5834.21	Transducer	974.9	994.9	Regional
R-45 S2	07/30/11	5834.24	Transducer	974.9	994.9	Regional
R-45 S2	07/29/11	5834.3	Transducer	974.9	994.9	Regional
R-45 S2	07/28/11	5834.41	Transducer	974.9	994.9	Regional
R-45 S2	07/27/11	5834.4	Transducer	974.9	994.9	Regional
R-45 S2	07/26/11	5834.33	Transducer	974.9	994.9	Regional
R-45 S2	07/25/11	5834.22	Transducer	974.9	994.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S2	07/24/11	5834.26	Transducer	974.9	994.9	Regional
R-45 S2	07/23/11	5834.36	Transducer	974.9	994.9	Regional
R-45 S2	07/22/11	5834.38	Transducer	974.9	994.9	Regional
R-45 S2	07/21/11	5834.35	Transducer	974.9	994.9	Regional
R-45 S2	07/20/11	5834.3	Transducer	974.9	994.9	Regional
R-45 S2	07/19/11	5834.21	Transducer	974.9	994.9	Regional
R-45 S2	07/18/11	5834.18	Transducer	974.9	994.9	Regional
R-45 S2	07/17/11	5834.28	Transducer	974.9	994.9	Regional
R-45 S2	07/16/11	5834.41	Transducer	974.9	994.9	Regional
R-45 S2	07/15/11	5834.43	Transducer	974.9	994.9	Regional
R-45 S2	07/14/11	5834.39	Transducer	974.9	994.9	Regional
R-45 S2	07/13/11	5834.35	Transducer	974.9	994.9	Regional
R-45 S2	07/12/11	5834.32	Transducer	974.9	994.9	Regional
R-45 S2	07/11/11	5834.35	Transducer	974.9	994.9	Regional
R-45 S2	07/10/11	5834.36	Transducer	974.9	994.9	Regional
R-45 S2	07/09/11	5834.46	Transducer	974.9	994.9	Regional
R-45 S2	07/08/11	5834.41	Transducer	974.9	994.9	Regional
R-45 S2	07/07/11	5834.35	Transducer	974.9	994.9	Regional
R-45 S2	07/06/11	5834.34	Transducer	974.9	994.9	Regional
R-45 S2	07/05/11	5834.33	Transducer	974.9	994.9	Regional
R-45 S2	07/04/11	5834.33	Transducer	974.9	994.9	Regional
R-45 S2	07/03/11	5834.27	Transducer	974.9	994.9	Regional
R-45 S2	07/02/11	5834.33	Transducer	974.9	994.9	Regional
R-45 S2	07/01/11	5834.37	Transducer	974.9	994.9	Regional
R-45 S2	06/30/11	5834.38	Transducer	974.9	994.9	Regional
R-45 S2	06/29/11	5834.3	Transducer	974.9	994.9	Regional
R-45 S2	06/28/11	5834.28	Transducer	974.9	994.9	Regional
R-45 S2	06/27/11	5834.42	Transducer	974.9	994.9	Regional
R-45 S2	06/26/11	5834.44	Transducer	974.9	994.9	Regional
R-45 S2	06/25/11	5834.48	Transducer	974.9	994.9	Regional
R-45 S2	06/24/11	5834.49	Transducer	974.9	994.9	Regional
R-45 S2	06/23/11	5834.42	Transducer	974.9	994.9	Regional
R-45 S2	06/22/11	5834.44	Transducer	974.9	994.9	Regional
R-45 S2	06/21/11	5834.55	Transducer	974.9	994.9	Regional
R-45 S2	06/20/11	5834.7	Transducer	974.9	994.9	Regional
R-45 S2	06/19/11	5834.59	Transducer	974.9	994.9	Regional
R-45 S2	06/18/11	5834.54	Transducer	974.9	994.9	Regional
R-45 S2	06/17/11	5834.69	Transducer	974.9	994.9	Regional
R-45 S2	06/16/11	5834.61	Transducer	974.9	994.9	Regional
R-45 S2	06/15/11	5834.47	Transducer	974.9	994.9	Regional
R-45 S2	06/14/11	5834.52	Transducer	974.9	994.9	Regional
R-45 S2	06/13/11	5834.56	Transducer	974.9	994.9	Regional
R-45 S2	06/12/11	5834.64	Transducer	974.9	994.9	Regional
R-45 S2	06/11/11	5834.58	Transducer	974.9	994.9	Regional
R-45 S2	06/10/11	5834.6	Transducer	974.9	994.9	Regional
R-45 S2	06/09/11	5834.64	Transducer	974.9	994.9	Regional
R-45 S2	06/08/11	5834.63	Transducer	974.9	994.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S2	06/07/11	5834.63	Transducer	974.9	994.9	Regional
R-45 S2	06/06/11	5834.44	Transducer	974.9	994.9	Regional
R-45 S2	06/05/11	5834.34	Transducer	974.9	994.9	Regional
R-45 S2	06/04/11	5834.49	Transducer	974.9	994.9	Regional
R-45 S2	06/03/11	5834.6	Transducer	974.9	994.9	Regional
R-45 S2	06/02/11	5834.54	Transducer	974.9	994.9	Regional
R-45 S2	06/01/11	5834.33	Transducer	974.9	994.9	Regional
R-45 S2	05/31/11	5834.44	Transducer	974.9	994.9	Regional
R-45 S2	05/30/11	5834.89	Transducer	974.9	994.9	Regional
R-45 S2	05/29/11	5834.87	Transducer	974.9	994.9	Regional
R-45 S2	05/28/11	5834.79	Transducer	974.9	994.9	Regional
R-45 S2	05/27/11	5834.73	Transducer	974.9	994.9	Regional
R-45 S2	05/26/11	5834.57	Transducer	974.9	994.9	Regional
R-45 S2	05/25/11	5834.69	Transducer	974.9	994.9	Regional
R-45 S2	05/24/11	5834.84	Transducer	974.9	994.9	Regional
R-45 S2	05/23/11	5834.75	Transducer	974.9	994.9	Regional
R-45 S2	05/22/11	5834.72	Transducer	974.9	994.9	Regional
R-45 S2	05/21/11	5834.76	Transducer	974.9	994.9	Regional
R-45 S2	05/20/11	5834.86	Transducer	974.9	994.9	Regional
R-45 S2	05/19/11	5835.05	Transducer	974.9	994.9	Regional
R-45 S2	05/18/11	5835.01	Transducer	974.9	994.9	Regional
R-45 S2	05/17/11	5834.92	Transducer	974.9	994.9	Regional
R-45 S2	05/16/11	5834.77	Transducer	974.9	994.9	Regional
R-45 S2	05/15/11	5834.79	Transducer	974.9	994.9	Regional
R-45 S2	05/14/11	5834.67	Transducer	974.9	994.9	Regional
R-45 S2	05/13/11	5834.77	Transducer	974.9	994.9	Regional
R-45 S2	05/12/11	5834.98	Transducer	974.9	994.9	Regional
R-45 S2	05/11/11	5835.2	Transducer	974.9	994.9	Regional
R-45 S2	05/10/11	5835.21	Transducer	974.9	994.9	Regional
R-45 S2	05/09/11	5835.2	Transducer	974.9	994.9	Regional
R-45 S2	05/08/11	5835.11	Transducer	974.9	994.9	Regional
R-45 S2	05/07/11	5835.06	Transducer	974.9	994.9	Regional
R-45 S2	05/06/11	5834.94	Transducer	974.9	994.9	Regional
R-45 S2	05/05/11	5834.93	Transducer	974.9	994.9	Regional
R-45 S2	05/04/11	5834.87	Transducer	974.9	994.9	Regional
R-45 S2	05/03/11	5834.76	Transducer	974.9	994.9	Regional
R-45 S2	05/02/11	5834.9	Transducer	974.9	994.9	Regional
R-45 S2	05/01/11	5835.17	Transducer	974.9	994.9	Regional
R-45 S2	04/30/11	5835.27	Transducer	974.9	994.9	Regional
R-45 S2	04/29/11	5835.15	Transducer	974.9	994.9	Regional
R-45 S2	04/28/11	5834.95	Transducer	974.9	994.9	Regional
R-45 S2	04/27/11	5835.32	Transducer	974.9	994.9	Regional
R-45 S2	04/26/11	5835.39	Transducer	974.9	994.9	Regional
R-45 S2	04/25/11	5835.32	Transducer	974.9	994.9	Regional
R-45 S2	04/24/11	5835.28	Transducer	974.9	994.9	Regional
R-45 S2	04/23/11	5835.36	Transducer	974.9	994.9	Regional
R-45 S2	04/22/11	5835.39	Transducer	974.9	994.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S2	04/21/11	5835.32	Transducer	974.9	994.9	Regional
R-45 S2	04/20/11	5835.33	Transducer	974.9	994.9	Regional
R-45 S2	04/19/11	5835.52	Transducer	974.9	994.9	Regional
R-45 S2	04/18/11	5835.44	Transducer	974.9	994.9	Regional
R-45 S2	04/17/11	5835.36	Transducer	974.9	994.9	Regional
R-45 S2	04/16/11	5835.27	Transducer	974.9	994.9	Regional
R-45 S2	04/15/11	5835.33	Transducer	974.9	994.9	Regional
R-45 S2	04/14/11	5835.48	Transducer	974.9	994.9	Regional
R-45 S2	04/13/11	5835.38	Transducer	974.9	994.9	Regional
R-45 S2	04/12/11	5835.18	Transducer	974.9	994.9	Regional
R-45 S2	04/11/11	5835.23	Transducer	974.9	994.9	Regional
R-45 S2	04/10/11	5835.47	Transducer	974.9	994.9	Regional
R-45 S2	04/09/11	5835.53	Transducer	974.9	994.9	Regional
R-45 S2	04/08/11	5835.55	Transducer	974.9	994.9	Regional
R-45 S2	04/07/11	5835.41	Transducer	974.9	994.9	Regional
R-45 S2	04/06/11	5835.46	Transducer	974.9	994.9	Regional
R-45 S2	04/05/11	5835.21	Transducer	974.9	994.9	Regional
R-45 S2	04/04/11	5835.4	Transducer	974.9	994.9	Regional
R-45 S2	04/03/11	5835.46	Transducer	974.9	994.9	Regional
R-45 S2	04/02/11	5835.3	Transducer	974.9	994.9	Regional
R-45 S2	04/01/11	5835.37	Transducer	974.9	994.9	Regional
R-45 S2	03/31/11	5835.34	Transducer	974.9	994.9	Regional
R-45 S2	03/30/11	5835.3	Transducer	974.9	994.9	Regional
R-45 S2	03/29/11	5835.47	Transducer	974.9	994.9	Regional
R-45 S2	03/28/11	5835.49	Transducer	974.9	994.9	Regional
R-45 S2	03/27/11	5835.59	Transducer	974.9	994.9	Regional
R-45 S2	03/26/11	5835.56	Transducer	974.9	994.9	Regional
R-45 S2	03/25/11	5835.44	Transducer	974.9	994.9	Regional
R-45 S2	03/24/11	5835.43	Transducer	974.9	994.9	Regional
R-45 S2	03/23/11	5835.44	Transducer	974.9	994.9	Regional
R-45 S2	03/22/11	5835.62	Transducer	974.9	994.9	Regional
R-45 S2	03/21/11	5835.42	Transducer	974.9	994.9	Regional
R-45 S2	03/20/11	5835.4	Transducer	974.9	994.9	Regional
R-45 S2	03/19/11	5835.27	Transducer	974.9	994.9	Regional
R-45 S2	03/18/11	5835.31	Transducer	974.9	994.9	Regional
R-45 S2	03/17/11	5835.37	Transducer	974.9	994.9	Regional
R-45 S2	03/16/11	5835.28	Transducer	974.9	994.9	Regional
R-45 S2	03/15/11	5835.28	Transducer	974.9	994.9	Regional
R-45 S2	03/14/11	5835.15	Transducer	974.9	994.9	Regional
R-45 S2	03/13/11	5835.37	Transducer	974.9	994.9	Regional
R-45 S2	03/12/11	5835.34	Transducer	974.9	994.9	Regional
R-45 S2	03/11/11	5835.22	Transducer	974.9	994.9	Regional
R-45 S2	03/10/11	5835.03	Transducer	974.9	994.9	Regional
R-45 S2	03/09/11	5835.28	Transducer	974.9	994.9	Regional
R-45 S2	03/08/11	5835.72	Transducer	974.9	994.9	Regional
R-45 S2	03/07/11	5835.58	Transducer	974.9	994.9	Regional
R-45 S2	03/06/11	5835.23	Transducer	974.9	994.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S2	03/05/11	5835.09	Transducer	974.9	994.9	Regional
R-45 S2	03/04/11	5835.38	Transducer	974.9	994.9	Regional
R-45 S2	03/03/11	5835.26	Transducer	974.9	994.9	Regional
R-45 S2	03/02/11	5835.18	Transducer	974.9	994.9	Regional
R-45 S2	03/01/11	5835.08	Transducer	974.9	994.9	Regional
R-45 S2	02/28/11	5835.33	Transducer	974.9	994.9	Regional
R-45 S2	02/27/11	5835.62	Transducer	974.9	994.9	Regional
R-45 S2	02/26/11	5835.5	Transducer	974.9	994.9	Regional
R-45 S2	02/25/11	5835.36	Transducer	974.9	994.9	Regional
R-45 S2	02/24/11	5835.53	Transducer	974.9	994.9	Regional
R-45 S2	02/23/11	5835.43	Transducer	974.9	994.9	Regional
R-45 S2	02/22/11	5835.41	Transducer	974.9	994.9	Regional
R-45 S2	02/21/11	5835.53	Transducer	974.9	994.9	Regional
R-45 S2	02/20/11	5835.59	Transducer	974.9	994.9	Regional
R-45 S2	02/19/11	5835.25	Transducer	974.9	994.9	Regional
R-45 S2	02/18/11	5835.31	Transducer	974.9	994.9	Regional
R-45 S2	02/17/11	5835.51	Transducer	974.9	994.9	Regional
R-45 S2	02/16/11	5835.32	Transducer	974.9	994.9	Regional
R-45 S2	02/15/11	5835.25	Transducer	974.9	994.9	Regional
R-45 S2	02/14/11	5835.14	Transducer	974.9	994.9	Regional
R-45 S2	02/13/11	5835.04	Transducer	974.9	994.9	Regional
R-45 S2	02/12/11	5835.03	Transducer	974.9	994.9	Regional
R-45 S2	02/11/11	5835.32	Transducer	974.9	994.9	Regional
R-45 S2	02/10/11	5835.26	Transducer	974.9	994.9	Regional
R-45 S2	02/09/11	5835.42	Transducer	974.9	994.9	Regional
R-45 S2	02/08/11	5835.53	Transducer	974.9	994.9	Regional
R-45 S2	02/07/11	5835.22	Transducer	974.9	994.9	Regional
R-45 S2	02/06/11	5835.54	Transducer	974.9	994.9	Regional
R-45 S2	02/05/11	5835.38	Transducer	974.9	994.9	Regional
R-45 S2	02/04/11	5835.3	Transducer	974.9	994.9	Regional
R-45 S2	02/03/11	5835.2	Transducer	974.9	994.9	Regional
R-45 S2	02/02/11	5835.42	Transducer	974.9	994.9	Regional
R-45 S2	02/01/11	5835.59	Transducer	974.9	994.9	Regional
R-45 S2	01/31/11	5835.43	Transducer	974.9	994.9	Regional
R-45 S2	01/30/11	5835.38	Transducer	974.9	994.9	Regional
R-45 S2	01/29/11	5835.32	Transducer	974.9	994.9	Regional
R-45 S2	01/28/11	5835.19	Transducer	974.9	994.9	Regional
R-45 S2	01/27/11	5835.17	Transducer	974.9	994.9	Regional
R-45 S2	01/26/11	5835.32	Transducer	974.9	994.9	Regional
R-45 S2	01/25/11	5835.22	Transducer	974.9	994.9	Regional
R-45 S2	01/24/11	5835.31	Transducer	974.9	994.9	Regional
R-45 S2	01/23/11	5835.48	Transducer	974.9	994.9	Regional
R-45 S2	01/22/11	5835.29	Transducer	974.9	994.9	Regional
R-45 S2	01/21/11	5835.22	Transducer	974.9	994.9	Regional
R-45 S2	01/20/11	5835.44	Transducer	974.9	994.9	Regional
R-45 S2	01/19/11	5835.33	Transducer	974.9	994.9	Regional
R-45 S2	01/18/11	5835.43	Transducer	974.9	994.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S2	01/17/11	5835.31	Transducer	974.9	994.9	Regional
R-45 S2	01/16/11	5835.24	Transducer	974.9	994.9	Regional
R-45 S2	01/15/11	5835.07	Transducer	974.9	994.9	Regional
R-45 S2	01/14/11	5835.13	Transducer	974.9	994.9	Regional
R-45 S2	01/13/11	5835.02	Transducer	974.9	994.9	Regional
R-45 S2	01/12/11	5835	Transducer	974.9	994.9	Regional
R-45 S2	01/11/11	5835.12	Transducer	974.9	994.9	Regional
R-45 S2	01/10/11	5835.55	Transducer	974.9	994.9	Regional
R-45 S2	01/09/11	5835.58	Transducer	974.9	994.9	Regional
R-45 S2	01/08/11	5835.36	Transducer	974.9	994.9	Regional
R-45 S2	01/07/11	5835.17	Transducer	974.9	994.9	Regional
R-45 S2	01/06/11	5835.11	Transducer	974.9	994.9	Regional
R-45 S2	01/05/11	5835.15	Transducer	974.9	994.9	Regional
R-45 S2	01/04/11	5835.22	Transducer	974.9	994.9	Regional
R-45 S2	01/03/11	5835.15	Transducer	974.9	994.9	Regional
R-45 S2	01/02/11	5835.07	Transducer	974.9	994.9	Regional
R-45 S2	01/01/11	5835.39	Transducer	974.9	994.9	Regional
R-45 S2	12/31/10	5835.92	Transducer	974.9	994.9	Regional
R-45 S2	12/30/10	5835.84	Transducer	974.9	994.9	Regional
R-45 S2	12/29/10	5835.4	Transducer	974.9	994.9	Regional
R-45 S2	12/28/10	5835.27	Transducer	974.9	994.9	Regional
R-45 S2	12/27/10	5835.28	Transducer	974.9	994.9	Regional
R-45 S2	12/26/10	5835.03	Transducer	974.9	994.9	Regional
R-45 S2	12/25/10	5835.05	Transducer	974.9	994.9	Regional
R-45 S2	12/24/10	5835.24	Transducer	974.9	994.9	Regional
R-45 S2	12/23/10	5835.16	Transducer	974.9	994.9	Regional
R-45 S2	12/22/10	5835.11	Transducer	974.9	994.9	Regional
R-45 S2	12/21/10	5835.28	Transducer	974.9	994.9	Regional
R-45 S2	12/20/10	5835.38	Transducer	974.9	994.9	Regional
R-45 S2	12/19/10	5835.33	Transducer	974.9	994.9	Regional
R-45 S2	12/18/10	5835.31	Transducer	974.9	994.9	Regional
R-45 S2	12/17/10	5835.42	Transducer	974.9	994.9	Regional
R-45 S2	12/16/10	5835.46	Transducer	974.9	994.9	Regional
R-45 S2	12/15/10	5835.45	Transducer	974.9	994.9	Regional
R-45 S2	12/14/10	5835.2	Transducer	974.9	994.9	Regional
R-45 S2	12/13/10	5835.06	Transducer	974.9	994.9	Regional
R-45 S2	12/12/10	5835.08	Transducer	974.9	994.9	Regional
R-45 S2	12/11/10	5835.3	Transducer	974.9	994.9	Regional
R-45 S2	12/10/10	5835.24	Transducer	974.9	994.9	Regional
R-45 S2	12/09/10	5835.12	Transducer	974.9	994.9	Regional
R-45 S2	12/08/10	5834.99	Transducer	974.9	994.9	Regional
R-45 S2	12/07/10	5835.13	Transducer	974.9	994.9	Regional
R-45 S2	12/06/10	5834.96	Transducer	974.9	994.9	Regional
R-45 S2	12/05/10	5835.02	Transducer	974.9	994.9	Regional
R-45 S2	12/04/10	5835.07	Transducer	974.9	994.9	Regional
R-45 S2	12/03/10	5835.01	Transducer	974.9	994.9	Regional
R-45 S2	12/02/10	5835	Transducer	974.9	994.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-45 S2	12/01/10	5834.91	Transducer	974.9	994.9	Regional
R-45 S2	11/30/10	5835.06	Transducer	974.9	994.9	Regional
R-45 S2	11/29/10	5835.56	Transducer	974.9	994.9	Regional
R-45 S2	11/28/10	5835.38	Transducer	974.9	994.9	Regional
R-45 S2	11/27/10	5835.02	Transducer	974.9	994.9	Regional
R-45 S2	11/26/10	5835.05	Transducer	974.9	994.9	Regional
R-45 S2	11/25/10	5835.4	Transducer	974.9	994.9	Regional
R-45 S2	11/24/10	5835.41	Transducer	974.9	994.9	Regional
R-45 S2	11/23/10	5835.1	Transducer	974.9	994.9	Regional
R-45 S2	11/22/10	5835.37	Transducer	974.9	994.9	Regional
R-45 S2	11/21/10	5835.3	Transducer	974.9	994.9	Regional
R-45 S2	11/20/10	5835.18	Transducer	974.9	994.9	Regional
R-45 S2	11/19/10	5835.02	Transducer	974.9	994.9	Regional
R-45 S2	11/18/10	5834.86	Transducer	974.9	994.9	Regional
R-45 S2	11/17/10	5835.35	Transducer	974.9	994.9	Regional
R-45 S2	11/16/10	5835.22	Transducer	974.9	994.9	Regional
R-45 S2	11/15/10	5835.38	Transducer	974.9	994.9	Regional
R-45 S2	11/14/10	5835.18	Transducer	974.9	994.9	Regional
R-45 S2	11/13/10	5834.95	Transducer	974.9	994.9	Regional
R-45 S2	11/12/10	5835.03	Transducer	974.9	994.9	Regional
R-45 S2	11/11/10	5835.27	Transducer	974.9	994.9	Regional
R-45 S2	11/10/10	5835.29	Transducer	974.9	994.9	Regional
R-45 S2	11/09/10	5835.4	Transducer	974.9	994.9	Regional
R-45 S2	11/08/10	5835.12	Transducer	974.9	994.9	Regional
R-45 S2	11/07/10	5835.01	Transducer	974.9	994.9	Regional
R-45 S2	11/06/10	5835	Transducer	974.9	994.9	Regional
R-45 S2	11/05/10	5834.94	Transducer	974.9	994.9	Regional
R-45 S2	11/04/10	5834.75	Transducer	974.9	994.9	Regional
R-45 S2	11/03/10	5834.79	Transducer	974.9	994.9	Regional
R-45 S2	11/02/10	5834.75	Transducer	974.9	994.9	Regional
R-45 S2	11/01/10	5834.97	Transducer	974.9	994.9	Regional
R-45 S2	10/31/10	5835.06	Transducer	974.9	994.9	Regional
R-45 S2	10/30/10	5834.91	Transducer	974.9	994.9	Regional
R-50 S1	11/15/12	5835.7	Transducer	1077	1087	Regional
R-50 S1	11/14/12	5835.62	Transducer	1077	1087	Regional
R-50 S1	11/13/12	5835.62	Transducer	1077	1087	Regional
R-50 S1	11/12/12	5835.64	Transducer	1077	1087	Regional
R-50 S1	11/11/12	5836.09	Transducer	1077	1087	Regional
R-50 S1	11/10/12	5836.1	Transducer	1077	1087	Regional
R-50 S1	11/09/12	5835.94	Transducer	1077	1087	Regional
R-50 S1	11/08/12	5835.81	Transducer	1077	1087	Regional
R-50 S1	11/07/12	5835.64	Transducer	1077	1087	Regional
R-50 S1	11/06/12	5835.65	Transducer	1077	1087	Regional
R-50 S1	11/05/12	5835.63	Transducer	1077	1087	Regional
R-50 S1	11/04/12	5835.67	Transducer	1077	1087	Regional
R-50 S1	11/03/12	5835.77	Transducer	1077	1087	Regional
R-50 S1	11/02/12	5835.82	Transducer	1077	1087	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S1	11/01/12	5835.7	Transducer	1077	1087	Regional
R-50 S1	10/31/12	5835.72	Transducer	1077	1087	Regional
R-50 S1	10/30/12	5835.69	Transducer	1077	1087	Regional
R-50 S1	10/29/12	5835.69	Transducer	1077	1087	Regional
R-50 S1	10/28/12	5835.75	Transducer	1077	1087	Regional
R-50 S1	10/27/12	5835.66	Transducer	1077	1087	Regional
R-50 S1	10/26/12	5835.72	Transducer	1077	1087	Regional
R-50 S1	10/25/12	5835.93	Transducer	1077	1087	Regional
R-50 S1	10/24/12	5835.9	Transducer	1077	1087	Regional
R-50 S1	10/23/12	5835.88	Transducer	1077	1087	Regional
R-50 S1	10/22/12	5835.92	Transducer	1077	1087	Regional
R-50 S1	10/21/12	5835.98	Transducer	1077	1087	Regional
R-50 S1	10/20/12	5835.88	Transducer	1077	1087	Regional
R-50 S1	10/19/12	5835.8	Transducer	1077	1087	Regional
R-50 S1	10/18/12	5835.88	Transducer	1077	1087	Regional
R-50 S1	10/17/12	5836.04	Transducer	1077	1087	Regional
R-50 S1	10/16/12	5835.88	Transducer	1077	1087	Regional
R-50 S1	10/15/12	5835.69	Transducer	1077	1087	Regional
R-50 S1	10/14/12	5835.73	Transducer	1077	1087	Regional
R-50 S1	10/13/12	5835.9	Transducer	1077	1087	Regional
R-50 S1	10/12/12	5835.8	Transducer	1077	1087	Regional
R-50 S1	10/11/12	5835.84	Transducer	1077	1087	Regional
R-50 S1	10/10/12	5835.82	Transducer	1077	1087	Regional
R-50 S1	10/09/12	5835.91	Transducer	1077	1087	Regional
R-50 S1	10/08/12	5835.88	Transducer	1077	1087	Regional
R-50 S1	10/07/12	5835.87	Transducer	1077	1087	Regional
R-50 S1	10/06/12	5835.91	Transducer	1077	1087	Regional
R-50 S1	10/05/12	5835.86	Transducer	1077	1087	Regional
R-50 S1	10/04/12	5835.84	Transducer	1077	1087	Regional
R-50 S1	10/03/12	5835.94	Transducer	1077	1087	Regional
R-50 S1	10/02/12	5835.79	Transducer	1077	1087	Regional
R-50 S1	10/01/12	5835.81	Transducer	1077	1087	Regional
R-50 S1	09/30/12	5835.82	Transducer	1077	1087	Regional
R-50 S1	09/29/12	5835.82	Transducer	1077	1087	Regional
R-50 S1	09/28/12	5835.84	Transducer	1077	1087	Regional
R-50 S1	09/27/12	5835.88	Transducer	1077	1087	Regional
R-50 S1	09/26/12	5835.96	Transducer	1077	1087	Regional
R-50 S1	09/25/12	5835.9	Transducer	1077	1087	Regional
R-50 S1	09/24/12	5835.81	Transducer	1077	1087	Regional
R-50 S1	09/23/12	5835.79	Transducer	1077	1087	Regional
R-50 S1	09/22/12	5835.83	Transducer	1077	1087	Regional
R-50 S1	09/21/12	5835.86	Transducer	1077	1087	Regional
R-50 S1	09/20/12	5835.84	Transducer	1077	1087	Regional
R-50 S1	09/19/12	5835.83	Transducer	1077	1087	Regional
R-50 S1	09/18/12	5835.83	Transducer	1077	1087	Regional
R-50 S1	09/17/12	5835.96	Transducer	1077	1087	Regional
R-50 S1	09/16/12	5835.83	Transducer	1077	1087	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S1	09/15/12	5835.68	Transducer	1077	1087	Regional
R-50 S1	09/14/12	5835.61	Transducer	1077	1087	Regional
R-50 S1	09/13/12	5835.79	Transducer	1077	1087	Regional
R-50 S1	09/12/12	5835.93	Transducer	1077	1087	Regional
R-50 S1	09/11/12	5835.9	Transducer	1077	1087	Regional
R-50 S1	09/10/12	5835.8	Transducer	1077	1087	Regional
R-50 S1	09/10/12	5835.787	Transducer	1077	1087	Regional
R-50 S1	09/09/12	5835.726	Transducer	1077	1087	Regional
R-50 S1	09/08/12	5835.737	Transducer	1077	1087	Regional
R-50 S1	09/07/12	5835.914	Transducer	1077	1087	Regional
R-50 S1	09/06/12	5835.886	Transducer	1077	1087	Regional
R-50 S1	09/05/12	5835.921	Transducer	1077	1087	Regional
R-50 S1	09/04/12	5835.864	Transducer	1077	1087	Regional
R-50 S1	09/03/12	5835.881	Transducer	1077	1087	Regional
R-50 S1	09/02/12	5835.852	Transducer	1077	1087	Regional
R-50 S1	09/01/12	5835.852	Transducer	1077	1087	Regional
R-50 S1	08/31/12	5835.894	Transducer	1077	1087	Regional
R-50 S1	08/30/12	5835.887	Transducer	1077	1087	Regional
R-50 S1	08/29/12	5835.793	Transducer	1077	1087	Regional
R-50 S1	08/28/12	5835.719	Transducer	1077	1087	Regional
R-50 S1	08/27/12	5835.78	Transducer	1077	1087	Regional
R-50 S1	08/26/12	5835.912	Transducer	1077	1087	Regional
R-50 S1	08/25/12	5836.052	Transducer	1077	1087	Regional
R-50 S1	08/24/12	5836.014	Transducer	1077	1087	Regional
R-50 S1	08/23/12	5835.933	Transducer	1077	1087	Regional
R-50 S1	08/22/12	5835.889	Transducer	1077	1087	Regional
R-50 S1	08/21/12	5835.925	Transducer	1077	1087	Regional
R-50 S1	08/20/12	5835.925	Transducer	1077	1087	Regional
R-50 S1	08/19/12	5835.959	Transducer	1077	1087	Regional
R-50 S1	08/18/12	5835.921	Transducer	1077	1087	Regional
R-50 S1	08/17/12	5835.868	Transducer	1077	1087	Regional
R-50 S1	08/16/12	5835.999	Transducer	1077	1087	Regional
R-50 S1	08/15/12	5836.016	Transducer	1077	1087	Regional
R-50 S1	08/14/12	5835.924	Transducer	1077	1087	Regional
R-50 S1	08/13/12	5835.826	Transducer	1077	1087	Regional
R-50 S1	08/12/12	5835.952	Transducer	1077	1087	Regional
R-50 S1	08/11/12	5835.931	Transducer	1077	1087	Regional
R-50 S1	08/10/12	5835.862	Transducer	1077	1087	Regional
R-50 S1	08/09/12	5835.804	Transducer	1077	1087	Regional
R-50 S1	08/08/12	5835.85	Transducer	1077	1087	Regional
R-50 S1	08/07/12	5835.856	Transducer	1077	1087	Regional
R-50 S1	08/06/12	5835.683	Transducer	1077	1087	Regional
R-50 S1	08/05/12	5835.775	Transducer	1077	1087	Regional
R-50 S1	08/04/12	5835.987	Transducer	1077	1087	Regional
R-50 S1	08/03/12	5835.908	Transducer	1077	1087	Regional
R-50 S1	08/02/12	5835.931	Transducer	1077	1087	Regional
R-50 S1	08/01/12	5835.851	Transducer	1077	1087	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S1	07/31/12	5835.909	Transducer	1077	1087	Regional
R-50 S1	07/30/12	5835.914	Transducer	1077	1087	Regional
R-50 S1	07/29/12	5835.84	Transducer	1077	1087	Regional
R-50 S1	07/28/12	5835.823	Transducer	1077	1087	Regional
R-50 S1	07/27/12	5835.905	Transducer	1077	1087	Regional
R-50 S1	07/26/12	5836.031	Transducer	1077	1087	Regional
R-50 S1	07/25/12	5836.028	Transducer	1077	1087	Regional
R-50 S1	07/24/12	5835.911	Transducer	1077	1087	Regional
R-50 S1	07/23/12	5835.881	Transducer	1077	1087	Regional
R-50 S1	07/22/12	5835.859	Transducer	1077	1087	Regional
R-50 S1	07/21/12	5835.824	Transducer	1077	1087	Regional
R-50 S1	07/20/12	5835.815	Transducer	1077	1087	Regional
R-50 S1	07/19/12	5835.879	Transducer	1077	1087	Regional
R-50 S1	07/18/12	5835.997	Transducer	1077	1087	Regional
R-50 S1	07/17/12	5836.054	Transducer	1077	1087	Regional
R-50 S1	07/16/12	5836.003	Transducer	1077	1087	Regional
R-50 S1	07/15/12	5835.942	Transducer	1077	1087	Regional
R-50 S1	07/14/12	5835.916	Transducer	1077	1087	Regional
R-50 S1	07/13/12	5835.909	Transducer	1077	1087	Regional
R-50 S1	07/12/12	5835.893	Transducer	1077	1087	Regional
R-50 S1	07/11/12	5835.84	Transducer	1077	1087	Regional
R-50 S1	07/10/12	5835.839	Transducer	1077	1087	Regional
R-50 S1	07/09/12	5835.845	Transducer	1077	1087	Regional
R-50 S1	07/08/12	5835.825	Transducer	1077	1087	Regional
R-50 S1	07/07/12	5835.876	Transducer	1077	1087	Regional
R-50 S1	07/06/12	5835.945	Transducer	1077	1087	Regional
R-50 S1	07/05/12	5836.007	Transducer	1077	1087	Regional
R-50 S1	07/04/12	5836.034	Transducer	1077	1087	Regional
R-50 S1	07/03/12	5836.013	Transducer	1077	1087	Regional
R-50 S1	07/02/12	5836.023	Transducer	1077	1087	Regional
R-50 S1	07/01/12	5836.041	Transducer	1077	1087	Regional
R-50 S1	06/30/12	5836.03	Transducer	1077	1087	Regional
R-50 S1	06/29/12	5835.9	Transducer	1077	1087	Regional
R-50 S1	06/28/12	5835.933	Transducer	1077	1087	Regional
R-50 S1	06/27/12	5836.047	Transducer	1077	1087	Regional
R-50 S1	06/26/12	5835.988	Transducer	1077	1087	Regional
R-50 S1	06/25/12	5835.911	Transducer	1077	1087	Regional
R-50 S1	06/24/12	5835.986	Transducer	1077	1087	Regional
R-50 S1	06/23/12	5836.094	Transducer	1077	1087	Regional
R-50 S1	06/22/12	5835.954	Transducer	1077	1087	Regional
R-50 S1	06/21/12	5836.04	Transducer	1077	1087	Regional
R-50 S1	06/20/12	5836.265	Transducer	1077	1087	Regional
R-50 S1	06/19/12	5836.274	Transducer	1077	1087	Regional
R-50 S1	06/19/12	5836.25	Manual	1077	1087	Regional
R-50 S1	06/19/12	5836.23	Transducer	1077	1087	Regional
R-50 S1	06/18/12	5836.163	Transducer	1077	1087	Regional
R-50 S1	06/17/12	5835.903	Transducer	1077	1087	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S1	06/16/12	5836.064	Transducer	1077	1087	Regional
R-50 S1	06/15/12	5836.188	Transducer	1077	1087	Regional
R-50 S1	06/14/12	5836.204	Transducer	1077	1087	Regional
R-50 S1	06/13/12	5836.109	Transducer	1077	1087	Regional
R-50 S1	06/12/12	5835.996	Transducer	1077	1087	Regional
R-50 S1	06/11/12	5836.127	Transducer	1077	1087	Regional
R-50 S1	06/10/12	5836.331	Transducer	1077	1087	Regional
R-50 S1	06/09/12	5836.288	Transducer	1077	1087	Regional
R-50 S1	06/08/12	5836.167	Transducer	1077	1087	Regional
R-50 S1	06/07/12	5836.269	Transducer	1077	1087	Regional
R-50 S1	06/06/12	5836.234	Transducer	1077	1087	Regional
R-50 S1	06/05/12	5836.165	Transducer	1077	1087	Regional
R-50 S1	06/04/12	5836.143	Transducer	1077	1087	Regional
R-50 S1	06/03/12	5836.234	Transducer	1077	1087	Regional
R-50 S1	06/02/12	5836.268	Transducer	1077	1087	Regional
R-50 S1	06/01/12	5836.218	Transducer	1077	1087	Regional
R-50 S1	05/31/12	5836.272	Transducer	1077	1087	Regional
R-50 S1	05/30/12	5836.252	Transducer	1077	1087	Regional
R-50 S1	05/29/12	5836.211	Transducer	1077	1087	Regional
R-50 S1	05/28/12	5836.253	Transducer	1077	1087	Regional
R-50 S1	05/27/12	5836.382	Transducer	1077	1087	Regional
R-50 S1	05/26/12	5836.424	Transducer	1077	1087	Regional
R-50 S1	05/25/12	5836.55	Transducer	1077	1087	Regional
R-50 S1	05/24/12	5836.702	Transducer	1077	1087	Regional
R-50 S1	05/23/12	5836.508	Transducer	1077	1087	Regional
R-50 S1	05/22/12	5836.218	Transducer	1077	1087	Regional
R-50 S1	05/21/12	5836.106	Transducer	1077	1087	Regional
R-50 S1	05/20/12	5836.285	Transducer	1077	1087	Regional
R-50 S1	05/19/12	5836.519	Transducer	1077	1087	Regional
R-50 S1	05/18/12	5836.515	Transducer	1077	1087	Regional
R-50 S1	05/17/12	5836.334	Transducer	1077	1087	Regional
R-50 S1	05/16/12	5836.169	Transducer	1077	1087	Regional
R-50 S1	05/15/12	5836.154	Transducer	1077	1087	Regional
R-50 S1	05/14/12	5836.181	Transducer	1077	1087	Regional
R-50 S1	05/13/12	5836.107	Transducer	1077	1087	Regional
R-50 S1	05/12/12	5836.181	Transducer	1077	1087	Regional
R-50 S1	05/11/12	5836.468	Transducer	1077	1087	Regional
R-50 S1	05/10/12	5836.359	Transducer	1077	1087	Regional
R-50 S1	05/09/12	5836.226	Transducer	1077	1087	Regional
R-50 S1	05/08/12	5836.26	Transducer	1077	1087	Regional
R-50 S1	05/07/12	5836.373	Transducer	1077	1087	Regional
R-50 S1	05/06/12	5836.438	Transducer	1077	1087	Regional
R-50 S1	05/05/12	5836.421	Transducer	1077	1087	Regional
R-50 S1	05/04/12	5836.392	Transducer	1077	1087	Regional
R-50 S1	05/03/12	5836.468	Transducer	1077	1087	Regional
R-50 S1	05/02/12	5836.54	Transducer	1077	1087	Regional
R-50 S1	05/01/12	5836.539	Transducer	1077	1087	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S1	04/30/12	5836.443	Transducer	1077	1087	Regional
R-50 S1	04/29/12	5836.542	Transducer	1077	1087	Regional
R-50 S1	04/28/12	5836.56	Transducer	1077	1087	Regional
R-50 S1	04/27/12	5836.61	Transducer	1077	1087	Regional
R-50 S1	04/26/12	5836.417	Transducer	1077	1087	Regional
R-50 S1	04/25/12	5836.469	Transducer	1077	1087	Regional
R-50 S1	04/24/12	5836.391	Transducer	1077	1087	Regional
R-50 S1	04/23/12	5836.257	Transducer	1077	1087	Regional
R-50 S1	04/22/12	5836.311	Transducer	1077	1087	Regional
R-50 S1	04/21/12	5836.364	Transducer	1077	1087	Regional
R-50 S1	04/20/12	5836.444	Transducer	1077	1087	Regional
R-50 S1	04/19/12	5836.509	Transducer	1077	1087	Regional
R-50 S1	04/18/12	5836.371	Transducer	1077	1087	Regional
R-50 S1	04/17/12	5836.287	Transducer	1077	1087	Regional
R-50 S1	04/16/12	5836.439	Transducer	1077	1087	Regional
R-50 S1	04/15/12	5836.81	Transducer	1077	1087	Regional
R-50 S1	04/14/12	5836.814	Transducer	1077	1087	Regional
R-50 S1	04/13/12	5836.589	Transducer	1077	1087	Regional
R-50 S1	04/12/12	5836.619	Transducer	1077	1087	Regional
R-50 S1	04/11/12	5836.402	Transducer	1077	1087	Regional
R-50 S1	04/10/12	5836.358	Transducer	1077	1087	Regional
R-50 S1	04/09/12	5836.282	Transducer	1077	1087	Regional
R-50 S1	04/08/12	5836.138	Transducer	1077	1087	Regional
R-50 S1	04/07/12	5836.39	Transducer	1077	1087	Regional
R-50 S1	04/06/12	5836.551	Transducer	1077	1087	Regional
R-50 S1	04/05/12	5836.526	Transducer	1077	1087	Regional
R-50 S1	04/04/12	5836.504	Transducer	1077	1087	Regional
R-50 S1	04/03/12	5836.689	Transducer	1077	1087	Regional
R-50 S1	04/02/12	5836.804	Transducer	1077	1087	Regional
R-50 S1	04/01/12	5836.592	Transducer	1077	1087	Regional
R-50 S1	03/31/12	5836.479	Transducer	1077	1087	Regional
R-50 S1	03/30/12	5836.502	Transducer	1077	1087	Regional
R-50 S1	03/29/12	5836.521	Transducer	1077	1087	Regional
R-50 S1	03/28/12	5836.444	Transducer	1077	1087	Regional
R-50 S1	03/27/12	5836.486	Transducer	1077	1087	Regional
R-50 S1	03/26/12	5836.499	Transducer	1077	1087	Regional
R-50 S1	03/25/12	5836.383	Transducer	1077	1087	Regional
R-50 S1	03/24/12	5836.403	Transducer	1077	1087	Regional
R-50 S1	03/23/12	5836.478	Transducer	1077	1087	Regional
R-50 S1	03/22/12	5836.552	Transducer	1077	1087	Regional
R-50 S1	03/21/12	5836.559	Transducer	1077	1087	Regional
R-50 S1	03/20/12	5836.869	Transducer	1077	1087	Regional
R-50 S1	03/19/12	5836.872	Transducer	1077	1087	Regional
R-50 S1	03/18/12	5836.744	Transducer	1077	1087	Regional
R-50 S1	03/17/12	5836.575	Transducer	1077	1087	Regional
R-50 S1	03/16/12	5836.438	Transducer	1077	1087	Regional
R-50 S1	03/15/12	5836.385	Transducer	1077	1087	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S1	03/14/12	5836.454	Transducer	1077	1087	Regional
R-50 S1	03/13/12	5836.411	Transducer	1077	1087	Regional
R-50 S1	03/12/12	5836.559	Transducer	1077	1087	Regional
R-50 S1	03/11/12	5836.644	Transducer	1077	1087	Regional
R-50 S1	03/10/12	5836.302	Transducer	1077	1087	Regional
R-50 S1	03/09/12	5836.104	Transducer	1077	1087	Regional
R-50 S1	03/08/12	5836.59	Transducer	1077	1087	Regional
R-50 S1	03/07/12	5836.76	Transducer	1077	1087	Regional
R-50 S1	03/07/12	5836.787	Transducer	1077	1087	Regional
R-50 S1	03/06/12	5836.444	Transducer	1077	1087	Regional
R-50 S1	03/05/12	5836.255	Transducer	1077	1087	Regional
R-50 S1	03/04/12	5836.268	Transducer	1077	1087	Regional
R-50 S1	03/03/12	5836.436	Transducer	1077	1087	Regional
R-50 S1	03/02/12	5836.683	Transducer	1077	1087	Regional
R-50 S1	03/01/12	5836.542	Transducer	1077	1087	Regional
R-50 S1	02/29/12	5836.412	Transducer	1077	1087	Regional
R-50 S1	02/28/12	5836.561	Transducer	1077	1087	Regional
R-50 S1	02/27/12	5836.385	Transducer	1077	1087	Regional
R-50 S1	02/26/12	5836.506	Transducer	1077	1087	Regional
R-50 S1	02/25/12	5836.235	Transducer	1077	1087	Regional
R-50 S1	02/24/12	5836.417	Transducer	1077	1087	Regional
R-50 S1	02/23/12	5836.641	Transducer	1077	1087	Regional
R-50 S1	02/22/12	5836.372	Transducer	1077	1087	Regional
R-50 S1	02/21/12	5836.379	Transducer	1077	1087	Regional
R-50 S1	02/20/12	5836.707	Transducer	1077	1087	Regional
R-50 S1	02/19/12	5836.519	Transducer	1077	1087	Regional
R-50 S1	02/18/12	5836.514	Transducer	1077	1087	Regional
R-50 S1	02/17/12	5836.446	Transducer	1077	1087	Regional
R-50 S1	02/16/12	5836.458	Transducer	1077	1087	Regional
R-50 S1	02/15/12	5836.794	Transducer	1077	1087	Regional
R-50 S1	02/14/12	5836.712	Transducer	1077	1087	Regional
R-50 S1	02/13/12	5836.783	Transducer	1077	1087	Regional
R-50 S1	02/12/12	5836.44	Transducer	1077	1087	Regional
R-50 S1	02/11/12	5836.411	Transducer	1077	1087	Regional
R-50 S1	02/10/12	5836.408	Transducer	1077	1087	Regional
R-50 S1	02/09/12	5836.408	Transducer	1077	1087	Regional
R-50 S1	02/08/12	5836.292	Transducer	1077	1087	Regional
R-50 S1	02/07/12	5836.497	Transducer	1077	1087	Regional
R-50 S1	02/06/12	5836.404	Transducer	1077	1087	Regional
R-50 S1	02/05/12	5836.275	Transducer	1077	1087	Regional
R-50 S1	02/04/12	5836.395	Transducer	1077	1087	Regional
R-50 S1	02/03/12	5836.7	Transducer	1077	1087	Regional
R-50 S1	02/02/12	5836.502	Transducer	1077	1087	Regional
R-50 S1	02/01/12	5836.408	Transducer	1077	1087	Regional
R-50 S1	01/31/12	5836.541	Transducer	1077	1087	Regional
R-50 S1	01/30/12	5836.365	Transducer	1077	1087	Regional
R-50 S1	01/29/12	5836.224	Transducer	1077	1087	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S1	01/28/12	5836.301	Transducer	1077	1087	Regional
R-50 S1	01/27/12	5836.577	Transducer	1077	1087	Regional
R-50 S1	01/26/12	5836.412	Transducer	1077	1087	Regional
R-50 S1	01/25/12	5836.429	Transducer	1077	1087	Regional
R-50 S1	01/24/12	5836.678	Transducer	1077	1087	Regional
R-50 S1	01/23/12	5836.52	Transducer	1077	1087	Regional
R-50 S1	01/22/12	5836.941	Transducer	1077	1087	Regional
R-50 S1	01/21/12	5836.514	Transducer	1077	1087	Regional
R-50 S1	01/20/12	5836.663	Transducer	1077	1087	Regional
R-50 S1	01/19/12	5836.492	Transducer	1077	1087	Regional
R-50 S1	01/18/12	5836.407	Transducer	1077	1087	Regional
R-50 S1	01/17/12	5836.609	Transducer	1077	1087	Regional
R-50 S1	01/16/12	5836.617	Transducer	1077	1087	Regional
R-50 S1	01/15/12	5836.409	Transducer	1077	1087	Regional
R-50 S1	01/14/12	5836.349	Transducer	1077	1087	Regional
R-50 S1	01/13/12	5836.527	Transducer	1077	1087	Regional
R-50 S1	01/12/12	5836.536	Transducer	1077	1087	Regional
R-50 S1	01/11/12	5836.652	Transducer	1077	1087	Regional
R-50 S1	01/10/12	5836.464	Transducer	1077	1087	Regional
R-50 S1	01/09/12	5836.47	Transducer	1077	1087	Regional
R-50 S1	01/08/12	5836.707	Transducer	1077	1087	Regional
R-50 S1	01/07/12	5836.584	Transducer	1077	1087	Regional
R-50 S1	01/06/12	5836.581	Transducer	1077	1087	Regional
R-50 S1	01/05/12	5836.229	Transducer	1077	1087	Regional
R-50 S1	01/04/12	5836.305	Transducer	1077	1087	Regional
R-50 S1	01/03/12	5836.177	Transducer	1077	1087	Regional
R-50 S1	01/02/12	5836.095	Transducer	1077	1087	Regional
R-50 S1	01/01/12	5836.256	Transducer	1077	1087	Regional
R-50 S1	12/31/11	5836.526	Transducer	1077	1087	Regional
R-50 S1	12/30/11	5836.477	Transducer	1077	1087	Regional
R-50 S1	12/29/11	5836.391	Transducer	1077	1087	Regional
R-50 S1	12/28/11	5836.431	Transducer	1077	1087	Regional
R-50 S1	12/27/11	5836.344	Transducer	1077	1087	Regional
R-50 S1	12/26/11	5836.396	Transducer	1077	1087	Regional
R-50 S1	12/25/11	5836.215	Transducer	1077	1087	Regional
R-50 S1	12/24/11	5836.296	Transducer	1077	1087	Regional
R-50 S1	12/23/11	5836.401	Transducer	1077	1087	Regional
R-50 S1	12/22/11	5836.685	Transducer	1077	1087	Regional
R-50 S1	12/21/11	5836.678	Transducer	1077	1087	Regional
R-50 S1	12/20/11	5836.62	Transducer	1077	1087	Regional
R-50 S1	12/19/11	5836.726	Transducer	1077	1087	Regional
R-50 S1	12/18/11	5836.279	Transducer	1077	1087	Regional
R-50 S1	12/17/11	5836.174	Transducer	1077	1087	Regional
R-50 S1	12/16/11	5836.336	Transducer	1077	1087	Regional
R-50 S1	12/15/11	5836.458	Transducer	1077	1087	Regional
R-50 S1	12/14/11	5836.664	Transducer	1077	1087	Regional
R-50 S1	12/13/11	5836.542	Transducer	1077	1087	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S1	12/12/11	5836.538	Transducer	1077	1087	Regional
R-50 S1	12/11/11	5836.391	Transducer	1077	1087	Regional
R-50 S1	12/10/11	5836.24	Transducer	1077	1087	Regional
R-50 S1	12/09/11	5836.424	Transducer	1077	1087	Regional
R-50 S1	12/08/11	5836.46	Transducer	1077	1087	Regional
R-50 S1	12/07/11	5836.339	Transducer	1077	1087	Regional
R-50 S1	12/06/11	5836.418	Transducer	1077	1087	Regional
R-50 S1	12/05/11	5836.582	Transducer	1077	1087	Regional
R-50 S1	12/04/11	5836.534	Transducer	1077	1087	Regional
R-50 S1	12/03/11	5836.746	Transducer	1077	1087	Regional
R-50 S1	12/02/11	5836.374	Transducer	1077	1087	Regional
R-50 S1	12/01/11	5836.653	Transducer	1077	1087	Regional
R-50 S1	11/30/11	5836.305	Transducer	1077	1087	Regional
R-50 S1	11/29/11	5836.268	Transducer	1077	1087	Regional
R-50 S1	11/28/11	5836.164	Transducer	1077	1087	Regional
R-50 S1	11/27/11	5836.06	Transducer	1077	1087	Regional
R-50 S1	11/26/11	5836.487	Transducer	1077	1087	Regional
R-50 S1	11/25/11	5836.439	Transducer	1077	1087	Regional
R-50 S1	11/24/11	5836.263	Transducer	1077	1087	Regional
R-50 S1	11/23/11	5836.151	Transducer	1077	1087	Regional
R-50 S1	11/22/11	5836.31	Transducer	1077	1087	Regional
R-50 S1	11/21/11	5836.4	Transducer	1077	1087	Regional
R-50 S1	11/20/11	5836.496	Transducer	1077	1087	Regional
R-50 S1	11/19/11	5836.671	Transducer	1077	1087	Regional
R-50 S1	11/18/11	5836.462	Transducer	1077	1087	Regional
R-50 S1	11/17/11	5836.212	Transducer	1077	1087	Regional
R-50 S1	11/16/11	5836.504	Transducer	1077	1087	Regional
R-50 S1	11/15/11	5836.537	Transducer	1077	1087	Regional
R-50 S1	11/14/11	5836.597	Transducer	1077	1087	Regional
R-50 S1	11/13/11	5836.606	Transducer	1077	1087	Regional
R-50 S1	11/12/11	5836.533	Transducer	1077	1087	Regional
R-50 S1	11/11/11	5836.247	Transducer	1077	1087	Regional
R-50 S1	11/10/11	5836.058	Transducer	1077	1087	Regional
R-50 S1	11/09/11	5836.222	Transducer	1077	1087	Regional
R-50 S1	11/08/11	5836.597	Transducer	1077	1087	Regional
R-50 S1	11/07/11	5836.521	Transducer	1077	1087	Regional
R-50 S1	11/06/11	5836.584	Transducer	1077	1087	Regional
R-50 S1	11/05/11	5836.709	Transducer	1077	1087	Regional
R-50 S1	11/04/11	5836.371	Transducer	1077	1087	Regional
R-50 S1	11/03/11	5836.15	Transducer	1077	1087	Regional
R-50 S1	11/02/11	5836.595	Transducer	1077	1087	Regional
R-50 S1	11/01/11	5836.379	Transducer	1077	1087	Regional
R-50 S1	10/31/11	5836.221	Transducer	1077	1087	Regional
R-50 S1	10/30/11	5836.322	Transducer	1077	1087	Regional
R-50 S1	10/29/11	5836.234	Transducer	1077	1087	Regional
R-50 S1	10/28/11	5836.339	Transducer	1077	1087	Regional
R-50 S1	10/27/11	5836.483	Transducer	1077	1087	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S1	10/26/11	5836.408	Transducer	1077	1087	Regional
R-50 S1	10/25/11	5836.318	Transducer	1077	1087	Regional
R-50 S1	10/24/11	5836.211	Transducer	1077	1087	Regional
R-50 S1	10/23/11	5836.242	Transducer	1077	1087	Regional
R-50 S1	10/22/11	5836.232	Transducer	1077	1087	Regional
R-50 S1	10/21/11	5836.25	Transducer	1077	1087	Regional
R-50 S1	10/20/11	5836.366	Transducer	1077	1087	Regional
R-50 S1	10/19/11	5836.195	Transducer	1077	1087	Regional
R-50 S1	10/18/11	5836.244	Transducer	1077	1087	Regional
R-50 S1	10/17/11	5836.327	Transducer	1077	1087	Regional
R-50 S1	10/16/11	5836.22	Transducer	1077	1087	Regional
R-50 S1	10/15/11	5836.233	Transducer	1077	1087	Regional
R-50 S1	10/14/11	5836.306	Transducer	1077	1087	Regional
R-50 S1	10/13/11	5836.23	Transducer	1077	1087	Regional
R-50 S1	10/12/11	5836.362	Transducer	1077	1087	Regional
R-50 S1	10/11/11	5836.395	Transducer	1077	1087	Regional
R-50 S1	10/10/11	5836.314	Transducer	1077	1087	Regional
R-50 S1	10/09/11	5836.343	Transducer	1077	1087	Regional
R-50 S1	10/08/11	5836.518	Transducer	1077	1087	Regional
R-50 S1	10/07/11	5836.514	Transducer	1077	1087	Regional
R-50 S1	10/06/11	5836.548	Transducer	1077	1087	Regional
R-50 S1	10/05/11	5836.368	Transducer	1077	1087	Regional
R-50 S1	10/04/11	5836.227	Transducer	1077	1087	Regional
R-50 S1	10/03/11	5836.187	Transducer	1077	1087	Regional
R-50 S1	10/02/11	5836.167	Transducer	1077	1087	Regional
R-50 S1	10/01/11	5836.157	Transducer	1077	1087	Regional
R-50 S1	09/30/11	5836.042	Transducer	1077	1087	Regional
R-50 S1	09/29/11	5836.23	Transducer	1077	1087	Regional
R-50 S1	09/28/11	5836.169	Transducer	1077	1087	Regional
R-50 S1	09/27/11	5836.245	Transducer	1077	1087	Regional
R-50 S1	09/26/11	5836.357	Transducer	1077	1087	Regional
R-50 S1	09/25/11	5836.313	Transducer	1077	1087	Regional
R-50 S1	09/24/11	5836.166	Transducer	1077	1087	Regional
R-50 S1	09/23/11	5836.12	Transducer	1077	1087	Regional
R-50 S1	09/22/11	5836.228	Transducer	1077	1087	Regional
R-50 S1	09/21/11	5836.233	Transducer	1077	1087	Regional
R-50 S1	09/20/11	5836.21	Transducer	1077	1087	Regional
R-50 S1	09/19/11	5836.121	Transducer	1077	1087	Regional
R-50 S1	09/18/11	5836.192	Transducer	1077	1087	Regional
R-50 S1	09/17/11	5836.255	Transducer	1077	1087	Regional
R-50 S1	09/16/11	5836.266	Transducer	1077	1087	Regional
R-50 S1	09/15/11	5836.223	Transducer	1077	1087	Regional
R-50 S1	09/14/11	5836.189	Transducer	1077	1087	Regional
R-50 S1	09/13/11	5836.09	Transducer	1077	1087	Regional
R-50 S1	09/12/11	5836.038	Transducer	1077	1087	Regional
R-50 S1	09/11/11	5836.061	Transducer	1077	1087	Regional
R-50 S1	09/10/11	5836.099	Transducer	1077	1087	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S1	09/09/11	5836.062	Transducer	1077	1087	Regional
R-50 S1	09/08/11	5835.956	Transducer	1077	1087	Regional
R-50 S1	09/07/11	5836.106	Transducer	1077	1087	Regional
R-50 S1	09/06/11	5836.102	Transducer	1077	1087	Regional
R-50 S1	09/05/11	5836.034	Transducer	1077	1087	Regional
R-50 S1	09/04/11	5836.111	Transducer	1077	1087	Regional
R-50 S1	09/03/11	5836.221	Transducer	1077	1087	Regional
R-50 S1	09/02/11	5836.136	Transducer	1077	1087	Regional
R-50 S1	09/01/11	5836.161	Transducer	1077	1087	Regional
R-50 S1	08/31/11	5836.225	Transducer	1077	1087	Regional
R-50 S1	08/30/11	5836.214	Transducer	1077	1087	Regional
R-50 S1	08/29/11	5836.174	Transducer	1077	1087	Regional
R-50 S1	08/28/11	5836.093	Transducer	1077	1087	Regional
R-50 S1	08/27/11	5836.014	Transducer	1077	1087	Regional
R-50 S1	08/26/11	5836.021	Transducer	1077	1087	Regional
R-50 S1	08/25/11	5836.045	Transducer	1077	1087	Regional
R-50 S1	08/24/11	5836.109	Transducer	1077	1087	Regional
R-50 S1	08/23/11	5836.095	Transducer	1077	1087	Regional
R-50 S1	08/22/11	5836.008	Transducer	1077	1087	Regional
R-50 S1	08/21/11	5836.087	Transducer	1077	1087	Regional
R-50 S1	08/20/11	5836.155	Transducer	1077	1087	Regional
R-50 S1	08/19/11	5836.173	Transducer	1077	1087	Regional
R-50 S1	08/19/11	5836.11	Transducer	1077	1087	Regional
R-50 S1	08/18/11	5835.98	Transducer	1077	1087	Regional
R-50 S1	08/17/11	5836.02	Transducer	1077	1087	Regional
R-50 S1	08/16/11	5836.16	Transducer	1077	1087	Regional
R-50 S1	08/15/11	5836.11	Transducer	1077	1087	Regional
R-50 S1	08/14/11	5835.97	Transducer	1077	1087	Regional
R-50 S1	08/13/11	5836.09	Transducer	1077	1087	Regional
R-50 S1	08/12/11	5836.15	Transducer	1077	1087	Regional
R-50 S1	08/11/11	5836.15	Transducer	1077	1087	Regional
R-50 S1	08/10/11	5836.21	Transducer	1077	1087	Regional
R-50 S1	08/09/11	5836.18	Transducer	1077	1087	Regional
R-50 S1	08/08/11	5836.18	Transducer	1077	1087	Regional
R-50 S1	08/07/11	5836.14	Transducer	1077	1087	Regional
R-50 S1	08/06/11	5836.09	Transducer	1077	1087	Regional
R-50 S1	08/05/11	5836.1	Transducer	1077	1087	Regional
R-50 S1	08/04/11	5836.09	Transducer	1077	1087	Regional
R-50 S1	08/03/11	5836.06	Transducer	1077	1087	Regional
R-50 S1	08/02/11	5836.02	Transducer	1077	1087	Regional
R-50 S1	08/01/11	5835.94	Transducer	1077	1087	Regional
R-50 S1	07/31/11	5835.9	Transducer	1077	1087	Regional
R-50 S1	07/30/11	5835.91	Transducer	1077	1087	Regional
R-50 S1	07/29/11	5835.99	Transducer	1077	1087	Regional
R-50 S1	07/28/11	5836.09	Transducer	1077	1087	Regional
R-50 S1	07/27/11	5836.09	Transducer	1077	1087	Regional
R-50 S1	07/26/11	5836.01	Transducer	1077	1087	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S1	07/25/11	5835.89	Transducer	1077	1087	Regional
R-50 S1	07/24/11	5835.95	Transducer	1077	1087	Regional
R-50 S1	07/23/11	5836.05	Transducer	1077	1087	Regional
R-50 S1	07/22/11	5836.08	Transducer	1077	1087	Regional
R-50 S1	07/21/11	5836.06	Transducer	1077	1087	Regional
R-50 S1	07/20/11	5836	Transducer	1077	1087	Regional
R-50 S1	07/19/11	5835.91	Transducer	1077	1087	Regional
R-50 S1	07/18/11	5835.86	Transducer	1077	1087	Regional
R-50 S1	07/17/11	5835.96	Transducer	1077	1087	Regional
R-50 S1	07/16/11	5836.1	Transducer	1077	1087	Regional
R-50 S1	07/15/11	5836.14	Transducer	1077	1087	Regional
R-50 S1	07/14/11	5836.11	Transducer	1077	1087	Regional
R-50 S1	07/13/11	5836.06	Transducer	1077	1087	Regional
R-50 S1	07/12/11	5836.05	Transducer	1077	1087	Regional
R-50 S1	07/11/11	5836.06	Transducer	1077	1087	Regional
R-50 S1	07/10/11	5836.08	Transducer	1077	1087	Regional
R-50 S1	07/09/11	5836.14	Transducer	1077	1087	Regional
R-50 S1	07/08/11	5836.09	Transducer	1077	1087	Regional
R-50 S1	07/07/11	5836.03	Transducer	1077	1087	Regional
R-50 S1	07/06/11	5836.02	Transducer	1077	1087	Regional
R-50 S1	07/05/11	5836.02	Transducer	1077	1087	Regional
R-50 S1	07/04/11	5836.02	Transducer	1077	1087	Regional
R-50 S1	07/03/11	5835.98	Transducer	1077	1087	Regional
R-50 S1	07/02/11	5836.05	Transducer	1077	1087	Regional
R-50 S1	07/01/11	5836.1	Transducer	1077	1087	Regional
R-50 S1	06/30/11	5836.09	Transducer	1077	1087	Regional
R-50 S1	06/29/11	5836.01	Transducer	1077	1087	Regional
R-50 S1	06/28/11	5836	Transducer	1077	1087	Regional
R-50 S1	06/27/11	5836.16	Transducer	1077	1087	Regional
R-50 S1	06/26/11	5836.18	Transducer	1077	1087	Regional
R-50 S1	06/25/11	5836.22	Transducer	1077	1087	Regional
R-50 S1	06/24/11	5836.22	Transducer	1077	1087	Regional
R-50 S1	06/23/11	5836.14	Transducer	1077	1087	Regional
R-50 S1	06/22/11	5836.16	Transducer	1077	1087	Regional
R-50 S1	06/21/11	5836.27	Transducer	1077	1087	Regional
R-50 S1	06/20/11	5836.44	Transducer	1077	1087	Regional
R-50 S1	06/19/11	5836.33	Transducer	1077	1087	Regional
R-50 S1	06/18/11	5836.27	Transducer	1077	1087	Regional
R-50 S1	06/17/11	5836.41	Transducer	1077	1087	Regional
R-50 S1	06/16/11	5836.36	Transducer	1077	1087	Regional
R-50 S1	06/15/11	5836.19	Transducer	1077	1087	Regional
R-50 S1	06/14/11	5836.24	Transducer	1077	1087	Regional
R-50 S1	06/13/11	5836.29	Transducer	1077	1087	Regional
R-50 S1	06/12/11	5836.35	Transducer	1077	1087	Regional
R-50 S1	06/11/11	5836.29	Transducer	1077	1087	Regional
R-50 S1	06/10/11	5836.32	Transducer	1077	1087	Regional
R-50 S1	06/09/11	5836.37	Transducer	1077	1087	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S1	06/08/11	5836.35	Transducer	1077	1087	Regional
R-50 S1	06/07/11	5836.35	Transducer	1077	1087	Regional
R-50 S1	06/06/11	5836.17	Transducer	1077	1087	Regional
R-50 S1	06/05/11	5836.07	Transducer	1077	1087	Regional
R-50 S1	06/04/11	5836.24	Transducer	1077	1087	Regional
R-50 S1	06/03/11	5836.35	Transducer	1077	1087	Regional
R-50 S1	06/02/11	5836.28	Transducer	1077	1087	Regional
R-50 S1	06/01/11	5836.09	Transducer	1077	1087	Regional
R-50 S1	05/31/11	5836.21	Transducer	1077	1087	Regional
R-50 S1	05/30/11	5836.68	Transducer	1077	1087	Regional
R-50 S1	05/29/11	5836.67	Transducer	1077	1087	Regional
R-50 S1	05/28/11	5836.57	Transducer	1077	1087	Regional
R-50 S1	05/27/11	5836.51	Transducer	1077	1087	Regional
R-50 S1	05/26/11	5836.36	Transducer	1077	1087	Regional
R-50 S1	05/25/11	5836.49	Transducer	1077	1087	Regional
R-50 S1	05/24/11	5836.66	Transducer	1077	1087	Regional
R-50 S1	05/23/11	5836.56	Transducer	1077	1087	Regional
R-50 S1	05/22/11	5836.54	Transducer	1077	1087	Regional
R-50 S1	05/21/11	5836.58	Transducer	1077	1087	Regional
R-50 S1	05/20/11	5836.69	Transducer	1077	1087	Regional
R-50 S1	05/19/11	5836.88	Transducer	1077	1087	Regional
R-50 S1	05/18/11	5836.84	Transducer	1077	1087	Regional
R-50 S1	05/17/11	5836.76	Transducer	1077	1087	Regional
R-50 S1	05/16/11	5836.6	Transducer	1077	1087	Regional
R-50 S1	05/15/11	5836.61	Transducer	1077	1087	Regional
R-50 S1	05/14/11	5836.49	Transducer	1077	1087	Regional
R-50 S1	05/13/11	5836.5	Transducer	1077	1087	Regional
R-50 S1	05/12/11	5836.72	Transducer	1077	1087	Regional
R-50 S1	05/11/11	5836.99	Transducer	1077	1087	Regional
R-50 S1	05/10/11	5836.97	Transducer	1077	1087	Regional
R-50 S1	05/09/11	5836.95	Transducer	1077	1087	Regional
R-50 S1	05/08/11	5836.85	Transducer	1077	1087	Regional
R-50 S1	05/07/11	5836.81	Transducer	1077	1087	Regional
R-50 S1	05/06/11	5836.66	Transducer	1077	1087	Regional
R-50 S1	05/05/11	5836.63	Transducer	1077	1087	Regional
R-50 S1	05/04/11	5836.6	Transducer	1077	1087	Regional
R-50 S1	05/03/11	5836.5	Transducer	1077	1087	Regional
R-50 S1	05/02/11	5836.66	Transducer	1077	1087	Regional
R-50 S1	05/01/11	5836.96	Transducer	1077	1087	Regional
R-50 S1	04/30/11	5837.06	Transducer	1077	1087	Regional
R-50 S1	04/29/11	5836.96	Transducer	1077	1087	Regional
R-50 S1	04/28/11	5836.74	Transducer	1077	1087	Regional
R-50 S1	04/27/11	5837.16	Transducer	1077	1087	Regional
R-50 S1	04/26/11	5837.23	Transducer	1077	1087	Regional
R-50 S1	04/25/11	5837.15	Transducer	1077	1087	Regional
R-50 S1	04/24/11	5837.14	Transducer	1077	1087	Regional
R-50 S1	04/23/11	5837.2	Transducer	1077	1087	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S1	04/22/11	5837.2	Transducer	1077	1087	Regional
R-50 S1	04/21/11	5837.12	Transducer	1077	1087	Regional
R-50 S1	04/20/11	5837.13	Transducer	1077	1087	Regional
R-50 S1	04/19/11	5837.34	Transducer	1077	1087	Regional
R-50 S1	04/18/11	5837.23	Transducer	1077	1087	Regional
R-50 S1	04/17/11	5837.15	Transducer	1077	1087	Regional
R-50 S1	04/16/11	5837.06	Transducer	1077	1087	Regional
R-50 S1	04/15/11	5837.11	Transducer	1077	1087	Regional
R-50 S1	04/14/11	5837.26	Transducer	1077	1087	Regional
R-50 S1	04/13/11	5837.14	Transducer	1077	1087	Regional
R-50 S1	04/12/11	5836.98	Transducer	1077	1087	Regional
R-50 S1	04/11/11	5837	Transducer	1077	1087	Regional
R-50 S1	04/10/11	5837.25	Transducer	1077	1087	Regional
R-50 S1	04/09/11	5837.34	Transducer	1077	1087	Regional
R-50 S1	04/08/11	5837.34	Transducer	1077	1087	Regional
R-50 S1	04/07/11	5837.22	Transducer	1077	1087	Regional
R-50 S1	04/06/11	5837.23	Transducer	1077	1087	Regional
R-50 S1	04/05/11	5837	Transducer	1077	1087	Regional
R-50 S1	04/04/11	5837.18	Transducer	1077	1087	Regional
R-50 S1	04/03/11	5837.26	Transducer	1077	1087	Regional
R-50 S1	04/02/11	5837.09	Transducer	1077	1087	Regional
R-50 S1	04/01/11	5837.15	Transducer	1077	1087	Regional
R-50 S1	03/31/11	5837.14	Transducer	1077	1087	Regional
R-50 S1	03/30/11	5837.08	Transducer	1077	1087	Regional
R-50 S1	03/29/11	5837.25	Transducer	1077	1087	Regional
R-50 S1	03/28/11	5837.3	Transducer	1077	1087	Regional
R-50 S1	03/27/11	5837.39	Transducer	1077	1087	Regional
R-50 S1	03/26/11	5837.35	Transducer	1077	1087	Regional
R-50 S1	03/25/11	5837.23	Transducer	1077	1087	Regional
R-50 S1	03/24/11	5837.22	Transducer	1077	1087	Regional
R-50 S1	03/23/11	5837.21	Transducer	1077	1087	Regional
R-50 S1	03/22/11	5837.42	Transducer	1077	1087	Regional
R-50 S1	03/21/11	5837.18	Transducer	1077	1087	Regional
R-50 S1	03/20/11	5837.16	Transducer	1077	1087	Regional
R-50 S1	03/19/11	5837.03	Transducer	1077	1087	Regional
R-50 S1	03/18/11	5837.06	Transducer	1077	1087	Regional
R-50 S1	03/17/11	5837.13	Transducer	1077	1087	Regional
R-50 S1	03/16/11	5837.05	Transducer	1077	1087	Regional
R-50 S1	03/15/11	5837.06	Transducer	1077	1087	Regional
R-50 S1	03/14/11	5836.9	Transducer	1077	1087	Regional
R-50 S1	03/13/11	5837.12	Transducer	1077	1087	Regional
R-50 S1	03/12/11	5837.1	Transducer	1077	1087	Regional
R-50 S1	03/11/11	5836.98	Transducer	1077	1087	Regional
R-50 S1	03/10/11	5836.78	Transducer	1077	1087	Regional
R-50 S1	03/09/11	5837.03	Transducer	1077	1087	Regional
R-50 S1	03/08/11	5837.49	Transducer	1077	1087	Regional
R-50 S1	03/07/11	5837.37	Transducer	1077	1087	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S1	03/06/11	5837.01	Transducer	1077	1087	Regional
R-50 S1	03/05/11	5836.83	Transducer	1077	1087	Regional
R-50 S1	03/04/11	5837.15	Transducer	1077	1087	Regional
R-50 S1	03/03/11	5837	Transducer	1077	1087	Regional
R-50 S1	03/02/11	5836.95	Transducer	1077	1087	Regional
R-50 S1	03/01/11	5836.84	Transducer	1077	1087	Regional
R-50 S1	02/28/11	5837.1	Transducer	1077	1087	Regional
R-50 S1	02/27/11	5837.42	Transducer	1077	1087	Regional
R-50 S1	02/26/11	5837.29	Transducer	1077	1087	Regional
R-50 S1	02/25/11	5837.14	Transducer	1077	1087	Regional
R-50 S1	02/24/11	5837.3	Transducer	1077	1087	Regional
R-50 S1	02/23/11	5837.19	Transducer	1077	1087	Regional
R-50 S1	02/22/11	5837.2	Transducer	1077	1087	Regional
R-50 S1	02/21/11	5837.32	Transducer	1077	1087	Regional
R-50 S1	02/20/11	5837.39	Transducer	1077	1087	Regional
R-50 S1	02/19/11	5837.02	Transducer	1077	1087	Regional
R-50 S1	02/18/11	5837.06	Transducer	1077	1087	Regional
R-50 S1	02/17/11	5837.29	Transducer	1077	1087	Regional
R-50 S1	02/16/11	5837.08	Transducer	1077	1087	Regional
R-50 S1	02/15/11	5837.01	Transducer	1077	1087	Regional
R-50 S1	02/14/11	5836.89	Transducer	1077	1087	Regional
R-50 S1	02/13/11	5836.8	Transducer	1077	1087	Regional
R-50 S1	02/12/11	5836.77	Transducer	1077	1087	Regional
R-50 S1	02/11/11	5837.02	Transducer	1077	1087	Regional
R-50 S1	02/10/11	5837.06	Transducer	1077	1087	Regional
R-50 S1	02/09/11	5837.15	Transducer	1077	1087	Regional
R-50 S1	02/08/11	5837.33	Transducer	1077	1087	Regional
R-50 S1	02/07/11	5836.93	Transducer	1077	1087	Regional
R-50 S1	02/06/11	5837.27	Transducer	1077	1087	Regional
R-50 S1	02/05/11	5837.13	Transducer	1077	1087	Regional
R-50 S1	02/04/11	5837.06	Transducer	1077	1087	Regional
R-50 S1	02/03/11	5836.94	Transducer	1077	1087	Regional
R-50 S1	02/02/11	5837.15	Transducer	1077	1087	Regional
R-50 S1	02/01/11	5837.32	Transducer	1077	1087	Regional
R-50 S1	01/31/11	5837.19	Transducer	1077	1087	Regional
R-50 S1	01/30/11	5837.08	Transducer	1077	1087	Regional
R-50 S1	01/29/11	5837.08	Transducer	1077	1087	Regional
R-50 S1	01/28/11	5836.92	Transducer	1077	1087	Regional
R-50 S1	01/27/11	5836.87	Transducer	1077	1087	Regional
R-50 S1	01/26/11	5837.05	Transducer	1077	1087	Regional
R-50 S1	01/25/11	5836.94	Transducer	1077	1087	Regional
R-50 S1	01/24/11	5837.1	Transducer	1077	1087	Regional
R-50 S1	01/23/11	5837.16	Transducer	1077	1087	Regional
R-50 S1	01/22/11	5837.04	Transducer	1077	1087	Regional
R-50 S1	01/21/11	5837.03	Transducer	1077	1087	Regional
R-50 S1	01/20/11	5837.17	Transducer	1077	1087	Regional
R-50 S1	01/19/11	5837.1	Transducer	1077	1087	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S1	01/18/11	5837.15	Transducer	1077	1087	Regional
R-50 S1	01/17/11	5837.06	Transducer	1077	1087	Regional
R-50 S1	01/16/11	5836.98	Transducer	1077	1087	Regional
R-50 S1	01/15/11	5836.79	Transducer	1077	1087	Regional
R-50 S1	01/14/11	5836.88	Transducer	1077	1087	Regional
R-50 S1	01/13/11	5836.75	Transducer	1077	1087	Regional
R-50 S1	01/12/11	5836.76	Transducer	1077	1087	Regional
R-50 S1	01/11/11	5836.84	Transducer	1077	1087	Regional
R-50 S1	01/10/11	5837.3	Transducer	1077	1087	Regional
R-50 S1	01/09/11	5837.32	Transducer	1077	1087	Regional
R-50 S1	01/08/11	5837.11	Transducer	1077	1087	Regional
R-50 S1	01/07/11	5836.93	Transducer	1077	1087	Regional
R-50 S1	01/06/11	5836.81	Transducer	1077	1087	Regional
R-50 S1	01/05/11	5836.89	Transducer	1077	1087	Regional
R-50 S1	01/04/11	5836.97	Transducer	1077	1087	Regional
R-50 S1	01/03/11	5836.95	Transducer	1077	1087	Regional
R-50 S1	01/02/11	5836.82	Transducer	1077	1087	Regional
R-50 S1	01/01/11	5837.15	Transducer	1077	1087	Regional
R-50 S1	12/31/10	5837.68	Transducer	1077	1087	Regional
R-50 S1	12/30/10	5837.63	Transducer	1077	1087	Regional
R-50 S1	12/29/10	5837.18	Transducer	1077	1087	Regional
R-50 S1	12/28/10	5837	Transducer	1077	1087	Regional
R-50 S1	12/27/10	5837.01	Transducer	1077	1087	Regional
R-50 S1	12/26/10	5836.8	Transducer	1077	1087	Regional
R-50 S1	12/25/10	5836.75	Transducer	1077	1087	Regional
R-50 S1	12/24/10	5836.96	Transducer	1077	1087	Regional
R-50 S1	12/23/10	5836.94	Transducer	1077	1087	Regional
R-50 S1	12/22/10	5836.85	Transducer	1077	1087	Regional
R-50 S1	12/21/10	5837.02	Transducer	1077	1087	Regional
R-50 S1	12/20/10	5837.13	Transducer	1077	1087	Regional
R-50 S1	12/19/10	5837.09	Transducer	1077	1087	Regional
R-50 S1	12/18/10	5837.06	Transducer	1077	1087	Regional
R-50 S1	12/17/10	5837.18	Transducer	1077	1087	Regional
R-50 S1	12/16/10	5837.19	Transducer	1077	1087	Regional
R-50 S1	12/15/10	5837.2	Transducer	1077	1087	Regional
R-50 S1	12/14/10	5836.93	Transducer	1077	1087	Regional
R-50 S1	12/13/10	5836.77	Transducer	1077	1087	Regional
R-50 S1	12/12/10	5836.78	Transducer	1077	1087	Regional
R-50 S1	12/11/10	5837.01	Transducer	1077	1087	Regional
R-50 S1	12/10/10	5836.96	Transducer	1077	1087	Regional
R-50 S1	12/09/10	5836.85	Transducer	1077	1087	Regional
R-50 S1	12/08/10	5836.69	Transducer	1077	1087	Regional
R-50 S1	12/07/10	5836.86	Transducer	1077	1087	Regional
R-50 S1	12/06/10	5836.68	Transducer	1077	1087	Regional
R-50 S1	12/05/10	5836.74	Transducer	1077	1087	Regional
R-50 S1	12/04/10	5836.79	Transducer	1077	1087	Regional
R-50 S1	12/03/10	5836.73	Transducer	1077	1087	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S1	12/02/10	5836.73	Transducer	1077	1087	Regional
R-50 S1	12/01/10	5836.64	Transducer	1077	1087	Regional
R-50 S1	11/30/10	5836.79	Transducer	1077	1087	Regional
R-50 S1	11/29/10	5837.31	Transducer	1077	1087	Regional
R-50 S1	11/28/10	5837.15	Transducer	1077	1087	Regional
R-50 S1	11/27/10	5836.76	Transducer	1077	1087	Regional
R-50 S1	11/26/10	5836.78	Transducer	1077	1087	Regional
R-50 S1	11/25/10	5837.15	Transducer	1077	1087	Regional
R-50 S1	11/24/10	5837.18	Transducer	1077	1087	Regional
R-50 S1	11/23/10	5836.86	Transducer	1077	1087	Regional
R-50 S1	11/22/10	5837.14	Transducer	1077	1087	Regional
R-50 S1	11/21/10	5837.04	Transducer	1077	1087	Regional
R-50 S1	11/20/10	5836.92	Transducer	1077	1087	Regional
R-50 S1	11/19/10	5836.78	Transducer	1077	1087	Regional
R-50 S1	11/18/10	5836.6	Transducer	1077	1087	Regional
R-50 S1	11/17/10	5837.09	Transducer	1077	1087	Regional
R-50 S1	11/16/10	5836.97	Transducer	1077	1087	Regional
R-50 S1	11/15/10	5837.15	Transducer	1077	1087	Regional
R-50 S1	11/14/10	5836.94	Transducer	1077	1087	Regional
R-50 S1	11/13/10	5836.71	Transducer	1077	1087	Regional
R-50 S1	11/12/10	5836.78	Transducer	1077	1087	Regional
R-50 S1	11/11/10	5837.04	Transducer	1077	1087	Regional
R-50 S1	11/10/10	5837.04	Transducer	1077	1087	Regional
R-50 S1	11/09/10	5837.16	Transducer	1077	1087	Regional
R-50 S1	11/08/10	5836.86	Transducer	1077	1087	Regional
R-50 S1	11/07/10	5836.74	Transducer	1077	1087	Regional
R-50 S1	11/06/10	5836.72	Transducer	1077	1087	Regional
R-50 S1	11/05/10	5836.66	Transducer	1077	1087	Regional
R-50 S1	11/04/10	5836.47	Transducer	1077	1087	Regional
R-50 S1	11/03/10	5836.51	Transducer	1077	1087	Regional
R-50 S1	11/02/10	5836.47	Transducer	1077	1087	Regional
R-50 S1	11/01/10	5836.7	Transducer	1077	1087	Regional
R-50 S1	10/31/10	5836.78	Transducer	1077	1087	Regional
R-50 S1	10/30/10	5836.63	Transducer	1077	1087	Regional
R-50 S2	11/15/12	5835.42	Transducer	1185	1205.6	Regional
R-50 S2	11/14/12	5835.34	Transducer	1185	1205.6	Regional
R-50 S2	11/13/12	5835.33	Transducer	1185	1205.6	Regional
R-50 S2	11/12/12	5835.39	Transducer	1185	1205.6	Regional
R-50 S2	11/11/12	5835.82	Transducer	1185	1205.6	Regional
R-50 S2	11/10/12	5835.82	Transducer	1185	1205.6	Regional
R-50 S2	11/09/12	5835.66	Transducer	1185	1205.6	Regional
R-50 S2	11/08/12	5835.53	Transducer	1185	1205.6	Regional
R-50 S2	11/07/12	5835.37	Transducer	1185	1205.6	Regional
R-50 S2	11/06/12	5835.38	Transducer	1185	1205.6	Regional
R-50 S2	11/05/12	5835.34	Transducer	1185	1205.6	Regional
R-50 S2	11/04/12	5835.37	Transducer	1185	1205.6	Regional
R-50 S2	11/03/12	5835.47	Transducer	1185	1205.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S2	11/02/12	5835.51	Transducer	1185	1205.6	Regional
R-50 S2	11/01/12	5835.4	Transducer	1185	1205.6	Regional
R-50 S2	10/31/12	5835.42	Transducer	1185	1205.6	Regional
R-50 S2	10/30/12	5835.39	Transducer	1185	1205.6	Regional
R-50 S2	10/29/12	5835.38	Transducer	1185	1205.6	Regional
R-50 S2	10/28/12	5835.44	Transducer	1185	1205.6	Regional
R-50 S2	10/27/12	5835.35	Transducer	1185	1205.6	Regional
R-50 S2	10/26/12	5835.42	Transducer	1185	1205.6	Regional
R-50 S2	10/25/12	5835.64	Transducer	1185	1205.6	Regional
R-50 S2	10/24/12	5835.59	Transducer	1185	1205.6	Regional
R-50 S2	10/23/12	5835.57	Transducer	1185	1205.6	Regional
R-50 S2	10/22/12	5835.61	Transducer	1185	1205.6	Regional
R-50 S2	10/21/12	5835.65	Transducer	1185	1205.6	Regional
R-50 S2	10/20/12	5835.56	Transducer	1185	1205.6	Regional
R-50 S2	10/19/12	5835.47	Transducer	1185	1205.6	Regional
R-50 S2	10/18/12	5835.56	Transducer	1185	1205.6	Regional
R-50 S2	10/17/12	5835.71	Transducer	1185	1205.6	Regional
R-50 S2	10/16/12	5835.54	Transducer	1185	1205.6	Regional
R-50 S2	10/15/12	5835.36	Transducer	1185	1205.6	Regional
R-50 S2	10/14/12	5835.42	Transducer	1185	1205.6	Regional
R-50 S2	10/13/12	5835.58	Transducer	1185	1205.6	Regional
R-50 S2	10/12/12	5835.48	Transducer	1185	1205.6	Regional
R-50 S2	10/11/12	5835.52	Transducer	1185	1205.6	Regional
R-50 S2	10/10/12	5835.5	Transducer	1185	1205.6	Regional
R-50 S2	10/09/12	5835.58	Transducer	1185	1205.6	Regional
R-50 S2	10/08/12	5835.56	Transducer	1185	1205.6	Regional
R-50 S2	10/07/12	5835.55	Transducer	1185	1205.6	Regional
R-50 S2	10/06/12	5835.57	Transducer	1185	1205.6	Regional
R-50 S2	10/05/12	5835.52	Transducer	1185	1205.6	Regional
R-50 S2	10/04/12	5835.51	Transducer	1185	1205.6	Regional
R-50 S2	10/03/12	5835.61	Transducer	1185	1205.6	Regional
R-50 S2	10/02/12	5835.46	Transducer	1185	1205.6	Regional
R-50 S2	10/01/12	5835.48	Transducer	1185	1205.6	Regional
R-50 S2	09/30/12	5835.48	Transducer	1185	1205.6	Regional
R-50 S2	09/29/12	5835.5	Transducer	1185	1205.6	Regional
R-50 S2	09/28/12	5835.51	Transducer	1185	1205.6	Regional
R-50 S2	09/27/12	5835.54	Transducer	1185	1205.6	Regional
R-50 S2	09/26/12	5835.63	Transducer	1185	1205.6	Regional
R-50 S2	09/25/12	5835.56	Transducer	1185	1205.6	Regional
R-50 S2	09/24/12	5835.47	Transducer	1185	1205.6	Regional
R-50 S2	09/23/12	5835.46	Transducer	1185	1205.6	Regional
R-50 S2	09/22/12	5835.5	Transducer	1185	1205.6	Regional
R-50 S2	09/21/12	5835.52	Transducer	1185	1205.6	Regional
R-50 S2	09/20/12	5835.5	Transducer	1185	1205.6	Regional
R-50 S2	09/19/12	5835.49	Transducer	1185	1205.6	Regional
R-50 S2	09/18/12	5835.5	Transducer	1185	1205.6	Regional
R-50 S2	09/17/12	5835.61	Transducer	1185	1205.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S2	09/16/12	5835.49	Transducer	1185	1205.6	Regional
R-50 S2	09/15/12	5835.35	Transducer	1185	1205.6	Regional
R-50 S2	09/14/12	5835.29	Transducer	1185	1205.6	Regional
R-50 S2	09/13/12	5835.46	Transducer	1185	1205.6	Regional
R-50 S2	09/12/12	5835.59	Transducer	1185	1205.6	Regional
R-50 S2	09/11/12	5835.57	Transducer	1185	1205.6	Regional
R-50 S2	09/10/12	5835.47	Transducer	1185	1205.6	Regional
R-50 S2	09/10/12	5835.462	Transducer	1185	1205.6	Regional
R-50 S2	09/09/12	5835.397	Transducer	1185	1205.6	Regional
R-50 S2	09/08/12	5835.423	Transducer	1185	1205.6	Regional
R-50 S2	09/07/12	5835.586	Transducer	1185	1205.6	Regional
R-50 S2	09/06/12	5835.555	Transducer	1185	1205.6	Regional
R-50 S2	09/05/12	5835.586	Transducer	1185	1205.6	Regional
R-50 S2	09/04/12	5835.513	Transducer	1185	1205.6	Regional
R-50 S2	09/03/12	5835.54	Transducer	1185	1205.6	Regional
R-50 S2	09/02/12	5835.518	Transducer	1185	1205.6	Regional
R-50 S2	09/01/12	5835.516	Transducer	1185	1205.6	Regional
R-50 S2	08/31/12	5835.573	Transducer	1185	1205.6	Regional
R-50 S2	08/30/12	5835.574	Transducer	1185	1205.6	Regional
R-50 S2	08/29/12	5835.487	Transducer	1185	1205.6	Regional
R-50 S2	08/28/12	5835.434	Transducer	1185	1205.6	Regional
R-50 S2	08/27/12	5835.481	Transducer	1185	1205.6	Regional
R-50 S2	08/26/12	5835.607	Transducer	1185	1205.6	Regional
R-50 S2	08/25/12	5835.736	Transducer	1185	1205.6	Regional
R-50 S2	08/24/12	5835.688	Transducer	1185	1205.6	Regional
R-50 S2	08/23/12	5835.606	Transducer	1185	1205.6	Regional
R-50 S2	08/22/12	5835.557	Transducer	1185	1205.6	Regional
R-50 S2	08/21/12	5835.593	Transducer	1185	1205.6	Regional
R-50 S2	08/20/12	5835.583	Transducer	1185	1205.6	Regional
R-50 S2	08/19/12	5835.624	Transducer	1185	1205.6	Regional
R-50 S2	08/18/12	5835.592	Transducer	1185	1205.6	Regional
R-50 S2	08/17/12	5835.552	Transducer	1185	1205.6	Regional
R-50 S2	08/16/12	5835.693	Transducer	1185	1205.6	Regional
R-50 S2	08/15/12	5835.712	Transducer	1185	1205.6	Regional
R-50 S2	08/14/12	5835.621	Transducer	1185	1205.6	Regional
R-50 S2	08/13/12	5835.521	Transducer	1185	1205.6	Regional
R-50 S2	08/12/12	5835.651	Transducer	1185	1205.6	Regional
R-50 S2	08/11/12	5835.629	Transducer	1185	1205.6	Regional
R-50 S2	08/10/12	5835.561	Transducer	1185	1205.6	Regional
R-50 S2	08/09/12	5835.509	Transducer	1185	1205.6	Regional
R-50 S2	08/08/12	5835.539	Transducer	1185	1205.6	Regional
R-50 S2	08/07/12	5835.513	Transducer	1185	1205.6	Regional
R-50 S2	08/06/12	5835.353	Transducer	1185	1205.6	Regional
R-50 S2	08/05/12	5835.436	Transducer	1185	1205.6	Regional
R-50 S2	08/04/12	5835.625	Transducer	1185	1205.6	Regional
R-50 S2	08/03/12	5835.546	Transducer	1185	1205.6	Regional
R-50 S2	08/02/12	5835.568	Transducer	1185	1205.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S2	08/01/12	5835.508	Transducer	1185	1205.6	Regional
R-50 S2	07/31/12	5835.559	Transducer	1185	1205.6	Regional
R-50 S2	07/30/12	5835.566	Transducer	1185	1205.6	Regional
R-50 S2	07/29/12	5835.505	Transducer	1185	1205.6	Regional
R-50 S2	07/28/12	5835.508	Transducer	1185	1205.6	Regional
R-50 S2	07/27/12	5835.569	Transducer	1185	1205.6	Regional
R-50 S2	07/26/12	5835.689	Transducer	1185	1205.6	Regional
R-50 S2	07/25/12	5835.682	Transducer	1185	1205.6	Regional
R-50 S2	07/24/12	5835.564	Transducer	1185	1205.6	Regional
R-50 S2	07/23/12	5835.528	Transducer	1185	1205.6	Regional
R-50 S2	07/22/12	5835.508	Transducer	1185	1205.6	Regional
R-50 S2	07/21/12	5835.474	Transducer	1185	1205.6	Regional
R-50 S2	07/20/12	5835.476	Transducer	1185	1205.6	Regional
R-50 S2	07/19/12	5835.537	Transducer	1185	1205.6	Regional
R-50 S2	07/18/12	5835.655	Transducer	1185	1205.6	Regional
R-50 S2	07/17/12	5835.705	Transducer	1185	1205.6	Regional
R-50 S2	07/16/12	5835.66	Transducer	1185	1205.6	Regional
R-50 S2	07/15/12	5835.614	Transducer	1185	1205.6	Regional
R-50 S2	07/14/12	5835.579	Transducer	1185	1205.6	Regional
R-50 S2	07/13/12	5835.577	Transducer	1185	1205.6	Regional
R-50 S2	07/12/12	5835.558	Transducer	1185	1205.6	Regional
R-50 S2	07/11/12	5835.508	Transducer	1185	1205.6	Regional
R-50 S2	07/10/12	5835.504	Transducer	1185	1205.6	Regional
R-50 S2	07/09/12	5835.507	Transducer	1185	1205.6	Regional
R-50 S2	07/08/12	5835.485	Transducer	1185	1205.6	Regional
R-50 S2	07/07/12	5835.537	Transducer	1185	1205.6	Regional
R-50 S2	07/06/12	5835.604	Transducer	1185	1205.6	Regional
R-50 S2	07/05/12	5835.66	Transducer	1185	1205.6	Regional
R-50 S2	07/04/12	5835.678	Transducer	1185	1205.6	Regional
R-50 S2	07/03/12	5835.659	Transducer	1185	1205.6	Regional
R-50 S2	07/02/12	5835.665	Transducer	1185	1205.6	Regional
R-50 S2	07/01/12	5835.694	Transducer	1185	1205.6	Regional
R-50 S2	06/30/12	5835.682	Transducer	1185	1205.6	Regional
R-50 S2	06/29/12	5835.569	Transducer	1185	1205.6	Regional
R-50 S2	06/28/12	5835.609	Transducer	1185	1205.6	Regional
R-50 S2	06/27/12	5835.728	Transducer	1185	1205.6	Regional
R-50 S2	06/26/12	5835.672	Transducer	1185	1205.6	Regional
R-50 S2	06/25/12	5835.589	Transducer	1185	1205.6	Regional
R-50 S2	06/24/12	5835.646	Transducer	1185	1205.6	Regional
R-50 S2	06/23/12	5835.751	Transducer	1185	1205.6	Regional
R-50 S2	06/22/12	5835.615	Transducer	1185	1205.6	Regional
R-50 S2	06/21/12	5835.713	Transducer	1185	1205.6	Regional
R-50 S2	06/20/12	5835.927	Transducer	1185	1205.6	Regional
R-50 S2	06/19/12	5835.915	Transducer	1185	1205.6	Regional
R-50 S2	06/19/12	5835.91	Manual	1185	1205.6	Regional
R-50 S2	06/19/12	5835.983	Transducer	1185	1205.6	Regional
R-50 S2	06/18/12	5835.915	Transducer	1185	1205.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S2	06/17/12	5835.671	Transducer	1185	1205.6	Regional
R-50 S2	06/16/12	5835.822	Transducer	1185	1205.6	Regional
R-50 S2	06/15/12	5835.948	Transducer	1185	1205.6	Regional
R-50 S2	06/14/12	5835.961	Transducer	1185	1205.6	Regional
R-50 S2	06/13/12	5835.873	Transducer	1185	1205.6	Regional
R-50 S2	06/12/12	5835.773	Transducer	1185	1205.6	Regional
R-50 S2	06/11/12	5835.9	Transducer	1185	1205.6	Regional
R-50 S2	06/10/12	5836.09	Transducer	1185	1205.6	Regional
R-50 S2	06/09/12	5836.047	Transducer	1185	1205.6	Regional
R-50 S2	06/08/12	5835.936	Transducer	1185	1205.6	Regional
R-50 S2	06/07/12	5836.033	Transducer	1185	1205.6	Regional
R-50 S2	06/06/12	5836.006	Transducer	1185	1205.6	Regional
R-50 S2	06/05/12	5835.925	Transducer	1185	1205.6	Regional
R-50 S2	06/04/12	5835.917	Transducer	1185	1205.6	Regional
R-50 S2	06/03/12	5836.01	Transducer	1185	1205.6	Regional
R-50 S2	06/02/12	5836.047	Transducer	1185	1205.6	Regional
R-50 S2	06/01/12	5835.996	Transducer	1185	1205.6	Regional
R-50 S2	05/31/12	5836.06	Transducer	1185	1205.6	Regional
R-50 S2	05/30/12	5836.045	Transducer	1185	1205.6	Regional
R-50 S2	05/29/12	5836.017	Transducer	1185	1205.6	Regional
R-50 S2	05/28/12	5836.058	Transducer	1185	1205.6	Regional
R-50 S2	05/27/12	5836.18	Transducer	1185	1205.6	Regional
R-50 S2	05/26/12	5836.214	Transducer	1185	1205.6	Regional
R-50 S2	05/25/12	5836.341	Transducer	1185	1205.6	Regional
R-50 S2	05/24/12	5836.489	Transducer	1185	1205.6	Regional
R-50 S2	05/23/12	5836.293	Transducer	1185	1205.6	Regional
R-50 S2	05/22/12	5836.016	Transducer	1185	1205.6	Regional
R-50 S2	05/21/12	5835.917	Transducer	1185	1205.6	Regional
R-50 S2	05/20/12	5836.089	Transducer	1185	1205.6	Regional
R-50 S2	05/19/12	5836.328	Transducer	1185	1205.6	Regional
R-50 S2	05/18/12	5836.311	Transducer	1185	1205.6	Regional
R-50 S2	05/17/12	5836.134	Transducer	1185	1205.6	Regional
R-50 S2	05/16/12	5835.978	Transducer	1185	1205.6	Regional
R-50 S2	05/15/12	5835.973	Transducer	1185	1205.6	Regional
R-50 S2	05/14/12	5835.997	Transducer	1185	1205.6	Regional
R-50 S2	05/13/12	5835.932	Transducer	1185	1205.6	Regional
R-50 S2	05/12/12	5836.011	Transducer	1185	1205.6	Regional
R-50 S2	05/11/12	5836.27	Transducer	1185	1205.6	Regional
R-50 S2	05/10/12	5836.15	Transducer	1185	1205.6	Regional
R-50 S2	05/09/12	5836.025	Transducer	1185	1205.6	Regional
R-50 S2	05/08/12	5836.052	Transducer	1185	1205.6	Regional
R-50 S2	05/07/12	5836.158	Transducer	1185	1205.6	Regional
R-50 S2	05/06/12	5836.223	Transducer	1185	1205.6	Regional
R-50 S2	05/05/12	5836.215	Transducer	1185	1205.6	Regional
R-50 S2	05/04/12	5836.203	Transducer	1185	1205.6	Regional
R-50 S2	05/03/12	5836.288	Transducer	1185	1205.6	Regional
R-50 S2	05/02/12	5836.348	Transducer	1185	1205.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S2	05/01/12	5836.33	Transducer	1185	1205.6	Regional
R-50 S2	04/30/12	5836.25	Transducer	1185	1205.6	Regional
R-50 S2	04/29/12	5836.342	Transducer	1185	1205.6	Regional
R-50 S2	04/28/12	5836.375	Transducer	1185	1205.6	Regional
R-50 S2	04/27/12	5836.422	Transducer	1185	1205.6	Regional
R-50 S2	04/26/12	5836.241	Transducer	1185	1205.6	Regional
R-50 S2	04/25/12	5836.302	Transducer	1185	1205.6	Regional
R-50 S2	04/24/12	5836.209	Transducer	1185	1205.6	Regional
R-50 S2	04/23/12	5836.09	Transducer	1185	1205.6	Regional
R-50 S2	04/22/12	5836.151	Transducer	1185	1205.6	Regional
R-50 S2	04/21/12	5836.201	Transducer	1185	1205.6	Regional
R-50 S2	04/20/12	5836.289	Transducer	1185	1205.6	Regional
R-50 S2	04/19/12	5836.348	Transducer	1185	1205.6	Regional
R-50 S2	04/18/12	5836.213	Transducer	1185	1205.6	Regional
R-50 S2	04/17/12	5836.137	Transducer	1185	1205.6	Regional
R-50 S2	04/16/12	5836.301	Transducer	1185	1205.6	Regional
R-50 S2	04/15/12	5836.652	Transducer	1185	1205.6	Regional
R-50 S2	04/14/12	5836.648	Transducer	1185	1205.6	Regional
R-50 S2	04/13/12	5836.438	Transducer	1185	1205.6	Regional
R-50 S2	04/12/12	5836.446	Transducer	1185	1205.6	Regional
R-50 S2	04/11/12	5836.238	Transducer	1185	1205.6	Regional
R-50 S2	04/10/12	5836.19	Transducer	1185	1205.6	Regional
R-50 S2	04/09/12	5836.116	Transducer	1185	1205.6	Regional
R-50 S2	04/08/12	5835.994	Transducer	1185	1205.6	Regional
R-50 S2	04/07/12	5836.24	Transducer	1185	1205.6	Regional
R-50 S2	04/06/12	5836.383	Transducer	1185	1205.6	Regional
R-50 S2	04/05/12	5836.359	Transducer	1185	1205.6	Regional
R-50 S2	04/04/12	5836.34	Transducer	1185	1205.6	Regional
R-50 S2	04/03/12	5836.529	Transducer	1185	1205.6	Regional
R-50 S2	04/02/12	5836.631	Transducer	1185	1205.6	Regional
R-50 S2	04/01/12	5836.429	Transducer	1185	1205.6	Regional
R-50 S2	03/31/12	5836.323	Transducer	1185	1205.6	Regional
R-50 S2	03/30/12	5836.348	Transducer	1185	1205.6	Regional
R-50 S2	03/29/12	5836.35	Transducer	1185	1205.6	Regional
R-50 S2	03/28/12	5836.275	Transducer	1185	1205.6	Regional
R-50 S2	03/27/12	5836.319	Transducer	1185	1205.6	Regional
R-50 S2	03/26/12	5836.331	Transducer	1185	1205.6	Regional
R-50 S2	03/25/12	5836.221	Transducer	1185	1205.6	Regional
R-50 S2	03/24/12	5836.236	Transducer	1185	1205.6	Regional
R-50 S2	03/23/12	5836.323	Transducer	1185	1205.6	Regional
R-50 S2	03/22/12	5836.394	Transducer	1185	1205.6	Regional
R-50 S2	03/21/12	5836.411	Transducer	1185	1205.6	Regional
R-50 S2	03/20/12	5836.7	Transducer	1185	1205.6	Regional
R-50 S2	03/19/12	5836.705	Transducer	1185	1205.6	Regional
R-50 S2	03/18/12	5836.59	Transducer	1185	1205.6	Regional
R-50 S2	03/17/12	5836.429	Transducer	1185	1205.6	Regional
R-50 S2	03/16/12	5836.292	Transducer	1185	1205.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S2	03/15/12	5836.252	Transducer	1185	1205.6	Regional
R-50 S2	03/14/12	5836.314	Transducer	1185	1205.6	Regional
R-50 S2	03/13/12	5836.274	Transducer	1185	1205.6	Regional
R-50 S2	03/12/12	5836.411	Transducer	1185	1205.6	Regional
R-50 S2	03/11/12	5836.485	Transducer	1185	1205.6	Regional
R-50 S2	03/10/12	5836.148	Transducer	1185	1205.6	Regional
R-50 S2	03/09/12	5835.981	Transducer	1185	1205.6	Regional
R-50 S2	03/08/12	5836.466	Transducer	1185	1205.6	Regional
R-50 S2	03/07/12	5836.613	Transducer	1185	1205.6	Regional
R-50 S2	03/07/12	5836.64	Transducer	1185	1205.6	Regional
R-50 S2	03/06/12	5836.294	Transducer	1185	1205.6	Regional
R-50 S2	03/05/12	5836.127	Transducer	1185	1205.6	Regional
R-50 S2	03/04/12	5836.148	Transducer	1185	1205.6	Regional
R-50 S2	03/03/12	5836.319	Transducer	1185	1205.6	Regional
R-50 S2	03/02/12	5836.548	Transducer	1185	1205.6	Regional
R-50 S2	03/01/12	5836.407	Transducer	1185	1205.6	Regional
R-50 S2	02/29/12	5836.289	Transducer	1185	1205.6	Regional
R-50 S2	02/28/12	5836.398	Transducer	1185	1205.6	Regional
R-50 S2	02/27/12	5836.245	Transducer	1185	1205.6	Regional
R-50 S2	02/26/12	5836.339	Transducer	1185	1205.6	Regional
R-50 S2	02/25/12	5836.042	Transducer	1185	1205.6	Regional
R-50 S2	02/24/12	5836.232	Transducer	1185	1205.6	Regional
R-50 S2	02/23/12	5836.422	Transducer	1185	1205.6	Regional
R-50 S2	02/22/12	5836.163	Transducer	1185	1205.6	Regional
R-50 S2	02/21/12	5836.179	Transducer	1185	1205.6	Regional
R-50 S2	02/20/12	5836.49	Transducer	1185	1205.6	Regional
R-50 S2	02/19/12	5836.307	Transducer	1185	1205.6	Regional
R-50 S2	02/18/12	5836.313	Transducer	1185	1205.6	Regional
R-50 S2	02/17/12	5836.25	Transducer	1185	1205.6	Regional
R-50 S2	02/16/12	5836.277	Transducer	1185	1205.6	Regional
R-50 S2	02/15/12	5836.626	Transducer	1185	1205.6	Regional
R-50 S2	02/14/12	5836.537	Transducer	1185	1205.6	Regional
R-50 S2	02/13/12	5836.595	Transducer	1185	1205.6	Regional
R-50 S2	02/12/12	5836.266	Transducer	1185	1205.6	Regional
R-50 S2	02/11/12	5836.234	Transducer	1185	1205.6	Regional
R-50 S2	02/10/12	5836.246	Transducer	1185	1205.6	Regional
R-50 S2	02/09/12	5836.231	Transducer	1185	1205.6	Regional
R-50 S2	02/08/12	5836.139	Transducer	1185	1205.6	Regional
R-50 S2	02/07/12	5836.322	Transducer	1185	1205.6	Regional
R-50 S2	02/06/12	5836.229	Transducer	1185	1205.6	Regional
R-50 S2	02/05/12	5836.115	Transducer	1185	1205.6	Regional
R-50 S2	02/04/12	5836.241	Transducer	1185	1205.6	Regional
R-50 S2	02/03/12	5836.535	Transducer	1185	1205.6	Regional
R-50 S2	02/02/12	5836.331	Transducer	1185	1205.6	Regional
R-50 S2	02/01/12	5836.264	Transducer	1185	1205.6	Regional
R-50 S2	01/31/12	5836.372	Transducer	1185	1205.6	Regional
R-50 S2	01/30/12	5836.198	Transducer	1185	1205.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S2	01/29/12	5836.073	Transducer	1185	1205.6	Regional
R-50 S2	01/28/12	5836.158	Transducer	1185	1205.6	Regional
R-50 S2	01/27/12	5836.396	Transducer	1185	1205.6	Regional
R-50 S2	01/26/12	5836.238	Transducer	1185	1205.6	Regional
R-50 S2	01/25/12	5836.255	Transducer	1185	1205.6	Regional
R-50 S2	01/24/12	5836.476	Transducer	1185	1205.6	Regional
R-50 S2	01/23/12	5836.347	Transducer	1185	1205.6	Regional
R-50 S2	01/22/12	5836.74	Transducer	1185	1205.6	Regional
R-50 S2	01/21/12	5836.35	Transducer	1185	1205.6	Regional
R-50 S2	01/20/12	5836.481	Transducer	1185	1205.6	Regional
R-50 S2	01/19/12	5836.333	Transducer	1185	1205.6	Regional
R-50 S2	01/18/12	5836.255	Transducer	1185	1205.6	Regional
R-50 S2	01/17/12	5836.452	Transducer	1185	1205.6	Regional
R-50 S2	01/16/12	5836.446	Transducer	1185	1205.6	Regional
R-50 S2	01/15/12	5836.238	Transducer	1185	1205.6	Regional
R-50 S2	01/14/12	5836.189	Transducer	1185	1205.6	Regional
R-50 S2	01/13/12	5836.365	Transducer	1185	1205.6	Regional
R-50 S2	01/12/12	5836.377	Transducer	1185	1205.6	Regional
R-50 S2	01/11/12	5836.46	Transducer	1185	1205.6	Regional
R-50 S2	01/10/12	5836.268	Transducer	1185	1205.6	Regional
R-50 S2	01/09/12	5836.294	Transducer	1185	1205.6	Regional
R-50 S2	01/08/12	5836.517	Transducer	1185	1205.6	Regional
R-50 S2	01/07/12	5836.398	Transducer	1185	1205.6	Regional
R-50 S2	01/06/12	5836.383	Transducer	1185	1205.6	Regional
R-50 S2	01/05/12	5836.062	Transducer	1185	1205.6	Regional
R-50 S2	01/04/12	5836.143	Transducer	1185	1205.6	Regional
R-50 S2	01/03/12	5836.001	Transducer	1185	1205.6	Regional
R-50 S2	01/02/12	5835.938	Transducer	1185	1205.6	Regional
R-50 S2	01/01/12	5836.107	Transducer	1185	1205.6	Regional
R-50 S2	12/31/11	5836.349	Transducer	1185	1205.6	Regional
R-50 S2	12/30/11	5836.31	Transducer	1185	1205.6	Regional
R-50 S2	12/29/11	5836.218	Transducer	1185	1205.6	Regional
R-50 S2	12/28/11	5836.262	Transducer	1185	1205.6	Regional
R-50 S2	12/27/11	5836.184	Transducer	1185	1205.6	Regional
R-50 S2	12/26/11	5836.218	Transducer	1185	1205.6	Regional
R-50 S2	12/25/11	5836.065	Transducer	1185	1205.6	Regional
R-50 S2	12/24/11	5836.137	Transducer	1185	1205.6	Regional
R-50 S2	12/23/11	5836.24	Transducer	1185	1205.6	Regional
R-50 S2	12/22/11	5836.526	Transducer	1185	1205.6	Regional
R-50 S2	12/21/11	5836.515	Transducer	1185	1205.6	Regional
R-50 S2	12/20/11	5836.472	Transducer	1185	1205.6	Regional
R-50 S2	12/19/11	5836.548	Transducer	1185	1205.6	Regional
R-50 S2	12/18/11	5836.123	Transducer	1185	1205.6	Regional
R-50 S2	12/17/11	5836.038	Transducer	1185	1205.6	Regional
R-50 S2	12/16/11	5836.184	Transducer	1185	1205.6	Regional
R-50 S2	12/15/11	5836.297	Transducer	1185	1205.6	Regional
R-50 S2	12/14/11	5836.498	Transducer	1185	1205.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S2	12/13/11	5836.372	Transducer	1185	1205.6	Regional
R-50 S2	12/12/11	5836.366	Transducer	1185	1205.6	Regional
R-50 S2	12/11/11	5836.208	Transducer	1185	1205.6	Regional
R-50 S2	12/10/11	5836.078	Transducer	1185	1205.6	Regional
R-50 S2	12/09/11	5836.267	Transducer	1185	1205.6	Regional
R-50 S2	12/08/11	5836.288	Transducer	1185	1205.6	Regional
R-50 S2	12/07/11	5836.187	Transducer	1185	1205.6	Regional
R-50 S2	12/06/11	5836.255	Transducer	1185	1205.6	Regional
R-50 S2	12/05/11	5836.417	Transducer	1185	1205.6	Regional
R-50 S2	12/04/11	5836.374	Transducer	1185	1205.6	Regional
R-50 S2	12/03/11	5836.561	Transducer	1185	1205.6	Regional
R-50 S2	12/02/11	5836.224	Transducer	1185	1205.6	Regional
R-50 S2	12/01/11	5836.483	Transducer	1185	1205.6	Regional
R-50 S2	11/30/11	5836.133	Transducer	1185	1205.6	Regional
R-50 S2	11/29/11	5836.106	Transducer	1185	1205.6	Regional
R-50 S2	11/28/11	5835.994	Transducer	1185	1205.6	Regional
R-50 S2	11/27/11	5835.942	Transducer	1185	1205.6	Regional
R-50 S2	11/26/11	5836.32	Transducer	1185	1205.6	Regional
R-50 S2	11/25/11	5836.264	Transducer	1185	1205.6	Regional
R-50 S2	11/24/11	5836.097	Transducer	1185	1205.6	Regional
R-50 S2	11/23/11	5836.023	Transducer	1185	1205.6	Regional
R-50 S2	11/22/11	5836.163	Transducer	1185	1205.6	Regional
R-50 S2	11/21/11	5836.248	Transducer	1185	1205.6	Regional
R-50 S2	11/20/11	5836.342	Transducer	1185	1205.6	Regional
R-50 S2	11/19/11	5836.502	Transducer	1185	1205.6	Regional
R-50 S2	11/18/11	5836.29	Transducer	1185	1205.6	Regional
R-50 S2	11/17/11	5836.064	Transducer	1185	1205.6	Regional
R-50 S2	11/16/11	5836.333	Transducer	1185	1205.6	Regional
R-50 S2	11/15/11	5836.361	Transducer	1185	1205.6	Regional
R-50 S2	11/14/11	5836.426	Transducer	1185	1205.6	Regional
R-50 S2	11/13/11	5836.424	Transducer	1185	1205.6	Regional
R-50 S2	11/12/11	5836.347	Transducer	1185	1205.6	Regional
R-50 S2	11/11/11	5836.072	Transducer	1185	1205.6	Regional
R-50 S2	11/10/11	5835.937	Transducer	1185	1205.6	Regional
R-50 S2	11/09/11	5836.09	Transducer	1185	1205.6	Regional
R-50 S2	11/08/11	5836.419	Transducer	1185	1205.6	Regional
R-50 S2	11/07/11	5836.347	Transducer	1185	1205.6	Regional
R-50 S2	11/06/11	5836.428	Transducer	1185	1205.6	Regional
R-50 S2	11/05/11	5836.527	Transducer	1185	1205.6	Regional
R-50 S2	11/04/11	5836.206	Transducer	1185	1205.6	Regional
R-50 S2	11/03/11	5836.026	Transducer	1185	1205.6	Regional
R-50 S2	11/02/11	5836.418	Transducer	1185	1205.6	Regional
R-50 S2	11/01/11	5836.201	Transducer	1185	1205.6	Regional
R-50 S2	10/31/11	5836.077	Transducer	1185	1205.6	Regional
R-50 S2	10/30/11	5836.159	Transducer	1185	1205.6	Regional
R-50 S2	10/29/11	5836.078	Transducer	1185	1205.6	Regional
R-50 S2	10/28/11	5836.171	Transducer	1185	1205.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S2	10/27/11	5836.314	Transducer	1185	1205.6	Regional
R-50 S2	10/26/11	5836.225	Transducer	1185	1205.6	Regional
R-50 S2	10/25/11	5836.142	Transducer	1185	1205.6	Regional
R-50 S2	10/24/11	5836.071	Transducer	1185	1205.6	Regional
R-50 S2	10/23/11	5836.098	Transducer	1185	1205.6	Regional
R-50 S2	10/22/11	5836.086	Transducer	1185	1205.6	Regional
R-50 S2	10/21/11	5836.094	Transducer	1185	1205.6	Regional
R-50 S2	10/20/11	5836.186	Transducer	1185	1205.6	Regional
R-50 S2	10/19/11	5836.046	Transducer	1185	1205.6	Regional
R-50 S2	10/18/11	5836.086	Transducer	1185	1205.6	Regional
R-50 S2	10/17/11	5836.143	Transducer	1185	1205.6	Regional
R-50 S2	10/16/11	5836.056	Transducer	1185	1205.6	Regional
R-50 S2	10/15/11	5836.069	Transducer	1185	1205.6	Regional
R-50 S2	10/14/11	5836.13	Transducer	1185	1205.6	Regional
R-50 S2	10/13/11	5836.061	Transducer	1185	1205.6	Regional
R-50 S2	10/12/11	5836.19	Transducer	1185	1205.6	Regional
R-50 S2	10/11/11	5836.203	Transducer	1185	1205.6	Regional
R-50 S2	10/10/11	5836.139	Transducer	1185	1205.6	Regional
R-50 S2	10/09/11	5836.178	Transducer	1185	1205.6	Regional
R-50 S2	10/08/11	5836.346	Transducer	1185	1205.6	Regional
R-50 S2	10/07/11	5836.345	Transducer	1185	1205.6	Regional
R-50 S2	10/06/11	5836.364	Transducer	1185	1205.6	Regional
R-50 S2	10/05/11	5836.185	Transducer	1185	1205.6	Regional
R-50 S2	10/04/11	5836.05	Transducer	1185	1205.6	Regional
R-50 S2	10/03/11	5836.016	Transducer	1185	1205.6	Regional
R-50 S2	10/02/11	5835.998	Transducer	1185	1205.6	Regional
R-50 S2	10/01/11	5835.984	Transducer	1185	1205.6	Regional
R-50 S2	09/30/11	5835.908	Transducer	1185	1205.6	Regional
R-50 S2	09/29/11	5836.052	Transducer	1185	1205.6	Regional
R-50 S2	09/28/11	5836.002	Transducer	1185	1205.6	Regional
R-50 S2	09/27/11	5836.073	Transducer	1185	1205.6	Regional
R-50 S2	09/26/11	5836.181	Transducer	1185	1205.6	Regional
R-50 S2	09/25/11	5836.143	Transducer	1185	1205.6	Regional
R-50 S2	09/24/11	5836.018	Transducer	1185	1205.6	Regional
R-50 S2	09/23/11	5836.006	Transducer	1185	1205.6	Regional
R-50 S2	09/22/11	5836.087	Transducer	1185	1205.6	Regional
R-50 S2	09/21/11	5836.083	Transducer	1185	1205.6	Regional
R-50 S2	09/20/11	5836.062	Transducer	1185	1205.6	Regional
R-50 S2	09/19/11	5835.992	Transducer	1185	1205.6	Regional
R-50 S2	09/18/11	5836.043	Transducer	1185	1205.6	Regional
R-50 S2	09/17/11	5836.09	Transducer	1185	1205.6	Regional
R-50 S2	09/16/11	5836.091	Transducer	1185	1205.6	Regional
R-50 S2	09/15/11	5836.059	Transducer	1185	1205.6	Regional
R-50 S2	09/14/11	5836.016	Transducer	1185	1205.6	Regional
R-50 S2	09/13/11	5835.934	Transducer	1185	1205.6	Regional
R-50 S2	09/12/11	5835.903	Transducer	1185	1205.6	Regional
R-50 S2	09/11/11	5835.917	Transducer	1185	1205.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S2	09/10/11	5835.946	Transducer	1185	1205.6	Regional
R-50 S2	09/09/11	5835.909	Transducer	1185	1205.6	Regional
R-50 S2	09/08/11	5835.85	Transducer	1185	1205.6	Regional
R-50 S2	09/07/11	5835.958	Transducer	1185	1205.6	Regional
R-50 S2	09/06/11	5835.942	Transducer	1185	1205.6	Regional
R-50 S2	09/05/11	5835.903	Transducer	1185	1205.6	Regional
R-50 S2	09/04/11	5835.969	Transducer	1185	1205.6	Regional
R-50 S2	09/03/11	5836.052	Transducer	1185	1205.6	Regional
R-50 S2	09/02/11	5835.98	Transducer	1185	1205.6	Regional
R-50 S2	09/01/11	5835.994	Transducer	1185	1205.6	Regional
R-50 S2	08/31/11	5836.055	Transducer	1185	1205.6	Regional
R-50 S2	08/30/11	5836.045	Transducer	1185	1205.6	Regional
R-50 S2	08/29/11	5836.004	Transducer	1185	1205.6	Regional
R-50 S2	08/28/11	5835.937	Transducer	1185	1205.6	Regional
R-50 S2	08/27/11	5835.883	Transducer	1185	1205.6	Regional
R-50 S2	08/26/11	5835.895	Transducer	1185	1205.6	Regional
R-50 S2	08/25/11	5835.928	Transducer	1185	1205.6	Regional
R-50 S2	08/24/11	5835.97	Transducer	1185	1205.6	Regional
R-50 S2	08/23/11	5835.938	Transducer	1185	1205.6	Regional
R-50 S2	08/22/11	5835.891	Transducer	1185	1205.6	Regional
R-50 S2	08/21/11	5835.927	Transducer	1185	1205.6	Regional
R-50 S2	08/20/11	5835.992	Transducer	1185	1205.6	Regional
R-50 S2	08/19/11	5835.95	Transducer	1185	1205.6	Regional
R-50 S2	08/19/11	5835.985	Transducer	1185	1205.6	Regional
R-50 S2	08/18/11	5835.83	Transducer	1185	1205.6	Regional
R-50 S2	08/17/11	5835.89	Transducer	1185	1205.6	Regional
R-50 S2	08/16/11	5835.99	Transducer	1185	1205.6	Regional
R-50 S2	08/15/11	5835.94	Transducer	1185	1205.6	Regional
R-50 S2	08/14/11	5835.84	Transducer	1185	1205.6	Regional
R-50 S2	08/13/11	5835.95	Transducer	1185	1205.6	Regional
R-50 S2	08/12/11	5835.99	Transducer	1185	1205.6	Regional
R-50 S2	08/11/11	5835.99	Transducer	1185	1205.6	Regional
R-50 S2	08/10/11	5836.04	Transducer	1185	1205.6	Regional
R-50 S2	08/09/11	5836.01	Transducer	1185	1205.6	Regional
R-50 S2	08/08/11	5836.01	Transducer	1185	1205.6	Regional
R-50 S2	08/07/11	5835.97	Transducer	1185	1205.6	Regional
R-50 S2	08/06/11	5835.93	Transducer	1185	1205.6	Regional
R-50 S2	08/05/11	5835.93	Transducer	1185	1205.6	Regional
R-50 S2	08/04/11	5835.92	Transducer	1185	1205.6	Regional
R-50 S2	08/03/11	5835.88	Transducer	1185	1205.6	Regional
R-50 S2	08/02/11	5835.84	Transducer	1185	1205.6	Regional
R-50 S2	08/01/11	5835.77	Transducer	1185	1205.6	Regional
R-50 S2	07/31/11	5835.75	Transducer	1185	1205.6	Regional
R-50 S2	07/30/11	5835.76	Transducer	1185	1205.6	Regional
R-50 S2	07/29/11	5835.83	Transducer	1185	1205.6	Regional
R-50 S2	07/28/11	5835.89	Transducer	1185	1205.6	Regional
R-50 S2	07/27/11	5835.89	Transducer	1185	1205.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S2	07/26/11	5835.79	Transducer	1185	1205.6	Regional
R-50 S2	07/25/11	5835.69	Transducer	1185	1205.6	Regional
R-50 S2	07/24/11	5835.72	Transducer	1185	1205.6	Regional
R-50 S2	07/23/11	5835.79	Transducer	1185	1205.6	Regional
R-50 S2	07/22/11	5835.81	Transducer	1185	1205.6	Regional
R-50 S2	07/21/11	5835.77	Transducer	1185	1205.6	Regional
R-50 S2	07/20/11	5835.72	Transducer	1185	1205.6	Regional
R-50 S2	07/19/11	5835.64	Transducer	1185	1205.6	Regional
R-50 S2	07/18/11	5835.61	Transducer	1185	1205.6	Regional
R-50 S2	07/17/11	5835.71	Transducer	1185	1205.6	Regional
R-50 S2	07/16/11	5835.82	Transducer	1185	1205.6	Regional
R-50 S2	07/15/11	5835.85	Transducer	1185	1205.6	Regional
R-50 S2	07/14/11	5835.82	Transducer	1185	1205.6	Regional
R-50 S2	07/13/11	5835.78	Transducer	1185	1205.6	Regional
R-50 S2	07/12/11	5835.76	Transducer	1185	1205.6	Regional
R-50 S2	07/11/11	5835.77	Transducer	1185	1205.6	Regional
R-50 S2	07/10/11	5835.8	Transducer	1185	1205.6	Regional
R-50 S2	07/09/11	5835.85	Transducer	1185	1205.6	Regional
R-50 S2	07/08/11	5835.81	Transducer	1185	1205.6	Regional
R-50 S2	07/07/11	5835.75	Transducer	1185	1205.6	Regional
R-50 S2	07/06/11	5835.74	Transducer	1185	1205.6	Regional
R-50 S2	07/05/11	5835.75	Transducer	1185	1205.6	Regional
R-50 S2	07/04/11	5835.75	Transducer	1185	1205.6	Regional
R-50 S2	07/03/11	5835.7	Transducer	1185	1205.6	Regional
R-50 S2	07/02/11	5835.76	Transducer	1185	1205.6	Regional
R-50 S2	07/01/11	5835.8	Transducer	1185	1205.6	Regional
R-50 S2	06/30/11	5835.79	Transducer	1185	1205.6	Regional
R-50 S2	06/29/11	5835.7	Transducer	1185	1205.6	Regional
R-50 S2	06/28/11	5835.69	Transducer	1185	1205.6	Regional
R-50 S2	06/27/11	5835.85	Transducer	1185	1205.6	Regional
R-50 S2	06/26/11	5835.88	Transducer	1185	1205.6	Regional
R-50 S2	06/25/11	5835.92	Transducer	1185	1205.6	Regional
R-50 S2	06/24/11	5835.92	Transducer	1185	1205.6	Regional
R-50 S2	06/23/11	5835.84	Transducer	1185	1205.6	Regional
R-50 S2	06/22/11	5835.87	Transducer	1185	1205.6	Regional
R-50 S2	06/21/11	5835.99	Transducer	1185	1205.6	Regional
R-50 S2	06/20/11	5836.16	Transducer	1185	1205.6	Regional
R-50 S2	06/19/11	5836.03	Transducer	1185	1205.6	Regional
R-50 S2	06/18/11	5835.98	Transducer	1185	1205.6	Regional
R-50 S2	06/17/11	5836.11	Transducer	1185	1205.6	Regional
R-50 S2	06/16/11	5836.06	Transducer	1185	1205.6	Regional
R-50 S2	06/15/11	5835.9	Transducer	1185	1205.6	Regional
R-50 S2	06/14/11	5835.95	Transducer	1185	1205.6	Regional
R-50 S2	06/13/11	5836	Transducer	1185	1205.6	Regional
R-50 S2	06/12/11	5836.05	Transducer	1185	1205.6	Regional
R-50 S2	06/11/11	5836	Transducer	1185	1205.6	Regional
R-50 S2	06/10/11	5836.03	Transducer	1185	1205.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S2	06/09/11	5836.09	Transducer	1185	1205.6	Regional
R-50 S2	06/08/11	5836.06	Transducer	1185	1205.6	Regional
R-50 S2	06/07/11	5836.07	Transducer	1185	1205.6	Regional
R-50 S2	06/06/11	5835.88	Transducer	1185	1205.6	Regional
R-50 S2	06/05/11	5835.79	Transducer	1185	1205.6	Regional
R-50 S2	06/04/11	5835.95	Transducer	1185	1205.6	Regional
R-50 S2	06/03/11	5836.06	Transducer	1185	1205.6	Regional
R-50 S2	06/02/11	5835.98	Transducer	1185	1205.6	Regional
R-50 S2	06/01/11	5835.8	Transducer	1185	1205.6	Regional
R-50 S2	05/31/11	5835.94	Transducer	1185	1205.6	Regional
R-50 S2	05/30/11	5836.38	Transducer	1185	1205.6	Regional
R-50 S2	05/29/11	5836.37	Transducer	1185	1205.6	Regional
R-50 S2	05/28/11	5836.28	Transducer	1185	1205.6	Regional
R-50 S2	05/27/11	5836.22	Transducer	1185	1205.6	Regional
R-50 S2	05/26/11	5836.07	Transducer	1185	1205.6	Regional
R-50 S2	05/25/11	5836.2	Transducer	1185	1205.6	Regional
R-50 S2	05/24/11	5836.35	Transducer	1185	1205.6	Regional
R-50 S2	05/23/11	5836.27	Transducer	1185	1205.6	Regional
R-50 S2	05/22/11	5836.27	Transducer	1185	1205.6	Regional
R-50 S2	05/20/11	5836.39	Transducer	1185	1205.6	Regional
R-50 S2	05/19/11	5836.57	Transducer	1185	1205.6	Regional
R-50 S2	05/18/11	5836.52	Transducer	1185	1205.6	Regional
R-50 S2	05/17/11	5836.49	Transducer	1185	1205.6	Regional
R-50 S2	05/11/11	5836.67	Transducer	1185	1205.6	Regional
R-50 S2	05/10/11	5836.66	Transducer	1185	1205.6	Regional
R-50 S2	05/09/11	5836.63	Transducer	1185	1205.6	Regional
R-50 S2	05/08/11	5836.53	Transducer	1185	1205.6	Regional
R-50 S2	05/07/11	5836.49	Transducer	1185	1205.6	Regional
R-50 S2	05/06/11	5836.35	Transducer	1185	1205.6	Regional
R-50 S2	05/05/11	5836.32	Transducer	1185	1205.6	Regional
R-50 S2	05/04/11	5836.28	Transducer	1185	1205.6	Regional
R-50 S2	05/03/11	5836.19	Transducer	1185	1205.6	Regional
R-50 S2	05/02/11	5836.35	Transducer	1185	1205.6	Regional
R-50 S2	05/01/11	5836.64	Transducer	1185	1205.6	Regional
R-50 S2	04/30/11	5836.75	Transducer	1185	1205.6	Regional
R-50 S2	04/29/11	5836.62	Transducer	1185	1205.6	Regional
R-50 S2	04/28/11	5836.44	Transducer	1185	1205.6	Regional
R-50 S2	04/27/11	5836.79	Transducer	1185	1205.6	Regional
R-50 S2	04/26/11	5836.87	Transducer	1185	1205.6	Regional
R-50 S2	04/25/11	5836.8	Transducer	1185	1205.6	Regional
R-50 S2	04/24/11	5836.79	Transducer	1185	1205.6	Regional
R-50 S2	04/23/11	5836.87	Transducer	1185	1205.6	Regional
R-50 S2	04/22/11	5836.92	Transducer	1185	1205.6	Regional
R-50 S2	04/21/11	5836.88	Transducer	1185	1205.6	Regional
R-50 S2	04/20/11	5836.88	Transducer	1185	1205.6	Regional
R-50 S2	04/19/11	5837.08	Transducer	1185	1205.6	Regional
R-50 S2	04/18/11	5836.98	Transducer	1185	1205.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S2	04/17/11	5836.9	Transducer	1185	1205.6	Regional
R-50 S2	04/16/11	5836.81	Transducer	1185	1205.6	Regional
R-50 S2	04/15/11	5836.89	Transducer	1185	1205.6	Regional
R-50 S2	04/14/11	5837.02	Transducer	1185	1205.6	Regional
R-50 S2	04/13/11	5836.91	Transducer	1185	1205.6	Regional
R-50 S2	04/12/11	5836.74	Transducer	1185	1205.6	Regional
R-50 S2	04/11/11	5836.79	Transducer	1185	1205.6	Regional
R-50 S2	04/10/11	5837.03	Transducer	1185	1205.6	Regional
R-50 S2	04/09/11	5837.09	Transducer	1185	1205.6	Regional
R-50 S2	04/08/11	5837.1	Transducer	1185	1205.6	Regional
R-50 S2	04/07/11	5836.97	Transducer	1185	1205.6	Regional
R-50 S2	04/06/11	5836.99	Transducer	1185	1205.6	Regional
R-50 S2	04/05/11	5836.76	Transducer	1185	1205.6	Regional
R-50 S2	04/04/11	5836.96	Transducer	1185	1205.6	Regional
R-50 S2	04/03/11	5837	Transducer	1185	1205.6	Regional
R-50 S2	04/02/11	5836.84	Transducer	1185	1205.6	Regional
R-50 S2	04/01/11	5836.93	Transducer	1185	1205.6	Regional
R-50 S2	03/31/11	5836.9	Transducer	1185	1205.6	Regional
R-50 S2	03/30/11	5836.85	Transducer	1185	1205.6	Regional
R-50 S2	03/29/11	5837.02	Transducer	1185	1205.6	Regional
R-50 S2	03/28/11	5837.06	Transducer	1185	1205.6	Regional
R-50 S2	03/27/11	5837.15	Transducer	1185	1205.6	Regional
R-50 S2	03/26/11	5837.12	Transducer	1185	1205.6	Regional
R-50 S2	03/25/11	5837	Transducer	1185	1205.6	Regional
R-50 S2	03/24/11	5836.97	Transducer	1185	1205.6	Regional
R-50 S2	03/23/11	5836.98	Transducer	1185	1205.6	Regional
R-50 S2	03/22/11	5837.16	Transducer	1185	1205.6	Regional
R-50 S2	03/21/11	5836.94	Transducer	1185	1205.6	Regional
R-50 S2	03/20/11	5836.93	Transducer	1185	1205.6	Regional
R-50 S2	03/19/11	5836.79	Transducer	1185	1205.6	Regional
R-50 S2	03/18/11	5836.83	Transducer	1185	1205.6	Regional
R-50 S2	03/17/11	5836.9	Transducer	1185	1205.6	Regional
R-50 S2	03/16/11	5836.81	Transducer	1185	1205.6	Regional
R-50 S2	03/15/11	5836.82	Transducer	1185	1205.6	Regional
R-50 S2	03/14/11	5836.68	Transducer	1185	1205.6	Regional
R-50 S2	03/13/11	5836.9	Transducer	1185	1205.6	Regional
R-50 S2	03/12/11	5836.88	Transducer	1185	1205.6	Regional
R-50 S2	03/11/11	5836.75	Transducer	1185	1205.6	Regional
R-50 S2	03/10/11	5836.57	Transducer	1185	1205.6	Regional
R-50 S2	03/09/11	5836.82	Transducer	1185	1205.6	Regional
R-50 S2	03/08/11	5837.25	Transducer	1185	1205.6	Regional
R-50 S2	03/07/11	5837.12	Transducer	1185	1205.6	Regional
R-50 S2	03/06/11	5836.77	Transducer	1185	1205.6	Regional
R-50 S2	03/05/11	5836.63	Transducer	1185	1205.6	Regional
R-50 S2	03/04/11	5836.91	Transducer	1185	1205.6	Regional
R-50 S2	03/03/11	5836.77	Transducer	1185	1205.6	Regional
R-50 S2	03/02/11	5836.72	Transducer	1185	1205.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S2	03/01/11	5836.63	Transducer	1185	1205.6	Regional
R-50 S2	02/28/11	5836.9	Transducer	1185	1205.6	Regional
R-50 S2	02/27/11	5837.18	Transducer	1185	1205.6	Regional
R-50 S2	02/26/11	5837.06	Transducer	1185	1205.6	Regional
R-50 S2	02/25/11	5836.92	Transducer	1185	1205.6	Regional
R-50 S2	02/24/11	5837.08	Transducer	1185	1205.6	Regional
R-50 S2	02/23/11	5836.97	Transducer	1185	1205.6	Regional
R-50 S2	02/22/11	5836.97	Transducer	1185	1205.6	Regional
R-50 S2	02/21/11	5837.08	Transducer	1185	1205.6	Regional
R-50 S2	02/20/11	5837.13	Transducer	1185	1205.6	Regional
R-50 S2	02/19/11	5836.78	Transducer	1185	1205.6	Regional
R-50 S2	02/18/11	5836.83	Transducer	1185	1205.6	Regional
R-50 S2	02/17/11	5837.03	Transducer	1185	1205.6	Regional
R-50 S2	02/16/11	5836.83	Transducer	1185	1205.6	Regional
R-50 S2	02/15/11	5836.77	Transducer	1185	1205.6	Regional
R-50 S2	02/14/11	5836.66	Transducer	1185	1205.6	Regional
R-50 S2	02/13/11	5836.57	Transducer	1185	1205.6	Regional
R-50 S2	02/12/11	5836.57	Transducer	1185	1205.6	Regional
R-50 S2	02/11/11	5836.8	Transducer	1185	1205.6	Regional
R-50 S2	02/10/11	5836.82	Transducer	1185	1205.6	Regional
R-50 S2	02/09/11	5836.94	Transducer	1185	1205.6	Regional
R-50 S2	02/08/11	5837.07	Transducer	1185	1205.6	Regional
R-50 S2	02/07/11	5836.71	Transducer	1185	1205.6	Regional
R-50 S2	02/06/11	5837.04	Transducer	1185	1205.6	Regional
R-50 S2	02/05/11	5836.9	Transducer	1185	1205.6	Regional
R-50 S2	02/04/11	5836.81	Transducer	1185	1205.6	Regional
R-50 S2	02/03/11	5836.71	Transducer	1185	1205.6	Regional
R-50 S2	02/02/11	5836.93	Transducer	1185	1205.6	Regional
R-50 S2	02/01/11	5837.09	Transducer	1185	1205.6	Regional
R-50 S2	01/31/11	5836.96	Transducer	1185	1205.6	Regional
R-50 S2	01/30/11	5836.87	Transducer	1185	1205.6	Regional
R-50 S2	01/29/11	5836.86	Transducer	1185	1205.6	Regional
R-50 S2	01/28/11	5836.7	Transducer	1185	1205.6	Regional
R-50 S2	01/27/11	5836.66	Transducer	1185	1205.6	Regional
R-50 S2	01/26/11	5836.82	Transducer	1185	1205.6	Regional
R-50 S2	01/25/11	5836.73	Transducer	1185	1205.6	Regional
R-50 S2	01/24/11	5836.87	Transducer	1185	1205.6	Regional
R-50 S2	01/23/11	5836.93	Transducer	1185	1205.6	Regional
R-50 S2	01/22/11	5836.8	Transducer	1185	1205.6	Regional
R-50 S2	01/21/11	5836.79	Transducer	1185	1205.6	Regional
R-50 S2	01/20/11	5836.93	Transducer	1185	1205.6	Regional
R-50 S2	01/19/11	5836.86	Transducer	1185	1205.6	Regional
R-50 S2	01/18/11	5836.91	Transducer	1185	1205.6	Regional
R-50 S2	01/17/11	5836.82	Transducer	1185	1205.6	Regional
R-50 S2	01/16/11	5836.75	Transducer	1185	1205.6	Regional
R-50 S2	01/15/11	5836.58	Transducer	1185	1205.6	Regional
R-50 S2	01/14/11	5836.66	Transducer	1185	1205.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S2	01/13/11	5836.53	Transducer	1185	1205.6	Regional
R-50 S2	01/12/11	5836.54	Transducer	1185	1205.6	Regional
R-50 S2	01/11/11	5836.64	Transducer	1185	1205.6	Regional
R-50 S2	01/10/11	5837.07	Transducer	1185	1205.6	Regional
R-50 S2	01/09/11	5837.09	Transducer	1185	1205.6	Regional
R-50 S2	01/08/11	5836.88	Transducer	1185	1205.6	Regional
R-50 S2	01/07/11	5836.69	Transducer	1185	1205.6	Regional
R-50 S2	01/06/11	5836.59	Transducer	1185	1205.6	Regional
R-50 S2	01/05/11	5836.67	Transducer	1185	1205.6	Regional
R-50 S2	01/04/11	5836.73	Transducer	1185	1205.6	Regional
R-50 S2	01/03/11	5836.71	Transducer	1185	1205.6	Regional
R-50 S2	01/02/11	5836.62	Transducer	1185	1205.6	Regional
R-50 S2	01/01/11	5836.94	Transducer	1185	1205.6	Regional
R-50 S2	12/31/10	5837.43	Transducer	1185	1205.6	Regional
R-50 S2	12/30/10	5837.37	Transducer	1185	1205.6	Regional
R-50 S2	12/29/10	5836.94	Transducer	1185	1205.6	Regional
R-50 S2	12/28/10	5836.77	Transducer	1185	1205.6	Regional
R-50 S2	12/27/10	5836.78	Transducer	1185	1205.6	Regional
R-50 S2	12/26/10	5836.57	Transducer	1185	1205.6	Regional
R-50 S2	12/25/10	5836.52	Transducer	1185	1205.6	Regional
R-50 S2	12/24/10	5836.72	Transducer	1185	1205.6	Regional
R-50 S2	12/23/10	5836.7	Transducer	1185	1205.6	Regional
R-50 S2	12/22/10	5836.62	Transducer	1185	1205.6	Regional
R-50 S2	12/21/10	5836.78	Transducer	1185	1205.6	Regional
R-50 S2	12/20/10	5836.89	Transducer	1185	1205.6	Regional
R-50 S2	12/19/10	5836.85	Transducer	1185	1205.6	Regional
R-50 S2	12/18/10	5836.84	Transducer	1185	1205.6	Regional
R-50 S2	12/17/10	5836.96	Transducer	1185	1205.6	Regional
R-50 S2	12/16/10	5836.97	Transducer	1185	1205.6	Regional
R-50 S2	12/15/10	5836.96	Transducer	1185	1205.6	Regional
R-50 S2	12/14/10	5836.71	Transducer	1185	1205.6	Regional
R-50 S2	12/13/10	5836.56	Transducer	1185	1205.6	Regional
R-50 S2	12/12/10	5836.58	Transducer	1185	1205.6	Regional
R-50 S2	12/11/10	5836.79	Transducer	1185	1205.6	Regional
R-50 S2	12/10/10	5836.73	Transducer	1185	1205.6	Regional
R-50 S2	12/09/10	5836.62	Transducer	1185	1205.6	Regional
R-50 S2	12/08/10	5836.48	Transducer	1185	1205.6	Regional
R-50 S2	12/07/10	5836.61	Transducer	1185	1205.6	Regional
R-50 S2	12/06/10	5836.46	Transducer	1185	1205.6	Regional
R-50 S2	12/05/10	5836.52	Transducer	1185	1205.6	Regional
R-50 S2	12/04/10	5836.57	Transducer	1185	1205.6	Regional
R-50 S2	12/03/10	5836.52	Transducer	1185	1205.6	Regional
R-50 S2	12/02/10	5836.52	Transducer	1185	1205.6	Regional
R-50 S2	12/01/10	5836.44	Transducer	1185	1205.6	Regional
R-50 S2	11/30/10	5836.59	Transducer	1185	1205.6	Regional
R-50 S2	11/29/10	5837.07	Transducer	1185	1205.6	Regional
R-50 S2	11/28/10	5836.91	Transducer	1185	1205.6	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-50 S2	11/27/10	5836.55	Transducer	1185	1205.6	Regional
R-50 S2	11/26/10	5836.57	Transducer	1185	1205.6	Regional
R-50 S2	11/25/10	5836.92	Transducer	1185	1205.6	Regional
R-50 S2	11/24/10	5836.92	Transducer	1185	1205.6	Regional
R-50 S2	11/23/10	5836.63	Transducer	1185	1205.6	Regional
R-50 S2	11/22/10	5836.9	Transducer	1185	1205.6	Regional
R-50 S2	11/21/10	5836.79	Transducer	1185	1205.6	Regional
R-50 S2	11/20/10	5836.68	Transducer	1185	1205.6	Regional
R-50 S2	11/19/10	5836.54	Transducer	1185	1205.6	Regional
R-50 S2	11/18/10	5836.39	Transducer	1185	1205.6	Regional
R-50 S2	11/17/10	5836.87	Transducer	1185	1205.6	Regional
R-50 S2	11/16/10	5836.74	Transducer	1185	1205.6	Regional
R-50 S2	11/15/10	5836.9	Transducer	1185	1205.6	Regional
R-50 S2	11/14/10	5836.7	Transducer	1185	1205.6	Regional
R-50 S2	11/13/10	5836.48	Transducer	1185	1205.6	Regional
R-50 S2	11/12/10	5836.55	Transducer	1185	1205.6	Regional
R-50 S2	11/11/10	5836.79	Transducer	1185	1205.6	Regional
R-50 S2	11/10/10	5836.8	Transducer	1185	1205.6	Regional
R-50 S2	11/09/10	5836.89	Transducer	1185	1205.6	Regional
R-50 S2	11/08/10	5836.61	Transducer	1185	1205.6	Regional
R-50 S2	11/07/10	5836.49	Transducer	1185	1205.6	Regional
R-50 S2	11/06/10	5836.48	Transducer	1185	1205.6	Regional
R-50 S2	11/05/10	5836.41	Transducer	1185	1205.6	Regional
R-50 S2	11/04/10	5836.24	Transducer	1185	1205.6	Regional
R-50 S2	11/03/10	5836.28	Transducer	1185	1205.6	Regional
R-50 S2	11/02/10	5836.24	Transducer	1185	1205.6	Regional
R-50 S2	11/01/10	5836.47	Transducer	1185	1205.6	Regional
R-50 S2	10/31/10	5836.56	Transducer	1185	1205.6	Regional
R-50 S2	10/30/10	5836.39	Transducer	1185	1205.6	Regional
R-61 S1	11/15/12	5837.44	Transducer	1125	1135	Regional
R-61 S1	11/14/12	5837.37	Transducer	1125	1135	Regional
R-61 S1	11/13/12	5837.39	Transducer	1125	1135	Regional
R-61 S1	11/12/12	5837.4	Transducer	1125	1135	Regional
R-61 S1	11/11/12	5837.85	Transducer	1125	1135	Regional
R-61 S1	11/10/12	5837.85	Transducer	1125	1135	Regional
R-61 S1	11/09/12	5837.69	Transducer	1125	1135	Regional
R-61 S1	11/08/12	5837.55	Transducer	1125	1135	Regional
R-61 S1	11/07/12	5837.38	Transducer	1125	1135	Regional
R-61 S1	11/06/12	5837.42	Transducer	1125	1135	Regional
R-61 S1	11/05/12	5837.37	Transducer	1125	1135	Regional
R-61 S1	11/04/12	5837.4	Transducer	1125	1135	Regional
R-61 S1	11/03/12	5837.54	Transducer	1125	1135	Regional
R-61 S1	11/02/12	5837.56	Transducer	1125	1135	Regional
R-61 S1	11/01/12	5837.5	Transducer	1125	1135	Regional
R-61 S1	11/01/12	5837.426	Transducer	1125	1135	Regional
R-61 S1	10/31/12	5837.449	Transducer	1125	1135	Regional
R-61 S1	10/30/12	5837.427	Transducer	1125	1135	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S1	10/29/12	5837.465	Transducer	1125	1135	Regional
R-61 S1	10/28/12	5837.529	Transducer	1125	1135	Regional
R-61 S1	10/27/12	5837.454	Transducer	1125	1135	Regional
R-61 S1	10/26/12	5837.521	Transducer	1125	1135	Regional
R-61 S1	10/25/12	5837.696	Transducer	1125	1135	Regional
R-61 S1	10/24/12	5837.659	Transducer	1125	1135	Regional
R-61 S1	10/23/12	5837.663	Transducer	1125	1135	Regional
R-61 S1	10/22/12	5837.699	Transducer	1125	1135	Regional
R-61 S1	10/22/12	5837.7	Manual	1125	1135	Regional
R-61 S1	09/05/12	5837.803	Transducer	1125	1135	Regional
R-61 S1	09/04/12	5837.78	Transducer	1125	1135	Regional
R-61 S1	09/03/12	5837.792	Transducer	1125	1135	Regional
R-61 S1	09/02/12	5837.73	Transducer	1125	1135	Regional
R-61 S1	09/01/12	5837.73	Transducer	1125	1135	Regional
R-61 S1	08/31/12	5837.801	Transducer	1125	1135	Regional
R-61 S1	08/30/12	5837.79	Transducer	1125	1135	Regional
R-61 S1	08/29/12	5837.69	Transducer	1125	1135	Regional
R-61 S1	08/28/12	5837.627	Transducer	1125	1135	Regional
R-61 S1	08/27/12	5837.697	Transducer	1125	1135	Regional
R-61 S1	08/26/12	5837.849	Transducer	1125	1135	Regional
R-61 S1	08/25/12	5837.964	Transducer	1125	1135	Regional
R-61 S1	08/24/12	5837.935	Transducer	1125	1135	Regional
R-61 S1	08/23/12	5837.823	Transducer	1125	1135	Regional
R-61 S1	08/22/12	5837.763	Transducer	1125	1135	Regional
R-61 S1	08/21/12	5837.847	Transducer	1125	1135	Regional
R-61 S1	08/20/12	5837.833	Transducer	1125	1135	Regional
R-61 S1	08/19/12	5837.846	Transducer	1125	1135	Regional
R-61 S1	08/18/12	5837.813	Transducer	1125	1135	Regional
R-61 S1	08/17/12	5837.759	Transducer	1125	1135	Regional
R-61 S1	08/16/12	5837.911	Transducer	1125	1135	Regional
R-61 S1	08/15/12	5837.906	Transducer	1125	1135	Regional
R-61 S1	08/14/12	5837.805	Transducer	1125	1135	Regional
R-61 S1	08/13/12	5837.702	Transducer	1125	1135	Regional
R-61 S1	08/12/12	5837.838	Transducer	1125	1135	Regional
R-61 S1	08/11/12	5837.815	Transducer	1125	1135	Regional
R-61 S1	08/10/12	5837.74	Transducer	1125	1135	Regional
R-61 S1	08/09/12	5837.695	Transducer	1125	1135	Regional
R-61 S1	08/08/12	5837.757	Transducer	1125	1135	Regional
R-61 S1	08/07/12	5837.718	Transducer	1125	1135	Regional
R-61 S1	08/06/12	5837.543	Transducer	1125	1135	Regional
R-61 S1	08/05/12	5837.658	Transducer	1125	1135	Regional
R-61 S1	08/04/12	5837.844	Transducer	1125	1135	Regional
R-61 S1	08/03/12	5837.759	Transducer	1125	1135	Regional
R-61 S1	08/02/12	5837.789	Transducer	1125	1135	Regional
R-61 S1	08/01/12	5837.713	Transducer	1125	1135	Regional
R-61 S1	07/31/12	5837.812	Transducer	1125	1135	Regional
R-61 S1	07/30/12	5837.787	Transducer	1125	1135	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S1	07/29/12	5837.698	Transducer	1125	1135	Regional
R-61 S1	07/28/12	5837.694	Transducer	1125	1135	Regional
R-61 S1	07/27/12	5837.777	Transducer	1125	1135	Regional
R-61 S1	07/26/12	5837.887	Transducer	1125	1135	Regional
R-61 S1	07/25/12	5837.898	Transducer	1125	1135	Regional
R-61 S1	07/24/12	5837.812	Transducer	1125	1135	Regional
R-61 S1	07/23/12	5837.756	Transducer	1125	1135	Regional
R-61 S1	07/22/12	5837.727	Transducer	1125	1135	Regional
R-61 S1	07/21/12	5837.678	Transducer	1125	1135	Regional
R-61 S1	07/20/12	5837.67	Transducer	1125	1135	Regional
R-61 S1	07/19/12	5837.781	Transducer	1125	1135	Regional
R-61 S1	07/18/12	5837.868	Transducer	1125	1135	Regional
R-61 S1	07/17/12	5837.918	Transducer	1125	1135	Regional
R-61 S1	07/16/12	5837.864	Transducer	1125	1135	Regional
R-61 S1	07/15/12	5837.838	Transducer	1125	1135	Regional
R-61 S1	07/14/12	5837.767	Transducer	1125	1135	Regional
R-61 S1	07/13/12	5837.778	Transducer	1125	1135	Regional
R-61 S1	07/12/12	5837.76	Transducer	1125	1135	Regional
R-61 S1	07/11/12	5837.709	Transducer	1125	1135	Regional
R-61 S1	07/10/12	5837.714	Transducer	1125	1135	Regional
R-61 S1	07/09/12	5837.7	Transducer	1125	1135	Regional
R-61 S1	07/08/12	5837.699	Transducer	1125	1135	Regional
R-61 S1	07/07/12	5837.785	Transducer	1125	1135	Regional
R-61 S1	07/06/12	5837.826	Transducer	1125	1135	Regional
R-61 S1	07/05/12	5837.893	Transducer	1125	1135	Regional
R-61 S1	07/04/12	5837.912	Transducer	1125	1135	Regional
R-61 S1	07/03/12	5837.931	Transducer	1125	1135	Regional
R-61 S1	07/02/12	5837.919	Transducer	1125	1135	Regional
R-61 S1	07/01/12	5837.943	Transducer	1125	1135	Regional
R-61 S1	06/30/12	5837.944	Transducer	1125	1135	Regional
R-61 S1	06/29/12	5837.797	Transducer	1125	1135	Regional
R-61 S1	06/28/12	5837.819	Transducer	1125	1135	Regional
R-61 S1	06/27/12	5837.961	Transducer	1125	1135	Regional
R-61 S1	06/26/12	5837.935	Transducer	1125	1135	Regional
R-61 S1	06/25/12	5837.829	Transducer	1125	1135	Regional
R-61 S1	06/24/12	5837.913	Transducer	1125	1135	Regional
R-61 S1	06/23/12	5838.049	Transducer	1125	1135	Regional
R-61 S1	06/22/12	5837.911	Transducer	1125	1135	Regional
R-61 S1	06/21/12	5837.958	Transducer	1125	1135	Regional
R-61 S1	06/20/12	5838.2	Transducer	1125	1135	Regional
R-61 S1	06/19/12	5838.216	Transducer	1125	1135	Regional
R-61 S1	06/18/12	5838.152	Transducer	1125	1135	Regional
R-61 S1	06/17/12	5837.898	Transducer	1125	1135	Regional
R-61 S1	06/16/12	5838.051	Transducer	1125	1135	Regional
R-61 S1	06/15/12	5838.153	Transducer	1125	1135	Regional
R-61 S1	06/14/12	5838.158	Transducer	1125	1135	Regional
R-61 S1	06/13/12	5838.105	Transducer	1125	1135	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S1	06/12/12	5837.974	Transducer	1125	1135	Regional
R-61 S1	06/11/12	5838.088	Transducer	1125	1135	Regional
R-61 S1	06/10/12	5838.277	Transducer	1125	1135	Regional
R-61 S1	06/09/12	5838.234	Transducer	1125	1135	Regional
R-61 S1	06/08/12	5838.14	Transducer	1125	1135	Regional
R-61 S1	06/07/12	5838.229	Transducer	1125	1135	Regional
R-61 S1	06/06/12	5838.178	Transducer	1125	1135	Regional
R-61 S1	06/06/12	5838.228	Transducer	1125	1135	Regional
R-61 S1	06/05/12	5838.153	Transducer	1125	1135	Regional
R-61 S1	06/04/12	5838.134	Transducer	1125	1135	Regional
R-61 S1	06/03/12	5838.226	Transducer	1125	1135	Regional
R-61 S1	06/02/12	5838.214	Transducer	1125	1135	Regional
R-61 S1	06/01/12	5838.203	Transducer	1125	1135	Regional
R-61 S1	05/31/12	5838.27	Transducer	1125	1135	Regional
R-61 S1	05/30/12	5838.252	Transducer	1125	1135	Regional
R-61 S1	05/29/12	5838.174	Transducer	1125	1135	Regional
R-61 S1	05/28/12	5838.264	Transducer	1125	1135	Regional
R-61 S1	05/27/12	5838.339	Transducer	1125	1135	Regional
R-61 S1	05/26/12	5838.375	Transducer	1125	1135	Regional
R-61 S1	05/25/12	5838.499	Transducer	1125	1135	Regional
R-61 S1	05/24/12	5838.641	Transducer	1125	1135	Regional
R-61 S1	05/23/12	5838.444	Transducer	1125	1135	Regional
R-61 S1	05/22/12	5838.182	Transducer	1125	1135	Regional
R-61 S1	05/21/12	5838.046	Transducer	1125	1135	Regional
R-61 S1	05/20/12	5838.219	Transducer	1125	1135	Regional
R-61 S1	05/19/12	5838.492	Transducer	1125	1135	Regional
R-61 S1	05/18/12	5838.437	Transducer	1125	1135	Regional
R-61 S1	05/17/12	5838.298	Transducer	1125	1135	Regional
R-61 S1	05/16/12	5838.091	Transducer	1125	1135	Regional
R-61 S1	05/15/12	5838.085	Transducer	1125	1135	Regional
R-61 S1	05/14/12	5838.109	Transducer	1125	1135	Regional
R-61 S1	05/13/12	5838.041	Transducer	1125	1135	Regional
R-61 S1	05/12/12	5838.168	Transducer	1125	1135	Regional
R-61 S1	05/11/12	5838.398	Transducer	1125	1135	Regional
R-61 S1	05/10/12	5838.331	Transducer	1125	1135	Regional
R-61 S1	05/09/12	5838.172	Transducer	1125	1135	Regional
R-61 S1	05/08/12	5838.229	Transducer	1125	1135	Regional
R-61 S1	05/07/12	5838.365	Transducer	1125	1135	Regional
R-61 S1	05/06/12	5838.372	Transducer	1125	1135	Regional
R-61 S1	05/05/12	5838.41	Transducer	1125	1135	Regional
R-61 S1	05/04/12	5838.362	Transducer	1125	1135	Regional
R-61 S1	05/03/12	5838.443	Transducer	1125	1135	Regional
R-61 S1	05/02/12	5838.491	Transducer	1125	1135	Regional
R-61 S1	05/01/12	5838.529	Transducer	1125	1135	Regional
R-61 S1	04/30/12	5838.426	Transducer	1125	1135	Regional
R-61 S1	04/29/12	5838.515	Transducer	1125	1135	Regional
R-61 S1	04/28/12	5838.484	Transducer	1125	1135	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S1	04/27/12	5838.577	Transducer	1125	1135	Regional
R-61 S1	04/26/12	5838.354	Transducer	1125	1135	Regional
R-61 S1	04/25/12	5838.398	Transducer	1125	1135	Regional
R-61 S1	04/24/12	5838.355	Transducer	1125	1135	Regional
R-61 S1	04/23/12	5838.209	Transducer	1125	1135	Regional
R-61 S1	04/22/12	5838.258	Transducer	1125	1135	Regional
R-61 S1	04/21/12	5838.335	Transducer	1125	1135	Regional
R-61 S1	04/20/12	5838.384	Transducer	1125	1135	Regional
R-61 S1	04/19/12	5838.468	Transducer	1125	1135	Regional
R-61 S1	04/18/12	5838.316	Transducer	1125	1135	Regional
R-61 S1	04/17/12	5838.256	Transducer	1125	1135	Regional
R-61 S1	04/16/12	5838.435	Transducer	1125	1135	Regional
R-61 S1	04/15/12	5838.743	Transducer	1125	1135	Regional
R-61 S1	04/14/12	5838.745	Transducer	1125	1135	Regional
R-61 S1	04/13/12	5838.518	Transducer	1125	1135	Regional
R-61 S1	04/12/12	5838.551	Transducer	1125	1135	Regional
R-61 S1	04/11/12	5838.34	Transducer	1125	1135	Regional
R-61 S1	04/10/12	5838.303	Transducer	1125	1135	Regional
R-61 S1	04/09/12	5838.213	Transducer	1125	1135	Regional
R-61 S1	04/08/12	5838.095	Transducer	1125	1135	Regional
R-61 S1	04/07/12	5838.354	Transducer	1125	1135	Regional
R-61 S1	04/06/12	5838.509	Transducer	1125	1135	Regional
R-61 S1	04/05/12	5838.491	Transducer	1125	1135	Regional
R-61 S1	04/04/12	5838.468	Transducer	1125	1135	Regional
R-61 S1	04/03/12	5838.649	Transducer	1125	1135	Regional
R-61 S1	04/02/12	5838.737	Transducer	1125	1135	Regional
R-61 S1	04/01/12	5838.534	Transducer	1125	1135	Regional
R-61 S1	03/31/12	5838.422	Transducer	1125	1135	Regional
R-61 S1	03/30/12	5838.434	Transducer	1125	1135	Regional
R-61 S1	03/29/12	5838.433	Transducer	1125	1135	Regional
R-61 S1	03/28/12	5838.39	Transducer	1125	1135	Regional
R-61 S1	03/27/12	5838.456	Transducer	1125	1135	Regional
R-61 S1	03/26/12	5838.476	Transducer	1125	1135	Regional
R-61 S1	03/25/12	5838.345	Transducer	1125	1135	Regional
R-61 S1	03/24/12	5838.377	Transducer	1125	1135	Regional
R-61 S1	03/23/12	5838.441	Transducer	1125	1135	Regional
R-61 S1	03/22/12	5838.511	Transducer	1125	1135	Regional
R-61 S1	03/21/12	5838.502	Transducer	1125	1135	Regional
R-61 S1	03/20/12	5838.837	Transducer	1125	1135	Regional
R-61 S1	03/19/12	5838.795	Transducer	1125	1135	Regional
R-61 S1	03/18/12	5838.659	Transducer	1125	1135	Regional
R-61 S1	03/17/12	5838.496	Transducer	1125	1135	Regional
R-61 S1	03/16/12	5838.382	Transducer	1125	1135	Regional
R-61 S1	03/15/12	5838.312	Transducer	1125	1135	Regional
R-61 S1	03/14/12	5838.38	Transducer	1125	1135	Regional
R-61 S1	03/13/12	5838.332	Transducer	1125	1135	Regional
R-61 S1	03/12/12	5838.481	Transducer	1125	1135	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S1	03/11/12	5838.581	Transducer	1125	1135	Regional
R-61 S1	03/10/12	5838.239	Transducer	1125	1135	Regional
R-61 S1	03/09/12	5838.082	Transducer	1125	1135	Regional
R-61 S1	03/08/12	5838.527	Transducer	1125	1135	Regional
R-61 S1	03/07/12	5838.734	Transducer	1125	1135	Regional
R-61 S1	03/06/12	5838.563	Transducer	1125	1135	Regional
R-61 S1	03/06/12	5838.391	Transducer	1125	1135	Regional
R-61 S1	03/05/12	5838.245	Transducer	1125	1135	Regional
R-61 S1	03/04/12	5838.198	Transducer	1125	1135	Regional
R-61 S1	03/03/12	5838.393	Transducer	1125	1135	Regional
R-61 S1	03/02/12	5838.683	Transducer	1125	1135	Regional
R-61 S1	03/01/12	5838.533	Transducer	1125	1135	Regional
R-61 S1	02/29/12	5838.411	Transducer	1125	1135	Regional
R-61 S1	02/28/12	5838.569	Transducer	1125	1135	Regional
R-61 S1	02/27/12	5838.407	Transducer	1125	1135	Regional
R-61 S1	02/26/12	5838.519	Transducer	1125	1135	Regional
R-61 S1	02/25/12	5838.226	Transducer	1125	1135	Regional
R-61 S1	02/24/12	5838.438	Transducer	1125	1135	Regional
R-61 S1	02/23/12	5838.663	Transducer	1125	1135	Regional
R-61 S1	02/22/12	5838.386	Transducer	1125	1135	Regional
R-61 S1	02/21/12	5838.389	Transducer	1125	1135	Regional
R-61 S1	02/20/12	5838.714	Transducer	1125	1135	Regional
R-61 S1	02/19/12	5838.468	Transducer	1125	1135	Regional
R-61 S1	02/18/12	5838.516	Transducer	1125	1135	Regional
R-61 S1	02/17/12	5838.396	Transducer	1125	1135	Regional
R-61 S1	02/16/12	5838.441	Transducer	1125	1135	Regional
R-61 S1	02/15/12	5838.758	Transducer	1125	1135	Regional
R-61 S1	02/14/12	5838.664	Transducer	1125	1135	Regional
R-61 S1	02/13/12	5838.733	Transducer	1125	1135	Regional
R-61 S1	02/12/12	5838.34	Transducer	1125	1135	Regional
R-61 S1	02/11/12	5838.307	Transducer	1125	1135	Regional
R-61 S1	02/10/12	5838.347	Transducer	1125	1135	Regional
R-61 S1	02/09/12	5838.369	Transducer	1125	1135	Regional
R-61 S1	02/08/12	5838.265	Transducer	1125	1135	Regional
R-61 S1	02/07/12	5838.434	Transducer	1125	1135	Regional
R-61 S1	02/06/12	5838.344	Transducer	1125	1135	Regional
R-61 S1	02/05/12	5838.213	Transducer	1125	1135	Regional
R-61 S1	02/04/12	5838.376	Transducer	1125	1135	Regional
R-61 S1	02/03/12	5838.684	Transducer	1125	1135	Regional
R-61 S1	02/02/12	5838.431	Transducer	1125	1135	Regional
R-61 S1	02/01/12	5838.344	Transducer	1125	1135	Regional
R-61 S1	01/31/12	5838.475	Transducer	1125	1135	Regional
R-61 S1	01/30/12	5838.343	Transducer	1125	1135	Regional
R-61 S1	01/29/12	5838.211	Transducer	1125	1135	Regional
R-61 S1	01/28/12	5838.245	Transducer	1125	1135	Regional
R-61 S1	01/27/12	5838.556	Transducer	1125	1135	Regional
R-61 S1	01/26/12	5838.403	Transducer	1125	1135	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S1	01/25/12	5838.417	Transducer	1125	1135	Regional
R-61 S1	01/24/12	5838.61	Transducer	1125	1135	Regional
R-61 S1	01/23/12	5838.504	Transducer	1125	1135	Regional
R-61 S1	01/22/12	5838.923	Transducer	1125	1135	Regional
R-61 S1	01/21/12	5838.447	Transducer	1125	1135	Regional
R-61 S1	01/20/12	5838.596	Transducer	1125	1135	Regional
R-61 S1	01/19/12	5838.434	Transducer	1125	1135	Regional
R-61 S1	01/18/12	5838.346	Transducer	1125	1135	Regional
R-61 S1	01/17/12	5838.545	Transducer	1125	1135	Regional
R-61 S1	01/16/12	5838.541	Transducer	1125	1135	Regional
R-61 S1	01/15/12	5838.331	Transducer	1125	1135	Regional
R-61 S1	01/14/12	5838.278	Transducer	1125	1135	Regional
R-61 S1	01/13/12	5838.458	Transducer	1125	1135	Regional
R-61 S1	01/12/12	5838.467	Transducer	1125	1135	Regional
R-61 S1	01/11/12	5838.569	Transducer	1125	1135	Regional
R-61 S1	01/10/12	5838.372	Transducer	1125	1135	Regional
R-61 S1	01/09/12	5838.379	Transducer	1125	1135	Regional
R-61 S1	01/08/12	5838.606	Transducer	1125	1135	Regional
R-61 S1	01/07/12	5838.475	Transducer	1125	1135	Regional
R-61 S1	01/06/12	5838.509	Transducer	1125	1135	Regional
R-61 S1	01/05/12	5838.117	Transducer	1125	1135	Regional
R-61 S1	01/04/12	5838.202	Transducer	1125	1135	Regional
R-61 S1	01/03/12	5838.111	Transducer	1125	1135	Regional
R-61 S1	01/02/12	5837.992	Transducer	1125	1135	Regional
R-61 S1	01/01/12	5838.195	Transducer	1125	1135	Regional
R-61 S1	12/31/11	5838.46	Transducer	1125	1135	Regional
R-61 S1	12/30/11	5838.367	Transducer	1125	1135	Regional
R-61 S1	12/29/11	5838.279	Transducer	1125	1135	Regional
R-61 S1	12/28/11	5838.327	Transducer	1125	1135	Regional
R-61 S1	12/27/11	5838.24	Transducer	1125	1135	Regional
R-61 S1	12/26/11	5838.295	Transducer	1125	1135	Regional
R-61 S1	12/25/11	5838.168	Transducer	1125	1135	Regional
R-61 S1	12/24/11	5838.212	Transducer	1125	1135	Regional
R-61 S1	12/23/11	5838.315	Transducer	1125	1135	Regional
R-61 S1	12/22/11	5838.595	Transducer	1125	1135	Regional
R-61 S1	12/21/11	5838.581	Transducer	1125	1135	Regional
R-61 S1	12/20/11	5838.512	Transducer	1125	1135	Regional
R-61 S1	12/19/11	5838.61	Transducer	1125	1135	Regional
R-61 S1	12/18/11	5838.176	Transducer	1125	1135	Regional
R-61 S1	12/17/11	5838.077	Transducer	1125	1135	Regional
R-61 S1	12/16/11	5838.268	Transducer	1125	1135	Regional
R-61 S1	12/15/11	5838.349	Transducer	1125	1135	Regional
R-61 S1	12/14/11	5838.607	Transducer	1125	1135	Regional
R-61 S1	12/13/11	5838.476	Transducer	1125	1135	Regional
R-61 S1	12/12/11	5838.43	Transducer	1125	1135	Regional
R-61 S1	12/11/11	5838.316	Transducer	1125	1135	Regional
R-61 S1	12/10/11	5838.132	Transducer	1125	1135	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S1	12/09/11	5838.364	Transducer	1125	1135	Regional
R-61 S1	12/08/11	5838.35	Transducer	1125	1135	Regional
R-61 S1	12/07/11	5838.239	Transducer	1125	1135	Regional
R-61 S1	12/06/11	5838.315	Transducer	1125	1135	Regional
R-61 S1	12/05/11	5838.517	Transducer	1125	1135	Regional
R-61 S1	12/04/11	5838.459	Transducer	1125	1135	Regional
R-61 S1	12/03/11	5838.661	Transducer	1125	1135	Regional
R-61 S1	12/02/11	5838.25	Transducer	1125	1135	Regional
R-61 S1	12/01/11	5838.57	Transducer	1125	1135	Regional
R-61 S1	11/30/11	5838.209	Transducer	1125	1135	Regional
R-61 S1	11/29/11	5838.176	Transducer	1125	1135	Regional
R-61 S1	11/28/11	5838.036	Transducer	1125	1135	Regional
R-61 S1	11/27/11	5837.939	Transducer	1125	1135	Regional
R-61 S1	11/26/11	5838.409	Transducer	1125	1135	Regional
R-61 S1	11/25/11	5838.361	Transducer	1125	1135	Regional
R-61 S1	11/24/11	5838.193	Transducer	1125	1135	Regional
R-61 S1	11/23/11	5838.038	Transducer	1125	1135	Regional
R-61 S1	11/22/11	5838.208	Transducer	1125	1135	Regional
R-61 S1	11/21/11	5838.345	Transducer	1125	1135	Regional
R-61 S1	11/20/11	5838.392	Transducer	1125	1135	Regional
R-61 S1	11/19/11	5838.568	Transducer	1125	1135	Regional
R-61 S1	11/18/11	5838.356	Transducer	1125	1135	Regional
R-61 S1	11/17/11	5838.148	Transducer	1125	1135	Regional
R-61 S1	11/16/11	5838.44	Transducer	1125	1135	Regional
R-61 S1	11/15/11	5838.484	Transducer	1125	1135	Regional
R-61 S1	11/14/11	5838.542	Transducer	1125	1135	Regional
R-61 S1	11/13/11	5838.541	Transducer	1125	1135	Regional
R-61 S1	11/12/11	5838.468	Transducer	1125	1135	Regional
R-61 S1	11/11/11	5838.146	Transducer	1125	1135	Regional
R-61 S1	11/10/11	5838.007	Transducer	1125	1135	Regional
R-61 S1	11/09/11	5838.13	Transducer	1125	1135	Regional
R-61 S1	11/08/11	5838.543	Transducer	1125	1135	Regional
R-61 S1	11/07/11	5838.459	Transducer	1125	1135	Regional
R-61 S1	11/06/11	5838.532	Transducer	1125	1135	Regional
R-61 S1	11/05/11	5838.6	Transducer	1125	1135	Regional
R-61 S1	11/04/11	5838.265	Transducer	1125	1135	Regional
R-61 S1	11/03/11	5838.044	Transducer	1125	1135	Regional
R-61 S1	11/02/11	5838.532	Transducer	1125	1135	Regional
R-61 S1	11/01/11	5838.261	Transducer	1125	1135	Regional
R-61 S1	10/31/11	5838.146	Transducer	1125	1135	Regional
R-61 S1	10/30/11	5838.224	Transducer	1125	1135	Regional
R-61 S1	10/29/11	5838.123	Transducer	1125	1135	Regional
R-61 S1	10/28/11	5838.273	Transducer	1125	1135	Regional
R-61 S1	10/27/11	5838.456	Transducer	1125	1135	Regional
R-61 S1	10/26/11	5838.33	Transducer	1125	1135	Regional
R-61 S1	10/25/11	5838.197	Transducer	1125	1135	Regional
R-61 S1	10/24/11	5838.132	Transducer	1125	1135	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S1	10/23/11	5838.123	Transducer	1125	1135	Regional
R-61 S1	10/22/11	5838.123	Transducer	1125	1135	Regional
R-61 S1	10/21/11	5838.133	Transducer	1125	1135	Regional
R-61 S1	10/20/11	5838.235	Transducer	1125	1135	Regional
R-61 S1	10/19/11	5838.117	Transducer	1125	1135	Regional
R-61 S1	10/18/11	5838.167	Transducer	1125	1135	Regional
R-61 S1	10/17/11	5838.254	Transducer	1125	1135	Regional
R-61 S1	10/16/11	5838.145	Transducer	1125	1135	Regional
R-61 S1	10/15/11	5838.124	Transducer	1125	1135	Regional
R-61 S1	10/14/11	5838.241	Transducer	1125	1135	Regional
R-61 S1	10/13/11	5838.156	Transducer	1125	1135	Regional
R-61 S1	10/12/11	5838.25	Transducer	1125	1135	Regional
R-61 S1	10/11/11	5838.276	Transducer	1125	1135	Regional
R-61 S1	10/10/11	5838.199	Transducer	1125	1135	Regional
R-61 S1	10/09/11	5838.228	Transducer	1125	1135	Regional
R-61 S1	10/08/11	5838.441	Transducer	1125	1135	Regional
R-61 S1	10/07/11	5838.381	Transducer	1125	1135	Regional
R-61 S1	10/06/11	5838.451	Transducer	1125	1135	Regional
R-61 S1	10/05/11	5838.227	Transducer	1125	1135	Regional
R-61 S1	10/04/11	5838.119	Transducer	1125	1135	Regional
R-61 S1	10/03/11	5838.042	Transducer	1125	1135	Regional
R-61 S1	10/02/11	5838.025	Transducer	1125	1135	Regional
R-61 S1	10/01/11	5838.061	Transducer	1125	1135	Regional
R-61 S1	09/30/11	5837.9	Transducer	1125	1135	Regional
R-61 S1	09/29/11	5838.129	Transducer	1125	1135	Regional
R-61 S1	09/28/11	5838.06	Transducer	1125	1135	Regional
R-61 S1	09/28/11	5838.084	Transducer	1125	1135	Regional
R-61 S1	09/27/11	5838.15	Transducer	1125	1135	Regional
R-61 S1	09/26/11	5838.21	Transducer	1125	1135	Regional
R-61 S1	09/25/11	5838.16	Transducer	1125	1135	Regional
R-61 S1	09/24/11	5838.02	Transducer	1125	1135	Regional
R-61 S1	09/23/11	5837.98	Transducer	1125	1135	Regional
R-61 S1	09/22/11	5838.08	Transducer	1125	1135	Regional
R-61 S1	09/21/11	5838.13	Transducer	1125	1135	Regional
R-61 S1	09/20/11	5838.11	Transducer	1125	1135	Regional
R-61 S1	09/19/11	5837.98	Transducer	1125	1135	Regional
R-61 S1	09/18/11	5838.05	Transducer	1125	1135	Regional
R-61 S1	09/17/11	5838.11	Transducer	1125	1135	Regional
R-61 S1	09/16/11	5838.16	Transducer	1125	1135	Regional
R-61 S1	09/15/11	5838.12	Transducer	1125	1135	Regional
R-61 S1	09/14/11	5838.08	Transducer	1125	1135	Regional
R-61 S1	09/13/11	5837.94	Transducer	1125	1135	Regional
R-61 S1	09/12/11	5837.93	Transducer	1125	1135	Regional
R-61 S1	09/11/11	5837.95	Transducer	1125	1135	Regional
R-61 S1	09/10/11	5837.96	Transducer	1125	1135	Regional
R-61 S1	09/09/11	5837.92	Transducer	1125	1135	Regional
R-61 S1	09/08/11	5837.86	Transducer	1125	1135	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S1	09/07/11	5837.97	Transducer	1125	1135	Regional
R-61 S1	09/06/11	5838.01	Transducer	1125	1135	Regional
R-61 S1	09/05/11	5837.9	Transducer	1125	1135	Regional
R-61 S1	09/04/11	5838.02	Transducer	1125	1135	Regional
R-61 S1	09/03/11	5838.12	Transducer	1125	1135	Regional
R-61 S1	09/02/11	5838.03	Transducer	1125	1135	Regional
R-61 S1	09/01/11	5838.01	Transducer	1125	1135	Regional
R-61 S1	08/31/11	5838.11	Transducer	1125	1135	Regional
R-61 S1	08/30/11	5838.06	Transducer	1125	1135	Regional
R-61 S1	08/29/11	5838.01	Transducer	1125	1135	Regional
R-61 S1	08/28/11	5837.97	Transducer	1125	1135	Regional
R-61 S1	08/27/11	5837.89	Transducer	1125	1135	Regional
R-61 S1	08/26/11	5837.85	Transducer	1125	1135	Regional
R-61 S1	08/25/11	5837.91	Transducer	1125	1135	Regional
R-61 S1	08/24/11	5837.94	Transducer	1125	1135	Regional
R-61 S1	08/23/11	5837.93	Transducer	1125	1135	Regional
R-61 S1	08/22/11	5837.84	Transducer	1125	1135	Regional
R-61 S1	08/21/11	5837.91	Transducer	1125	1135	Regional
R-61 S1	08/20/11	5838.01	Transducer	1125	1135	Regional
R-61 S1	08/19/11	5837.97	Transducer	1125	1135	Regional
R-61 S1	08/18/11	5837.8	Transducer	1125	1135	Regional
R-61 S1	08/17/11	5837.87	Transducer	1125	1135	Regional
R-61 S1	08/16/11	5838.01	Transducer	1125	1135	Regional
R-61 S1	08/15/11	5837.96	Transducer	1125	1135	Regional
R-61 S1	08/14/11	5837.82	Transducer	1125	1135	Regional
R-61 S1	08/13/11	5837.94	Transducer	1125	1135	Regional
R-61 S1	08/12/11	5837.95	Transducer	1125	1135	Regional
R-61 S1	08/11/11	5837.94	Transducer	1125	1135	Regional
R-61 S1	08/10/11	5838.04	Transducer	1125	1135	Regional
R-61 S1	08/09/11	5837.98	Transducer	1125	1135	Regional
R-61 S1	08/08/11	5837.95	Transducer	1125	1135	Regional
R-61 S1	08/07/11	5837.93	Transducer	1125	1135	Regional
R-61 S1	08/06/11	5837.84	Transducer	1125	1135	Regional
R-61 S1	08/05/11	5837.88	Transducer	1125	1135	Regional
R-61 S1	08/04/11	5837.86	Transducer	1125	1135	Regional
R-61 S1	08/03/11	5837.78	Transducer	1125	1135	Regional
R-61 S1	08/02/11	5837.74	Transducer	1125	1135	Regional
R-61 S1	08/01/11	5837.64	Transducer	1125	1135	Regional
R-61 S1	07/31/11	5837.65	Transducer	1125	1135	Regional
R-61 S1	07/30/11	5837.6	Transducer	1125	1135	Regional
R-61 S1	07/29/11	5837.65	Transducer	1125	1135	Regional
R-61 S2	11/15/12	5837.54	Transducer	1220.4	1241	Regional
R-61 S2	11/14/12	5837.47	Transducer	1220.4	1241	Regional
R-61 S2	11/13/12	5837.47	Transducer	1220.4	1241	Regional
R-61 S2	11/12/12	5837.51	Transducer	1220.4	1241	Regional
R-61 S2	11/11/12	5837.99	Transducer	1220.4	1241	Regional
R-61 S2	11/10/12	5837.94	Transducer	1220.4	1241	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S2	11/09/12	5837.78	Transducer	1220.4	1241	Regional
R-61 S2	11/08/12	5837.65	Transducer	1220.4	1241	Regional
R-61 S2	11/07/12	5837.53	Transducer	1220.4	1241	Regional
R-61 S2	11/06/12	5837.5	Transducer	1220.4	1241	Regional
R-61 S2	11/05/12	5837.47	Transducer	1220.4	1241	Regional
R-61 S2	11/04/12	5837.55	Transducer	1220.4	1241	Regional
R-61 S2	11/03/12	5837.65	Transducer	1220.4	1241	Regional
R-61 S2	11/02/12	5837.64	Transducer	1220.4	1241	Regional
R-61 S2	11/01/12	5837.569	Transducer	1220.4	1241	Regional
R-61 S2	11/01/12	5837.58	Transducer	1220.4	1241	Regional
R-61 S2	10/31/12	5837.577	Transducer	1220.4	1241	Regional
R-61 S2	10/30/12	5837.555	Transducer	1220.4	1241	Regional
R-61 S2	10/29/12	5837.563	Transducer	1220.4	1241	Regional
R-61 S2	10/28/12	5837.648	Transducer	1220.4	1241	Regional
R-61 S2	10/27/12	5837.571	Transducer	1220.4	1241	Regional
R-61 S2	10/26/12	5837.604	Transducer	1220.4	1241	Regional
R-61 S2	10/25/12	5837.833	Transducer	1220.4	1241	Regional
R-61 S2	10/24/12	5837.794	Transducer	1220.4	1241	Regional
R-61 S2	10/23/12	5837.799	Transducer	1220.4	1241	Regional
R-61 S2	10/22/12	5837.87	Manual	1220.4	1241	Regional
R-61 S2	10/22/12	5837.888	Transducer	1220.4	1241	Regional
R-61 S2	09/05/12	5838.084	Transducer	1220.4	1241	Regional
R-61 S2	09/04/12	5837.99	Transducer	1220.4	1241	Regional
R-61 S2	09/03/12	5838.026	Transducer	1220.4	1241	Regional
R-61 S2	09/02/12	5837.996	Transducer	1220.4	1241	Regional
R-61 S2	09/01/12	5838.013	Transducer	1220.4	1241	Regional
R-61 S2	08/31/12	5838.069	Transducer	1220.4	1241	Regional
R-61 S2	08/30/12	5838.029	Transducer	1220.4	1241	Regional
R-61 S2	08/29/12	5837.941	Transducer	1220.4	1241	Regional
R-61 S2	08/28/12	5837.885	Transducer	1220.4	1241	Regional
R-61 S2	08/27/12	5837.921	Transducer	1220.4	1241	Regional
R-61 S2	08/26/12	5838.105	Transducer	1220.4	1241	Regional
R-61 S2	08/25/12	5838.206	Transducer	1220.4	1241	Regional
R-61 S2	08/24/12	5838.154	Transducer	1220.4	1241	Regional
R-61 S2	08/23/12	5838.09	Transducer	1220.4	1241	Regional
R-61 S2	08/22/12	5838.047	Transducer	1220.4	1241	Regional
R-61 S2	08/21/12	5838.047	Transducer	1220.4	1241	Regional
R-61 S2	08/20/12	5838.064	Transducer	1220.4	1241	Regional
R-61 S2	08/19/12	5838.094	Transducer	1220.4	1241	Regional
R-61 S2	08/18/12	5838.061	Transducer	1220.4	1241	Regional
R-61 S2	08/17/12	5838.012	Transducer	1220.4	1241	Regional
R-61 S2	08/16/12	5838.142	Transducer	1220.4	1241	Regional
R-61 S2	08/15/12	5838.155	Transducer	1220.4	1241	Regional
R-61 S2	08/14/12	5838.049	Transducer	1220.4	1241	Regional
R-61 S2	08/13/12	5837.96	Transducer	1220.4	1241	Regional
R-61 S2	08/12/12	5838.073	Transducer	1220.4	1241	Regional
R-61 S2	08/11/12	5838.064	Transducer	1220.4	1241	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S2	08/10/12	5837.977	Transducer	1220.4	1241	Regional
R-61 S2	08/09/12	5837.94	Transducer	1220.4	1241	Regional
R-61 S2	08/08/12	5837.974	Transducer	1220.4	1241	Regional
R-61 S2	08/07/12	5837.995	Transducer	1220.4	1241	Regional
R-61 S2	08/06/12	5837.813	Transducer	1220.4	1241	Regional
R-61 S2	08/05/12	5837.905	Transducer	1220.4	1241	Regional
R-61 S2	08/04/12	5838.097	Transducer	1220.4	1241	Regional
R-61 S2	08/03/12	5838.025	Transducer	1220.4	1241	Regional
R-61 S2	08/02/12	5838.066	Transducer	1220.4	1241	Regional
R-61 S2	08/01/12	5837.977	Transducer	1220.4	1241	Regional
R-61 S2	07/31/12	5838.016	Transducer	1220.4	1241	Regional
R-61 S2	07/30/12	5838.014	Transducer	1220.4	1241	Regional
R-61 S2	07/29/12	5837.964	Transducer	1220.4	1241	Regional
R-61 S2	07/28/12	5837.969	Transducer	1220.4	1241	Regional
R-61 S2	07/27/12	5838.032	Transducer	1220.4	1241	Regional
R-61 S2	07/26/12	5838.14	Transducer	1220.4	1241	Regional
R-61 S2	07/25/12	5838.148	Transducer	1220.4	1241	Regional
R-61 S2	07/24/12	5838.018	Transducer	1220.4	1241	Regional
R-61 S2	07/23/12	5838.012	Transducer	1220.4	1241	Regional
R-61 S2	07/22/12	5837.975	Transducer	1220.4	1241	Regional
R-61 S2	07/21/12	5837.948	Transducer	1220.4	1241	Regional
R-61 S2	07/20/12	5837.941	Transducer	1220.4	1241	Regional
R-61 S2	07/19/12	5838.011	Transducer	1220.4	1241	Regional
R-61 S2	07/18/12	5838.15	Transducer	1220.4	1241	Regional
R-61 S2	07/17/12	5838.157	Transducer	1220.4	1241	Regional
R-61 S2	07/16/12	5838.121	Transducer	1220.4	1241	Regional
R-61 S2	07/15/12	5838.069	Transducer	1220.4	1241	Regional
R-61 S2	07/14/12	5838.037	Transducer	1220.4	1241	Regional
R-61 S2	07/13/12	5838.036	Transducer	1220.4	1241	Regional
R-61 S2	07/12/12	5838	Transducer	1220.4	1241	Regional
R-61 S2	07/11/12	5837.949	Transducer	1220.4	1241	Regional
R-61 S2	07/10/12	5837.978	Transducer	1220.4	1241	Regional
R-61 S2	07/09/12	5837.982	Transducer	1220.4	1241	Regional
R-61 S2	07/08/12	5837.955	Transducer	1220.4	1241	Regional
R-61 S2	07/07/12	5838.008	Transducer	1220.4	1241	Regional
R-61 S2	07/06/12	5838.08	Transducer	1220.4	1241	Regional
R-61 S2	07/05/12	5838.163	Transducer	1220.4	1241	Regional
R-61 S2	07/04/12	5838.141	Transducer	1220.4	1241	Regional
R-61 S2	07/03/12	5838.157	Transducer	1220.4	1241	Regional
R-61 S2	07/02/12	5838.163	Transducer	1220.4	1241	Regional
R-61 S2	07/01/12	5838.212	Transducer	1220.4	1241	Regional
R-61 S2	06/30/12	5838.169	Transducer	1220.4	1241	Regional
R-61 S2	06/29/12	5838.053	Transducer	1220.4	1241	Regional
R-61 S2	06/28/12	5838.078	Transducer	1220.4	1241	Regional
R-61 S2	06/27/12	5838.203	Transducer	1220.4	1241	Regional
R-61 S2	06/26/12	5838.166	Transducer	1220.4	1241	Regional
R-61 S2	06/25/12	5838.084	Transducer	1220.4	1241	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S2	06/24/12	5838.154	Transducer	1220.4	1241	Regional
R-61 S2	06/23/12	5838.27	Transducer	1220.4	1241	Regional
R-61 S2	06/22/12	5838.134	Transducer	1220.4	1241	Regional
R-61 S2	06/21/12	5838.23	Transducer	1220.4	1241	Regional
R-61 S2	06/20/12	5838.442	Transducer	1220.4	1241	Regional
R-61 S2	06/19/12	5838.464	Transducer	1220.4	1241	Regional
R-61 S2	06/18/12	5838.387	Transducer	1220.4	1241	Regional
R-61 S2	06/17/12	5838.12	Transducer	1220.4	1241	Regional
R-61 S2	06/16/12	5838.284	Transducer	1220.4	1241	Regional
R-61 S2	06/15/12	5838.416	Transducer	1220.4	1241	Regional
R-61 S2	06/14/12	5838.433	Transducer	1220.4	1241	Regional
R-61 S2	06/13/12	5838.34	Transducer	1220.4	1241	Regional
R-61 S2	06/12/12	5838.24	Transducer	1220.4	1241	Regional
R-61 S2	06/11/12	5838.398	Transducer	1220.4	1241	Regional
R-61 S2	06/10/12	5838.563	Transducer	1220.4	1241	Regional
R-61 S2	06/09/12	5838.509	Transducer	1220.4	1241	Regional
R-61 S2	06/08/12	5838.41	Transducer	1220.4	1241	Regional
R-61 S2	06/07/12	5838.497	Transducer	1220.4	1241	Regional
R-61 S2	06/06/12	5838.478	Transducer	1220.4	1241	Regional
R-61 S2	06/06/12	5838.493	Transducer	1220.4	1241	Regional
R-61 S2	06/05/12	5838.394	Transducer	1220.4	1241	Regional
R-61 S2	06/04/12	5838.378	Transducer	1220.4	1241	Regional
R-61 S2	06/03/12	5838.498	Transducer	1220.4	1241	Regional
R-61 S2	06/02/12	5838.5	Transducer	1220.4	1241	Regional
R-61 S2	06/01/12	5838.447	Transducer	1220.4	1241	Regional
R-61 S2	05/31/12	5838.52	Transducer	1220.4	1241	Regional
R-61 S2	05/30/12	5838.502	Transducer	1220.4	1241	Regional
R-61 S2	05/29/12	5838.477	Transducer	1220.4	1241	Regional
R-61 S2	05/28/12	5838.518	Transducer	1220.4	1241	Regional
R-61 S2	05/27/12	5838.656	Transducer	1220.4	1241	Regional
R-61 S2	05/26/12	5838.663	Transducer	1220.4	1241	Regional
R-61 S2	05/25/12	5838.806	Transducer	1220.4	1241	Regional
R-61 S2	05/24/12	5838.916	Transducer	1220.4	1241	Regional
R-61 S2	05/23/12	5838.728	Transducer	1220.4	1241	Regional
R-61 S2	05/22/12	5838.449	Transducer	1220.4	1241	Regional
R-61 S2	05/21/12	5838.353	Transducer	1220.4	1241	Regional
R-61 S2	05/20/12	5838.515	Transducer	1220.4	1241	Regional
R-61 S2	05/19/12	5838.729	Transducer	1220.4	1241	Regional
R-61 S2	05/18/12	5838.708	Transducer	1220.4	1241	Regional
R-61 S2	05/17/12	5838.548	Transducer	1220.4	1241	Regional
R-61 S2	05/16/12	5838.387	Transducer	1220.4	1241	Regional
R-61 S2	05/15/12	5838.404	Transducer	1220.4	1241	Regional
R-61 S2	05/14/12	5838.436	Transducer	1220.4	1241	Regional
R-61 S2	05/13/12	5838.358	Transducer	1220.4	1241	Regional
R-61 S2	05/12/12	5838.43	Transducer	1220.4	1241	Regional
R-61 S2	05/11/12	5838.728	Transducer	1220.4	1241	Regional
R-61 S2	05/10/12	5838.604	Transducer	1220.4	1241	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S2	05/09/12	5838.446	Transducer	1220.4	1241	Regional
R-61 S2	05/08/12	5838.487	Transducer	1220.4	1241	Regional
R-61 S2	05/07/12	5838.596	Transducer	1220.4	1241	Regional
R-61 S2	05/06/12	5838.642	Transducer	1220.4	1241	Regional
R-61 S2	05/05/12	5838.669	Transducer	1220.4	1241	Regional
R-61 S2	05/04/12	5838.623	Transducer	1220.4	1241	Regional
R-61 S2	05/03/12	5838.711	Transducer	1220.4	1241	Regional
R-61 S2	05/02/12	5838.775	Transducer	1220.4	1241	Regional
R-61 S2	05/01/12	5838.763	Transducer	1220.4	1241	Regional
R-61 S2	04/30/12	5838.671	Transducer	1220.4	1241	Regional
R-61 S2	04/29/12	5838.751	Transducer	1220.4	1241	Regional
R-61 S2	04/28/12	5838.771	Transducer	1220.4	1241	Regional
R-61 S2	04/27/12	5838.812	Transducer	1220.4	1241	Regional
R-61 S2	04/26/12	5838.646	Transducer	1220.4	1241	Regional
R-61 S2	04/25/12	5838.68	Transducer	1220.4	1241	Regional
R-61 S2	04/24/12	5838.578	Transducer	1220.4	1241	Regional
R-61 S2	04/23/12	5838.464	Transducer	1220.4	1241	Regional
R-61 S2	04/22/12	5838.526	Transducer	1220.4	1241	Regional
R-61 S2	04/21/12	5838.585	Transducer	1220.4	1241	Regional
R-61 S2	04/20/12	5838.689	Transducer	1220.4	1241	Regional
R-61 S2	04/19/12	5838.726	Transducer	1220.4	1241	Regional
R-61 S2	04/18/12	5838.591	Transducer	1220.4	1241	Regional
R-61 S2	04/17/12	5838.531	Transducer	1220.4	1241	Regional
R-61 S2	04/16/12	5838.69	Transducer	1220.4	1241	Regional
R-61 S2	04/15/12	5839.044	Transducer	1220.4	1241	Regional
R-61 S2	04/14/12	5839.04	Transducer	1220.4	1241	Regional
R-61 S2	04/13/12	5838.815	Transducer	1220.4	1241	Regional
R-61 S2	04/12/12	5838.81	Transducer	1220.4	1241	Regional
R-61 S2	04/11/12	5838.614	Transducer	1220.4	1241	Regional
R-61 S2	04/10/12	5838.577	Transducer	1220.4	1241	Regional
R-61 S2	04/09/12	5838.501	Transducer	1220.4	1241	Regional
R-61 S2	04/08/12	5838.352	Transducer	1220.4	1241	Regional
R-61 S2	04/07/12	5838.635	Transducer	1220.4	1241	Regional
R-61 S2	04/06/12	5838.814	Transducer	1220.4	1241	Regional
R-61 S2	04/05/12	5838.751	Transducer	1220.4	1241	Regional
R-61 S2	04/04/12	5838.746	Transducer	1220.4	1241	Regional
R-61 S2	04/03/12	5838.914	Transducer	1220.4	1241	Regional
R-61 S2	04/02/12	5839.029	Transducer	1220.4	1241	Regional
R-61 S2	04/01/12	5838.837	Transducer	1220.4	1241	Regional
R-61 S2	03/31/12	5838.684	Transducer	1220.4	1241	Regional
R-61 S2	03/30/12	5838.709	Transducer	1220.4	1241	Regional
R-61 S2	03/29/12	5838.719	Transducer	1220.4	1241	Regional
R-61 S2	03/28/12	5838.646	Transducer	1220.4	1241	Regional
R-61 S2	03/27/12	5838.706	Transducer	1220.4	1241	Regional
R-61 S2	03/26/12	5838.73	Transducer	1220.4	1241	Regional
R-61 S2	03/25/12	5838.614	Transducer	1220.4	1241	Regional
R-61 S2	03/24/12	5838.632	Transducer	1220.4	1241	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S2	03/23/12	5838.716	Transducer	1220.4	1241	Regional
R-61 S2	03/22/12	5838.771	Transducer	1220.4	1241	Regional
R-61 S2	03/21/12	5838.825	Transducer	1220.4	1241	Regional
R-61 S2	03/20/12	5839.09	Transducer	1220.4	1241	Regional
R-61 S2	03/19/12	5839.117	Transducer	1220.4	1241	Regional
R-61 S2	03/18/12	5838.988	Transducer	1220.4	1241	Regional
R-61 S2	03/17/12	5838.821	Transducer	1220.4	1241	Regional
R-61 S2	03/16/12	5838.664	Transducer	1220.4	1241	Regional
R-61 S2	03/15/12	5838.64	Transducer	1220.4	1241	Regional
R-61 S2	03/14/12	5838.661	Transducer	1220.4	1241	Regional
R-61 S2	03/13/12	5838.64	Transducer	1220.4	1241	Regional
R-61 S2	03/12/12	5838.762	Transducer	1220.4	1241	Regional
R-61 S2	03/11/12	5838.855	Transducer	1220.4	1241	Regional
R-61 S2	03/10/12	5838.542	Transducer	1220.4	1241	Regional
R-61 S2	03/09/12	5838.35	Transducer	1220.4	1241	Regional
R-61 S2	03/08/12	5838.837	Transducer	1220.4	1241	Regional
R-61 S2	03/07/12	5838.995	Transducer	1220.4	1241	Regional
R-61 S2	03/06/12	5838.885	Transducer	1220.4	1241	Regional
R-61 S2	03/06/12	5838.703	Transducer	1220.4	1241	Regional
R-61 S2	03/05/12	5838.536	Transducer	1220.4	1241	Regional
R-61 S2	03/04/12	5838.511	Transducer	1220.4	1241	Regional
R-61 S2	03/03/12	5838.709	Transducer	1220.4	1241	Regional
R-61 S2	03/02/12	5838.956	Transducer	1220.4	1241	Regional
R-61 S2	03/01/12	5838.839	Transducer	1220.4	1241	Regional
R-61 S2	02/29/12	5838.701	Transducer	1220.4	1241	Regional
R-61 S2	02/28/12	5838.851	Transducer	1220.4	1241	Regional
R-61 S2	02/27/12	5838.677	Transducer	1220.4	1241	Regional
R-61 S2	02/26/12	5838.8	Transducer	1220.4	1241	Regional
R-61 S2	02/25/12	5838.544	Transducer	1220.4	1241	Regional
R-61 S2	02/24/12	5838.708	Transducer	1220.4	1241	Regional
R-61 S2	02/23/12	5838.917	Transducer	1220.4	1241	Regional
R-61 S2	02/22/12	5838.627	Transducer	1220.4	1241	Regional
R-61 S2	02/21/12	5838.657	Transducer	1220.4	1241	Regional
R-61 S2	02/20/12	5838.959	Transducer	1220.4	1241	Regional
R-61 S2	02/19/12	5838.802	Transducer	1220.4	1241	Regional
R-61 S2	02/18/12	5838.756	Transducer	1220.4	1241	Regional
R-61 S2	02/17/12	5838.701	Transducer	1220.4	1241	Regional
R-61 S2	02/16/12	5838.707	Transducer	1220.4	1241	Regional
R-61 S2	02/15/12	5839.029	Transducer	1220.4	1241	Regional
R-61 S2	02/14/12	5838.933	Transducer	1220.4	1241	Regional
R-61 S2	02/13/12	5838.969	Transducer	1220.4	1241	Regional
R-61 S2	02/12/12	5838.649	Transducer	1220.4	1241	Regional
R-61 S2	02/11/12	5838.61	Transducer	1220.4	1241	Regional
R-61 S2	02/10/12	5838.608	Transducer	1220.4	1241	Regional
R-61 S2	02/09/12	5838.613	Transducer	1220.4	1241	Regional
R-61 S2	02/08/12	5838.494	Transducer	1220.4	1241	Regional
R-61 S2	02/07/12	5838.682	Transducer	1220.4	1241	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S2	02/06/12	5838.613	Transducer	1220.4	1241	Regional
R-61 S2	02/05/12	5838.511	Transducer	1220.4	1241	Regional
R-61 S2	02/04/12	5838.591	Transducer	1220.4	1241	Regional
R-61 S2	02/03/12	5838.938	Transducer	1220.4	1241	Regional
R-61 S2	02/02/12	5838.698	Transducer	1220.4	1241	Regional
R-61 S2	02/01/12	5838.616	Transducer	1220.4	1241	Regional
R-61 S2	01/31/12	5838.753	Transducer	1220.4	1241	Regional
R-61 S2	01/30/12	5838.564	Transducer	1220.4	1241	Regional
R-61 S2	01/29/12	5838.415	Transducer	1220.4	1241	Regional
R-61 S2	01/28/12	5838.523	Transducer	1220.4	1241	Regional
R-61 S2	01/27/12	5838.762	Transducer	1220.4	1241	Regional
R-61 S2	01/26/12	5838.63	Transducer	1220.4	1241	Regional
R-61 S2	01/25/12	5838.627	Transducer	1220.4	1241	Regional
R-61 S2	01/24/12	5838.855	Transducer	1220.4	1241	Regional
R-61 S2	01/23/12	5838.71	Transducer	1220.4	1241	Regional
R-61 S2	01/22/12	5839.139	Transducer	1220.4	1241	Regional
R-61 S2	01/21/12	5838.731	Transducer	1220.4	1241	Regional
R-61 S2	01/20/12	5838.87	Transducer	1220.4	1241	Regional
R-61 S2	01/19/12	5838.709	Transducer	1220.4	1241	Regional
R-61 S2	01/18/12	5838.607	Transducer	1220.4	1241	Regional
R-61 S2	01/17/12	5838.852	Transducer	1220.4	1241	Regional
R-61 S2	01/16/12	5838.808	Transducer	1220.4	1241	Regional
R-61 S2	01/15/12	5838.58	Transducer	1220.4	1241	Regional
R-61 S2	01/14/12	5838.572	Transducer	1220.4	1241	Regional
R-61 S2	01/13/12	5838.71	Transducer	1220.4	1241	Regional
R-61 S2	01/12/12	5838.744	Transducer	1220.4	1241	Regional
R-61 S2	01/11/12	5838.807	Transducer	1220.4	1241	Regional
R-61 S2	01/10/12	5838.635	Transducer	1220.4	1241	Regional
R-61 S2	01/09/12	5838.656	Transducer	1220.4	1241	Regional
R-61 S2	01/08/12	5838.876	Transducer	1220.4	1241	Regional
R-61 S2	01/07/12	5838.751	Transducer	1220.4	1241	Regional
R-61 S2	01/06/12	5838.708	Transducer	1220.4	1241	Regional
R-61 S2	01/05/12	5838.411	Transducer	1220.4	1241	Regional
R-61 S2	01/04/12	5838.483	Transducer	1220.4	1241	Regional
R-61 S2	01/03/12	5838.319	Transducer	1220.4	1241	Regional
R-61 S2	01/02/12	5838.276	Transducer	1220.4	1241	Regional
R-61 S2	01/01/12	5838.437	Transducer	1220.4	1241	Regional
R-61 S2	12/31/11	5838.679	Transducer	1220.4	1241	Regional
R-61 S2	12/30/11	5838.639	Transducer	1220.4	1241	Regional
R-61 S2	12/29/11	5838.531	Transducer	1220.4	1241	Regional
R-61 S2	12/28/11	5838.604	Transducer	1220.4	1241	Regional
R-61 S2	12/27/11	5838.512	Transducer	1220.4	1241	Regional
R-61 S2	12/26/11	5838.545	Transducer	1220.4	1241	Regional
R-61 S2	12/25/11	5838.396	Transducer	1220.4	1241	Regional
R-61 S2	12/24/11	5838.491	Transducer	1220.4	1241	Regional
R-61 S2	12/23/11	5838.604	Transducer	1220.4	1241	Regional
R-61 S2	12/22/11	5838.871	Transducer	1220.4	1241	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S2	12/21/11	5838.867	Transducer	1220.4	1241	Regional
R-61 S2	12/20/11	5838.803	Transducer	1220.4	1241	Regional
R-61 S2	12/19/11	5838.88	Transducer	1220.4	1241	Regional
R-61 S2	12/18/11	5838.432	Transducer	1220.4	1241	Regional
R-61 S2	12/17/11	5838.378	Transducer	1220.4	1241	Regional
R-61 S2	12/16/11	5838.516	Transducer	1220.4	1241	Regional
R-61 S2	12/15/11	5838.648	Transducer	1220.4	1241	Regional
R-61 S2	12/14/11	5838.86	Transducer	1220.4	1241	Regional
R-61 S2	12/13/11	5838.688	Transducer	1220.4	1241	Regional
R-61 S2	12/12/11	5838.725	Transducer	1220.4	1241	Regional
R-61 S2	12/11/11	5838.55	Transducer	1220.4	1241	Regional
R-61 S2	12/10/11	5838.41	Transducer	1220.4	1241	Regional
R-61 S2	12/09/11	5838.612	Transducer	1220.4	1241	Regional
R-61 S2	12/08/11	5838.633	Transducer	1220.4	1241	Regional
R-61 S2	12/07/11	5838.52	Transducer	1220.4	1241	Regional
R-61 S2	12/06/11	5838.602	Transducer	1220.4	1241	Regional
R-61 S2	12/05/11	5838.77	Transducer	1220.4	1241	Regional
R-61 S2	12/04/11	5838.706	Transducer	1220.4	1241	Regional
R-61 S2	12/03/11	5838.902	Transducer	1220.4	1241	Regional
R-61 S2	12/02/11	5838.537	Transducer	1220.4	1241	Regional
R-61 S2	12/01/11	5838.783	Transducer	1220.4	1241	Regional
R-61 S2	11/30/11	5838.446	Transducer	1220.4	1241	Regional
R-61 S2	11/29/11	5838.427	Transducer	1220.4	1241	Regional
R-61 S2	11/28/11	5838.321	Transducer	1220.4	1241	Regional
R-61 S2	11/27/11	5838.222	Transducer	1220.4	1241	Regional
R-61 S2	11/26/11	5838.659	Transducer	1220.4	1241	Regional
R-61 S2	11/25/11	5838.611	Transducer	1220.4	1241	Regional
R-61 S2	11/24/11	5838.439	Transducer	1220.4	1241	Regional
R-61 S2	11/23/11	5838.341	Transducer	1220.4	1241	Regional
R-61 S2	11/22/11	5838.535	Transducer	1220.4	1241	Regional
R-61 S2	11/21/11	5838.601	Transducer	1220.4	1241	Regional
R-61 S2	11/20/11	5838.695	Transducer	1220.4	1241	Regional
R-61 S2	11/19/11	5838.869	Transducer	1220.4	1241	Regional
R-61 S2	11/18/11	5838.575	Transducer	1220.4	1241	Regional
R-61 S2	11/17/11	5838.708	Transducer	1220.4	1241	Regional
R-61 S2	11/16/11	5838.859	Transducer	1220.4	1241	Regional
R-61 S2	11/15/11	5838.86	Transducer	1220.4	1241	Regional
R-61 S2	11/14/11	5838.729	Transducer	1220.4	1241	Regional
R-61 S2	11/13/11	5838.711	Transducer	1220.4	1241	Regional
R-61 S2	11/12/11	5838.7	Transducer	1220.4	1241	Regional
R-61 S2	11/11/11	5838.32	Transducer	1220.4	1241	Regional
R-61 S2	11/10/11	5838.321	Transducer	1220.4	1241	Regional
R-61 S2	11/09/11	5838.531	Transducer	1220.4	1241	Regional
R-61 S2	11/08/11	5838.871	Transducer	1220.4	1241	Regional
R-61 S2	11/07/11	5838.765	Transducer	1220.4	1241	Regional
R-61 S2	11/06/11	5838.879	Transducer	1220.4	1241	Regional
R-61 S2	11/05/11	5838.787	Transducer	1220.4	1241	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S2	11/04/11	5838.547	Transducer	1220.4	1241	Regional
R-61 S2	11/03/11	5838.341	Transducer	1220.4	1241	Regional
R-61 S2	11/02/11	5838.789	Transducer	1220.4	1241	Regional
R-61 S2	11/01/11	5838.501	Transducer	1220.4	1241	Regional
R-61 S2	10/31/11	5838.477	Transducer	1220.4	1241	Regional
R-61 S2	10/30/11	5838.58	Transducer	1220.4	1241	Regional
R-61 S2	10/29/11	5838.398	Transducer	1220.4	1241	Regional
R-61 S2	10/28/11	5838.511	Transducer	1220.4	1241	Regional
R-61 S2	10/27/11	5838.636	Transducer	1220.4	1241	Regional
R-61 S2	10/26/11	5838.564	Transducer	1220.4	1241	Regional
R-61 S2	10/25/11	5838.384	Transducer	1220.4	1241	Regional
R-61 S2	10/24/11	5838.381	Transducer	1220.4	1241	Regional
R-61 S2	10/23/11	5838.364	Transducer	1220.4	1241	Regional
R-61 S2	10/22/11	5838.382	Transducer	1220.4	1241	Regional
R-61 S2	10/21/11	5838.429	Transducer	1220.4	1241	Regional
R-61 S2	10/20/11	5838.514	Transducer	1220.4	1241	Regional
R-61 S2	10/19/11	5838.362	Transducer	1220.4	1241	Regional
R-61 S2	10/18/11	5838.429	Transducer	1220.4	1241	Regional
R-61 S2	10/17/11	5838.491	Transducer	1220.4	1241	Regional
R-61 S2	10/16/11	5838.345	Transducer	1220.4	1241	Regional
R-61 S2	10/15/11	5838.417	Transducer	1220.4	1241	Regional
R-61 S2	10/14/11	5838.483	Transducer	1220.4	1241	Regional
R-61 S2	10/13/11	5838.375	Transducer	1220.4	1241	Regional
R-61 S2	10/12/11	5838.559	Transducer	1220.4	1241	Regional
R-61 S2	10/11/11	5838.515	Transducer	1220.4	1241	Regional
R-61 S2	10/10/11	5838.495	Transducer	1220.4	1241	Regional
R-61 S2	10/09/11	5838.572	Transducer	1220.4	1241	Regional
R-61 S2	10/08/11	5838.605	Transducer	1220.4	1241	Regional
R-61 S2	10/07/11	5838.69	Transducer	1220.4	1241	Regional
R-61 S2	10/06/11	5838.688	Transducer	1220.4	1241	Regional
R-61 S2	10/05/11	5838.487	Transducer	1220.4	1241	Regional
R-61 S2	10/04/11	5838.291	Transducer	1220.4	1241	Regional
R-61 S2	10/03/11	5838.279	Transducer	1220.4	1241	Regional
R-61 S2	10/02/11	5838.313	Transducer	1220.4	1241	Regional
R-61 S2	10/01/11	5838.302	Transducer	1220.4	1241	Regional
R-61 S2	09/30/11	5838.187	Transducer	1220.4	1241	Regional
R-61 S2	09/29/11	5838.371	Transducer	1220.4	1241	Regional
R-61 S2	09/28/11	5838.3	Transducer	1220.4	1241	Regional
R-61 S2	09/28/11	5838.311	Transducer	1220.4	1241	Regional
R-61 S2	09/27/11	5838.4	Transducer	1220.4	1241	Regional
R-61 S2	09/26/11	5838.5	Transducer	1220.4	1241	Regional
R-61 S2	09/25/11	5838.45	Transducer	1220.4	1241	Regional
R-61 S2	09/24/11	5838.3	Transducer	1220.4	1241	Regional
R-61 S2	09/23/11	5838.27	Transducer	1220.4	1241	Regional
R-61 S2	09/22/11	5838.38	Transducer	1220.4	1241	Regional
R-61 S2	09/21/11	5838.35	Transducer	1220.4	1241	Regional
R-61 S2	09/20/11	5838.36	Transducer	1220.4	1241	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S2	09/19/11	5838.26	Transducer	1220.4	1241	Regional
R-61 S2	09/18/11	5838.37	Transducer	1220.4	1241	Regional
R-61 S2	09/17/11	5838.38	Transducer	1220.4	1241	Regional
R-61 S2	09/16/11	5838.35	Transducer	1220.4	1241	Regional
R-61 S2	09/15/11	5838.37	Transducer	1220.4	1241	Regional
R-61 S2	09/14/11	5838.31	Transducer	1220.4	1241	Regional
R-61 S2	09/13/11	5838.23	Transducer	1220.4	1241	Regional
R-61 S2	09/12/11	5838.18	Transducer	1220.4	1241	Regional
R-61 S2	09/11/11	5838.18	Transducer	1220.4	1241	Regional
R-61 S2	09/10/11	5838.24	Transducer	1220.4	1241	Regional
R-61 S2	09/09/11	5838.21	Transducer	1220.4	1241	Regional
R-61 S2	09/08/11	5838.11	Transducer	1220.4	1241	Regional
R-61 S2	09/07/11	5838.26	Transducer	1220.4	1241	Regional
R-61 S2	09/06/11	5838.24	Transducer	1220.4	1241	Regional
R-61 S2	09/05/11	5838.18	Transducer	1220.4	1241	Regional
R-61 S2	09/04/11	5838.28	Transducer	1220.4	1241	Regional
R-61 S2	09/03/11	5838.37	Transducer	1220.4	1241	Regional
R-61 S2	09/02/11	5838.27	Transducer	1220.4	1241	Regional
R-61 S2	09/01/11	5838.24	Transducer	1220.4	1241	Regional
R-61 S2	08/31/11	5838.34	Transducer	1220.4	1241	Regional
R-61 S2	08/30/11	5838.34	Transducer	1220.4	1241	Regional
R-61 S2	08/29/11	5838.3	Transducer	1220.4	1241	Regional
R-61 S2	08/28/11	5838.22	Transducer	1220.4	1241	Regional
R-61 S2	08/27/11	5838.15	Transducer	1220.4	1241	Regional
R-61 S2	08/26/11	5838.17	Transducer	1220.4	1241	Regional
R-61 S2	08/25/11	5838.15	Transducer	1220.4	1241	Regional
R-61 S2	08/24/11	5838.26	Transducer	1220.4	1241	Regional
R-61 S2	08/23/11	5838.21	Transducer	1220.4	1241	Regional
R-61 S2	08/22/11	5838.14	Transducer	1220.4	1241	Regional
R-61 S2	08/21/11	5838.2	Transducer	1220.4	1241	Regional
R-61 S2	08/20/11	5838.27	Transducer	1220.4	1241	Regional
R-61 S2	08/19/11	5838.22	Transducer	1220.4	1241	Regional
R-61 S2	08/18/11	5838.04	Transducer	1220.4	1241	Regional
R-61 S2	08/17/11	5838.12	Transducer	1220.4	1241	Regional
R-61 S2	08/16/11	5838.27	Transducer	1220.4	1241	Regional
R-61 S2	08/15/11	5838.18	Transducer	1220.4	1241	Regional
R-61 S2	08/14/11	5838.04	Transducer	1220.4	1241	Regional
R-61 S2	08/13/11	5838.19	Transducer	1220.4	1241	Regional
R-61 S2	08/12/11	5838.26	Transducer	1220.4	1241	Regional
R-61 S2	08/11/11	5838.21	Transducer	1220.4	1241	Regional
R-61 S2	08/10/11	5838.27	Transducer	1220.4	1241	Regional
R-61 S2	08/09/11	5838.21	Transducer	1220.4	1241	Regional
R-61 S2	08/08/11	5838.21	Transducer	1220.4	1241	Regional
R-61 S2	08/07/11	5838.2	Transducer	1220.4	1241	Regional
R-61 S2	08/06/11	5838.1	Transducer	1220.4	1241	Regional
R-61 S2	08/05/11	5838.1	Transducer	1220.4	1241	Regional
R-61 S2	08/04/11	5838.08	Transducer	1220.4	1241	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-61 S2	08/03/11	5838.1	Transducer	1220.4	1241	Regional
R-61 S2	08/02/11	5838.04	Transducer	1220.4	1241	Regional
R-61 S2	08/01/11	5837.94	Transducer	1220.4	1241	Regional
R-61 S2	07/31/11	5837.92	Transducer	1220.4	1241	Regional
R-61 S2	07/30/11	5837.91	Transducer	1220.4	1241	Regional
R-61 S2	07/29/11	5837.89	Transducer	1220.4	1241	Regional
R-62	11/15/12	5840.96	Transducer	1158.4	1179.1	Regional
R-62	11/14/12	5840.89	Transducer	1158.4	1179.1	Regional
R-62	11/13/12	5840.9	Transducer	1158.4	1179.1	Regional
R-62	11/12/12	5840.89	Transducer	1158.4	1179.1	Regional
R-62	11/11/12	5841.33	Transducer	1158.4	1179.1	Regional
R-62	11/10/12	5841.36	Transducer	1158.4	1179.1	Regional
R-62	11/09/12	5841.17	Transducer	1158.4	1179.1	Regional
R-62	11/08/12	5841.08	Transducer	1158.4	1179.1	Regional
R-62	11/07/12	5840.92	Transducer	1158.4	1179.1	Regional
R-62	11/06/12	5840.94	Transducer	1158.4	1179.1	Regional
R-62	11/05/12	5840.87	Transducer	1158.4	1179.1	Regional
R-62	11/04/12	5840.92	Transducer	1158.4	1179.1	Regional
R-62	11/03/12	5841.06	Transducer	1158.4	1179.1	Regional
R-62	11/02/12	5841.11	Transducer	1158.4	1179.1	Regional
R-62	11/01/12	5841	Transducer	1158.4	1179.1	Regional
R-62	10/31/12	5841.02	Transducer	1158.4	1179.1	Regional
R-62	10/30/12	5841	Transducer	1158.4	1179.1	Regional
R-62	10/29/12	5841.01	Transducer	1158.4	1179.1	Regional
R-62	10/28/12	5841.03	Transducer	1158.4	1179.1	Regional
R-62	10/27/12	5840.99	Transducer	1158.4	1179.1	Regional
R-62	10/26/12	5841.02	Transducer	1158.4	1179.1	Regional
R-62	10/25/12	5841.26	Transducer	1158.4	1179.1	Regional
R-62	10/24/12	5841.18	Transducer	1158.4	1179.1	Regional
R-62	10/23/12	5841.16	Transducer	1158.4	1179.1	Regional
R-62	10/22/12	5841.24	Transducer	1158.4	1179.1	Regional
R-62	10/21/12	5841.29	Transducer	1158.4	1179.1	Regional
R-62	10/20/12	5841.15	Transducer	1158.4	1179.1	Regional
R-62	10/19/12	5841.07	Transducer	1158.4	1179.1	Regional
R-62	10/18/12	5841.19	Transducer	1158.4	1179.1	Regional
R-62	10/17/12	5841.35	Transducer	1158.4	1179.1	Regional
R-62	10/16/12	5841.18	Transducer	1158.4	1179.1	Regional
R-62	10/15/12	5840.95	Transducer	1158.4	1179.1	Regional
R-62	10/14/12	5841	Transducer	1158.4	1179.1	Regional
R-62	10/13/12	5841.2	Transducer	1158.4	1179.1	Regional
R-62	10/12/12	5841.06	Transducer	1158.4	1179.1	Regional
R-62	10/11/12	5841.11	Transducer	1158.4	1179.1	Regional
R-62	10/10/12	5841.12	Transducer	1158.4	1179.1	Regional
R-62	10/09/12	5841.2	Transducer	1158.4	1179.1	Regional
R-62	10/08/12	5841.18	Transducer	1158.4	1179.1	Regional
R-62	10/07/12	5841.13	Transducer	1158.4	1179.1	Regional
R-62	10/06/12	5841.17	Transducer	1158.4	1179.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-62	10/05/12	5841.14	Transducer	1158.4	1179.1	Regional
R-62	10/04/12	5841.08	Transducer	1158.4	1179.1	Regional
R-62	10/03/12	5841.19	Transducer	1158.4	1179.1	Regional
R-62	10/02/12	5841.07	Transducer	1158.4	1179.1	Regional
R-62	10/01/12	5841.08	Transducer	1158.4	1179.1	Regional
R-62	09/30/12	5841.05	Transducer	1158.4	1179.1	Regional
R-62	09/29/12	5841.09	Transducer	1158.4	1179.1	Regional
R-62	09/28/12	5841.07	Transducer	1158.4	1179.1	Regional
R-62	09/27/12	5841.1	Transducer	1158.4	1179.1	Regional
R-62	09/26/12	5841.19	Transducer	1158.4	1179.1	Regional
R-62	09/25/12	5841.16	Transducer	1158.4	1179.1	Regional
R-62	09/24/12	5841.03	Transducer	1158.4	1179.1	Regional
R-62	09/23/12	5841	Transducer	1158.4	1179.1	Regional
R-62	09/22/12	5841.04	Transducer	1158.4	1179.1	Regional
R-62	09/21/12	5841.11	Transducer	1158.4	1179.1	Regional
R-62	09/20/12	5841.09	Transducer	1158.4	1179.1	Regional
R-62	09/19/12	5841.07	Transducer	1158.4	1179.1	Regional
R-62	09/18/12	5841.07	Transducer	1158.4	1179.1	Regional
R-62	09/17/12	5841.18	Transducer	1158.4	1179.1	Regional
R-62	09/16/12	5841.06	Transducer	1158.4	1179.1	Regional
R-62	09/15/12	5840.92	Transducer	1158.4	1179.1	Regional
R-62	09/14/12	5840.82	Transducer	1158.4	1179.1	Regional
R-62	09/13/12	5840.85	Transducer	1158.4	1179.1	Regional
R-62	09/13/12	5841.023	Transducer	1158.4	1179.1	Regional
R-62	09/12/12	5841.138	Transducer	1158.4	1179.1	Regional
R-62	09/11/12	5841.133	Transducer	1158.4	1179.1	Regional
R-62	09/10/12	5841.028	Transducer	1158.4	1179.1	Regional
R-62	09/09/12	5840.935	Transducer	1158.4	1179.1	Regional
R-62	09/08/12	5840.938	Transducer	1158.4	1179.1	Regional
R-62	09/07/12	5841.111	Transducer	1158.4	1179.1	Regional
R-62	09/06/12	5841.121	Transducer	1158.4	1179.1	Regional
R-62	09/05/12	5841.15	Transducer	1158.4	1179.1	Regional
R-62	09/04/12	5841.086	Transducer	1158.4	1179.1	Regional
R-62	09/03/12	5841.08	Transducer	1158.4	1179.1	Regional
R-62	09/02/12	5841.085	Transducer	1158.4	1179.1	Regional
R-62	09/01/12	5841.08	Transducer	1158.4	1179.1	Regional
R-62	08/31/12	5841.124	Transducer	1158.4	1179.1	Regional
R-62	08/30/12	5841.108	Transducer	1158.4	1179.1	Regional
R-62	08/29/12	5840.985	Transducer	1158.4	1179.1	Regional
R-62	08/28/12	5840.957	Transducer	1158.4	1179.1	Regional
R-62	08/27/12	5840.984	Transducer	1158.4	1179.1	Regional
R-62	08/26/12	5841.12	Transducer	1158.4	1179.1	Regional
R-62	08/25/12	5841.256	Transducer	1158.4	1179.1	Regional
R-62	08/24/12	5841.247	Transducer	1158.4	1179.1	Regional
R-62	08/23/12	5841.165	Transducer	1158.4	1179.1	Regional
R-62	08/22/12	5841.119	Transducer	1158.4	1179.1	Regional
R-62	08/21/12	5841.117	Transducer	1158.4	1179.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-62	08/20/12	5841.112	Transducer	1158.4	1179.1	Regional
R-62	08/19/12	5841.147	Transducer	1158.4	1179.1	Regional
R-62	08/18/12	5841.145	Transducer	1158.4	1179.1	Regional
R-62	08/17/12	5841.09	Transducer	1158.4	1179.1	Regional
R-62	08/16/12	5841.171	Transducer	1158.4	1179.1	Regional
R-62	08/15/12	5841.183	Transducer	1158.4	1179.1	Regional
R-62	08/14/12	5841.093	Transducer	1158.4	1179.1	Regional
R-62	08/13/12	5840.989	Transducer	1158.4	1179.1	Regional
R-62	08/12/12	5841.118	Transducer	1158.4	1179.1	Regional
R-62	08/11/12	5841.101	Transducer	1158.4	1179.1	Regional
R-62	08/10/12	5841.068	Transducer	1158.4	1179.1	Regional
R-62	08/09/12	5840.99	Transducer	1158.4	1179.1	Regional
R-62	08/08/12	5841.057	Transducer	1158.4	1179.1	Regional
R-62	08/07/12	5841.104	Transducer	1158.4	1179.1	Regional
R-62	08/06/12	5840.942	Transducer	1158.4	1179.1	Regional
R-62	08/05/12	5841.041	Transducer	1158.4	1179.1	Regional
R-62	08/04/12	5841.246	Transducer	1158.4	1179.1	Regional
R-62	08/03/12	5841.158	Transducer	1158.4	1179.1	Regional
R-62	08/02/12	5841.147	Transducer	1158.4	1179.1	Regional
R-62	08/01/12	5841.075	Transducer	1158.4	1179.1	Regional
R-62	07/31/12	5841.13	Transducer	1158.4	1179.1	Regional
R-62	07/30/12	5841.176	Transducer	1158.4	1179.1	Regional
R-62	07/29/12	5841.105	Transducer	1158.4	1179.1	Regional
R-62	07/28/12	5841.106	Transducer	1158.4	1179.1	Regional
R-62	07/27/12	5841.134	Transducer	1158.4	1179.1	Regional
R-62	07/26/12	5841.263	Transducer	1158.4	1179.1	Regional
R-62	07/25/12	5841.255	Transducer	1158.4	1179.1	Regional
R-62	07/24/12	5841.143	Transducer	1158.4	1179.1	Regional
R-62	07/23/12	5841.112	Transducer	1158.4	1179.1	Regional
R-62	07/22/12	5841.094	Transducer	1158.4	1179.1	Regional
R-62	07/21/12	5841.102	Transducer	1158.4	1179.1	Regional
R-62	07/20/12	5841.05	Transducer	1158.4	1179.1	Regional
R-62	07/19/12	5841.125	Transducer	1158.4	1179.1	Regional
R-62	07/18/12	5841.246	Transducer	1158.4	1179.1	Regional
R-62	07/17/12	5841.294	Transducer	1158.4	1179.1	Regional
R-62	07/16/12	5841.261	Transducer	1158.4	1179.1	Regional
R-62	07/15/12	5841.196	Transducer	1158.4	1179.1	Regional
R-62	07/14/12	5841.162	Transducer	1158.4	1179.1	Regional
R-62	07/13/12	5841.163	Transducer	1158.4	1179.1	Regional
R-62	07/12/12	5841.186	Transducer	1158.4	1179.1	Regional
R-62	07/11/12	5841.137	Transducer	1158.4	1179.1	Regional
R-62	07/10/12	5841.11	Transducer	1158.4	1179.1	Regional
R-62	07/09/12	5841.16	Transducer	1158.4	1179.1	Regional
R-62	07/08/12	5841.116	Transducer	1158.4	1179.1	Regional
R-62	07/07/12	5841.169	Transducer	1158.4	1179.1	Regional
R-62	07/06/12	5841.293	Transducer	1158.4	1179.1	Regional
R-62	07/05/12	5841.354	Transducer	1158.4	1179.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-62	07/04/12	5841.371	Transducer	1158.4	1179.1	Regional
R-62	07/03/12	5841.372	Transducer	1158.4	1179.1	Regional
R-62	07/02/12	5841.376	Transducer	1158.4	1179.1	Regional
R-62	07/01/12	5841.365	Transducer	1158.4	1179.1	Regional
R-62	06/30/12	5841.355	Transducer	1158.4	1179.1	Regional
R-62	06/29/12	5841.239	Transducer	1158.4	1179.1	Regional
R-62	06/28/12	5841.283	Transducer	1158.4	1179.1	Regional
R-62	06/27/12	5841.409	Transducer	1158.4	1179.1	Regional
R-62	06/26/12	5841.4	Transducer	1158.4	1179.1	Regional
R-62	06/25/12	5841.33	Transducer	1158.4	1179.1	Regional
R-62	06/24/12	5841.422	Transducer	1158.4	1179.1	Regional
R-62	06/23/12	5841.506	Transducer	1158.4	1179.1	Regional
R-62	06/22/12	5841.411	Transducer	1158.4	1179.1	Regional
R-62	06/21/12	5841.458	Transducer	1158.4	1179.1	Regional
R-62	06/20/12	5841.688	Transducer	1158.4	1179.1	Regional
R-62	06/19/12	5841.713	Transducer	1158.4	1179.1	Regional
R-62	06/18/12	5841.622	Transducer	1158.4	1179.1	Regional
R-62	06/17/12	5841.402	Transducer	1158.4	1179.1	Regional
R-62	06/16/12	5841.553	Transducer	1158.4	1179.1	Regional
R-62	06/15/12	5841.692	Transducer	1158.4	1179.1	Regional
R-62	06/14/12	5841.674	Transducer	1158.4	1179.1	Regional
R-62	06/13/12	5841.619	Transducer	1158.4	1179.1	Regional
R-62	06/12/12	5841.471	Transducer	1158.4	1179.1	Regional
R-62	06/11/12	5841.645	Transducer	1158.4	1179.1	Regional
R-62	06/11/12	5841.544	Transducer	1158.4	1179.1	Regional
R-62	06/10/12	5841.794	Transducer	1158.4	1179.1	Regional
R-62	06/09/12	5841.773	Transducer	1158.4	1179.1	Regional
R-62	06/08/12	5841.615	Transducer	1158.4	1179.1	Regional
R-62	06/07/12	5841.74	Transducer	1158.4	1179.1	Regional
R-62	06/06/12	5841.68	Transducer	1158.4	1179.1	Regional
R-62	06/05/12	5841.616	Transducer	1158.4	1179.1	Regional
R-62	06/04/12	5841.633	Transducer	1158.4	1179.1	Regional
R-62	06/03/12	5841.685	Transducer	1158.4	1179.1	Regional
R-62	06/02/12	5841.708	Transducer	1158.4	1179.1	Regional
R-62	06/01/12	5841.701	Transducer	1158.4	1179.1	Regional
R-62	05/31/12	5841.765	Transducer	1158.4	1179.1	Regional
R-62	05/30/12	5841.745	Transducer	1158.4	1179.1	Regional
R-62	05/29/12	5841.713	Transducer	1158.4	1179.1	Regional
R-62	05/28/12	5841.71	Transducer	1158.4	1179.1	Regional
R-62	05/27/12	5841.873	Transducer	1158.4	1179.1	Regional
R-62	05/26/12	5841.902	Transducer	1158.4	1179.1	Regional
R-62	05/25/12	5841.987	Transducer	1158.4	1179.1	Regional
R-62	05/24/12	5842.132	Transducer	1158.4	1179.1	Regional
R-62	05/23/12	5841.97	Transducer	1158.4	1179.1	Regional
R-62	05/22/12	5841.624	Transducer	1158.4	1179.1	Regional
R-62	05/21/12	5841.566	Transducer	1158.4	1179.1	Regional
R-62	05/20/12	5841.731	Transducer	1158.4	1179.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-62	05/19/12	5841.966	Transducer	1158.4	1179.1	Regional
R-62	05/18/12	5841.946	Transducer	1158.4	1179.1	Regional
R-62	05/17/12	5841.721	Transducer	1158.4	1179.1	Regional
R-62	05/16/12	5841.597	Transducer	1158.4	1179.1	Regional
R-62	05/15/12	5841.563	Transducer	1158.4	1179.1	Regional
R-62	05/14/12	5841.625	Transducer	1158.4	1179.1	Regional
R-62	05/13/12	5841.509	Transducer	1158.4	1179.1	Regional
R-62	05/12/12	5841.59	Transducer	1158.4	1179.1	Regional
R-62	05/11/12	5841.872	Transducer	1158.4	1179.1	Regional
R-62	05/10/12	5841.768	Transducer	1158.4	1179.1	Regional
R-62	05/09/12	5841.672	Transducer	1158.4	1179.1	Regional
R-62	05/08/12	5841.708	Transducer	1158.4	1179.1	Regional
R-62	05/07/12	5841.808	Transducer	1158.4	1179.1	Regional
R-62	05/06/12	5841.832	Transducer	1158.4	1179.1	Regional
R-62	05/05/12	5841.818	Transducer	1158.4	1179.1	Regional
R-62	05/04/12	5841.795	Transducer	1158.4	1179.1	Regional
R-62	05/03/12	5841.866	Transducer	1158.4	1179.1	Regional
R-62	05/02/12	5841.974	Transducer	1158.4	1179.1	Regional
R-62	05/01/12	5841.931	Transducer	1158.4	1179.1	Regional
R-62	04/30/12	5841.82	Transducer	1158.4	1179.1	Regional
R-62	04/29/12	5841.912	Transducer	1158.4	1179.1	Regional
R-62	04/28/12	5841.919	Transducer	1158.4	1179.1	Regional
R-62	04/27/12	5841.997	Transducer	1158.4	1179.1	Regional
R-62	04/26/12	5841.751	Transducer	1158.4	1179.1	Regional
R-62	04/25/12	5841.815	Transducer	1158.4	1179.1	Regional
R-62	04/24/12	5841.737	Transducer	1158.4	1179.1	Regional
R-62	04/23/12	5841.605	Transducer	1158.4	1179.1	Regional
R-62	04/22/12	5841.662	Transducer	1158.4	1179.1	Regional
R-62	04/21/12	5841.721	Transducer	1158.4	1179.1	Regional
R-62	04/20/12	5841.808	Transducer	1158.4	1179.1	Regional
R-62	04/19/12	5841.91	Transducer	1158.4	1179.1	Regional
R-62	04/18/12	5841.73	Transducer	1158.4	1179.1	Regional
R-62	04/17/12	5841.694	Transducer	1158.4	1179.1	Regional
R-62	04/16/12	5841.836	Transducer	1158.4	1179.1	Regional
R-62	04/15/12	5842.196	Transducer	1158.4	1179.1	Regional
R-62	04/14/12	5842.187	Transducer	1158.4	1179.1	Regional
R-62	04/13/12	5841.918	Transducer	1158.4	1179.1	Regional
R-62	04/12/12	5841.971	Transducer	1158.4	1179.1	Regional
R-62	04/11/12	5841.727	Transducer	1158.4	1179.1	Regional
R-62	04/10/12	5841.729	Transducer	1158.4	1179.1	Regional
R-62	04/09/12	5841.625	Transducer	1158.4	1179.1	Regional
R-62	04/08/12	5841.484	Transducer	1158.4	1179.1	Regional
R-62	04/07/12	5841.786	Transducer	1158.4	1179.1	Regional
R-62	04/06/12	5841.941	Transducer	1158.4	1179.1	Regional
R-62	04/05/12	5841.881	Transducer	1158.4	1179.1	Regional
R-62	04/04/12	5841.854	Transducer	1158.4	1179.1	Regional
R-62	04/03/12	5842.06	Transducer	1158.4	1179.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-62	04/02/12	5842.164	Transducer	1158.4	1179.1	Regional
R-62	04/01/12	5841.944	Transducer	1158.4	1179.1	Regional
R-62	03/31/12	5841.821	Transducer	1158.4	1179.1	Regional
R-62	03/30/12	5841.861	Transducer	1158.4	1179.1	Regional
R-62	03/29/12	5841.833	Transducer	1158.4	1179.1	Regional
R-62	03/28/12	5841.791	Transducer	1158.4	1179.1	Regional
R-62	03/27/12	5841.76	Transducer	1158.4	1179.1	Regional
R-62	03/26/12	5841.797	Transducer	1158.4	1179.1	Regional
R-62	03/25/12	5841.677	Transducer	1158.4	1179.1	Regional
R-62	03/24/12	5841.688	Transducer	1158.4	1179.1	Regional
R-62	03/23/12	5841.767	Transducer	1158.4	1179.1	Regional
R-62	03/22/12	5841.868	Transducer	1158.4	1179.1	Regional
R-62	03/21/12	5841.861	Transducer	1158.4	1179.1	Regional
R-62	03/20/12	5842.142	Transducer	1158.4	1179.1	Regional
R-62	03/19/12	5842.13	Transducer	1158.4	1179.1	Regional
R-62	03/18/12	5841.935	Transducer	1158.4	1179.1	Regional
R-62	03/17/12	5841.762	Transducer	1158.4	1179.1	Regional
R-62	03/16/12	5841.585	Transducer	1158.4	1179.1	Regional
R-62	03/15/12	5841.458	Transducer	1158.4	1179.1	Regional
R-62	03/14/12	5841.488	Transducer	1158.4	1179.1	Regional
R-62	03/13/12	5841.501	Transducer	1158.4	1179.1	Regional
R-62	03/12/12	5841.622	Transducer	1158.4	1179.1	Regional
R-62	03/11/12	5841.72	Transducer	1158.4	1179.1	Regional
R-62	03/10/12	5841.434	Transducer	1158.4	1179.1	Regional
R-62	03/09/12	5841.286	Transducer	1158.4	1179.1	Regional
R-62	03/08/12	5841.31	Transducer	1158.4	1179.1	Regional
R-62	03/07/12	5842.085	Transducer	1158.4	1179.1	Regional
R-62	03/06/12	5841.914	Transducer	1158.4	1179.1	Regional
R-62	03/06/12	5841.697	Transducer	1158.4	1179.1	Regional
R-62	03/05/12	5841.522	Transducer	1158.4	1179.1	Regional
R-62	03/04/12	5841.581	Transducer	1158.4	1179.1	Regional
R-62	03/03/12	5841.716	Transducer	1158.4	1179.1	Regional
R-62	03/02/12	5841.997	Transducer	1158.4	1179.1	Regional
R-62	03/01/12	5841.817	Transducer	1158.4	1179.1	Regional
R-62	02/29/12	5841.694	Transducer	1158.4	1179.1	Regional
R-62	02/28/12	5841.875	Transducer	1158.4	1179.1	Regional
R-62	02/27/12	5841.707	Transducer	1158.4	1179.1	Regional
R-62	02/26/12	5841.797	Transducer	1158.4	1179.1	Regional
R-62	02/25/12	5841.559	Transducer	1158.4	1179.1	Regional
R-62	02/24/12	5841.729	Transducer	1158.4	1179.1	Regional
R-62	02/23/12	5841.939	Transducer	1158.4	1179.1	Regional
R-62	02/22/12	5841.918	Transducer	1158.4	1179.1	Regional
R-62	02/21/12	5841.891	Transducer	1158.4	1179.1	Regional
R-62	02/20/12	5841.968	Transducer	1158.4	1179.1	Regional
R-62	02/19/12	5841.695	Transducer	1158.4	1179.1	Regional
R-62	02/18/12	5841.708	Transducer	1158.4	1179.1	Regional
R-62	02/17/12	5841.575	Transducer	1158.4	1179.1	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-62	02/16/12	5841.579	Transducer	1158.4	1179.1	Regional
R-62	02/15/12	5841.845	Transducer	1158.4	1179.1	Regional
R-62	02/14/12	5841.638	Transducer	1158.4	1179.1	Regional
R-62	02/13/12	5841.698	Transducer	1158.4	1179.1	Regional
R-62	02/12/12	5841.394	Transducer	1158.4	1179.1	Regional
R-62	02/11/12	5841.335	Transducer	1158.4	1179.1	Regional
R-62	02/10/12	5841.38	Transducer	1158.4	1179.1	Regional
R-62	02/09/12	5841.37	Transducer	1158.4	1179.1	Regional
R-62	02/08/12	5841.275	Transducer	1158.4	1179.1	Regional
R-62	02/07/12	5841.499	Transducer	1158.4	1179.1	Regional
R-62	02/06/12	5841.401	Transducer	1158.4	1179.1	Regional
R-62	02/05/12	5841.268	Transducer	1158.4	1179.1	Regional
R-62	02/04/12	5841.358	Transducer	1158.4	1179.1	Regional
R-62	02/03/12	5841.642	Transducer	1158.4	1179.1	Regional
R-62	02/02/12	5841.373	Transducer	1158.4	1179.1	Regional
R-62	02/01/12	5841.209	Transducer	1158.4	1179.1	Regional
R-62	01/31/12	5827.92	Transducer	1158.4	1179.1	Regional
R-62	01/30/12	5826.492	Transducer	1158.4	1179.1	Regional
R-62	01/29/12	5825.923	Transducer	1158.4	1179.1	Regional
R-62	01/28/12	5818.555	Transducer	1158.4	1179.1	Regional
R-62	01/27/12	5841.628	Transducer	1158.4	1179.1	Regional
R-62	01/26/12	5841.579	Transducer	1158.4	1179.1	Regional
R-62	01/26/12	5841.55	Manual	1158.4	1179.1	Regional
R-62	10/26/11	5842.38	Manual	1158.4	1179.1	Regional
R-62	10/11/11	5842.61	Manual	1158.4	1179.1	Regional
R-62	08/29/11	5842.88	Manual	1158.4	1179.1	Regional
SCI-1	11/15/12	6370.58	Transducer	358.4	377.9	Intermediate
SCI-1	11/14/12	6370.39	Transducer	358.4	377.9	Intermediate
SCI-1	11/13/12	6370.33	Transducer	358.4	377.9	Intermediate
SCI-1	11/12/12	6370.13	Transducer	358.4	377.9	Intermediate
SCI-1	11/11/12	6371.09	Transducer	358.4	377.9	Intermediate
SCI-1	11/10/12	6371.34	Transducer	358.4	377.9	Intermediate
SCI-1	11/09/12	6371.12	Transducer	358.4	377.9	Intermediate
SCI-1	11/08/12	6370.93	Transducer	358.4	377.9	Intermediate
SCI-1	11/07/12	6370.56	Transducer	358.4	377.9	Intermediate
SCI-1	11/06/12	6370.61	Transducer	358.4	377.9	Intermediate
SCI-1	11/05/12	6370.5	Transducer	358.4	377.9	Intermediate
SCI-1	11/04/12	6370.55	Transducer	358.4	377.9	Intermediate
SCI-1	11/03/12	6370.75	Transducer	358.4	377.9	Intermediate
SCI-1	11/02/12	6370.88	Transducer	358.4	377.9	Intermediate
SCI-1	11/01/12	6370.61	Transducer	358.4	377.9	Intermediate
SCI-1	10/31/12	6370.66	Transducer	358.4	377.9	Intermediate
SCI-1	10/30/12	6370.59	Transducer	358.4	377.9	Intermediate
SCI-1	10/29/12	6370.54	Transducer	358.4	377.9	Intermediate
SCI-1	10/28/12	6370.67	Transducer	358.4	377.9	Intermediate
SCI-1	10/27/12	6370.44	Transducer	358.4	377.9	Intermediate
SCI-1	10/26/12	6370.45	Transducer	358.4	377.9	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-1	10/25/12	6370.91	Transducer	358.4	377.9	Intermediate
SCI-1	10/24/12	6370.87	Transducer	358.4	377.9	Intermediate
SCI-1	10/23/12	6370.79	Transducer	358.4	377.9	Intermediate
SCI-1	10/22/12	6370.89	Transducer	358.4	377.9	Intermediate
SCI-1	10/21/12	6371.04	Transducer	358.4	377.9	Intermediate
SCI-1	10/20/12	6370.89	Transducer	358.4	377.9	Intermediate
SCI-1	10/19/12	6370.63	Transducer	358.4	377.9	Intermediate
SCI-1	10/18/12	6370.74	Transducer	358.4	377.9	Intermediate
SCI-1	10/17/12	6371.23	Transducer	358.4	377.9	Intermediate
SCI-1	10/16/12	6370.96	Transducer	358.4	377.9	Intermediate
SCI-1	10/15/12	6370.51	Transducer	358.4	377.9	Intermediate
SCI-1	10/14/12	6370.47	Transducer	358.4	377.9	Intermediate
SCI-1	10/13/12	6370.86	Transducer	358.4	377.9	Intermediate
SCI-1	10/12/12	6370.64	Transducer	358.4	377.9	Intermediate
SCI-1	10/11/12	6370.73	Transducer	358.4	377.9	Intermediate
SCI-1	10/10/12	6370.62	Transducer	358.4	377.9	Intermediate
SCI-1	10/09/12	6370.83	Transducer	358.4	377.9	Intermediate
SCI-1	10/08/12	6370.75	Transducer	358.4	377.9	Intermediate
SCI-1	10/07/12	6370.68	Transducer	358.4	377.9	Intermediate
SCI-1	10/06/12	6370.74	Transducer	358.4	377.9	Intermediate
SCI-1	10/05/12	6370.69	Transducer	358.4	377.9	Intermediate
SCI-1	10/04/12	6370.64	Transducer	358.4	377.9	Intermediate
SCI-1	10/03/12	6370.79	Transducer	358.4	377.9	Intermediate
SCI-1	10/02/12	6370.63	Transducer	358.4	377.9	Intermediate
SCI-1	10/01/12	6370.63	Transducer	358.4	377.9	Intermediate
SCI-1	09/30/12	6370.63	Transducer	358.4	377.9	Intermediate
SCI-1	09/29/12	6370.63	Transducer	358.4	377.9	Intermediate
SCI-1	09/28/12	6370.63	Transducer	358.4	377.9	Intermediate
SCI-1	09/27/12	6370.65	Transducer	358.4	377.9	Intermediate
SCI-1	09/26/12	6370.76	Transducer	358.4	377.9	Intermediate
SCI-1	09/25/12	6370.73	Transducer	358.4	377.9	Intermediate
SCI-1	09/24/12	6370.64	Transducer	358.4	377.9	Intermediate
SCI-1	09/23/12	6370.59	Transducer	358.4	377.9	Intermediate
SCI-1	09/22/12	6370.62	Transducer	358.4	377.9	Intermediate
SCI-1	09/21/12	6370.66	Transducer	358.4	377.9	Intermediate
SCI-1	09/20/12	6370.64	Transducer	358.4	377.9	Intermediate
SCI-1	09/19/12	6370.62	Transducer	358.4	377.9	Intermediate
SCI-1	09/18/12	6370.59	Transducer	358.4	377.9	Intermediate
SCI-1	09/17/12	6370.76	Transducer	358.4	377.9	Intermediate
SCI-1	09/16/12	6370.65	Transducer	358.4	377.9	Intermediate
SCI-1	09/15/12	6370.48	Transducer	358.4	377.9	Intermediate
SCI-1	09/14/12	6370.34	Transducer	358.4	377.9	Intermediate
SCI-1	09/13/12	6370.473	Transducer	358.4	377.9	Intermediate
SCI-1	09/13/12	6370.36	Transducer	358.4	377.9	Intermediate
SCI-1	09/12/12	6370.634	Transducer	358.4	377.9	Intermediate
SCI-1	09/11/12	6370.638	Transducer	358.4	377.9	Intermediate
SCI-1	09/10/12	6370.524	Transducer	358.4	377.9	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-1	09/09/12	6370.426	Transducer	358.4	377.9	Intermediate
SCI-1	09/08/12	6370.381	Transducer	358.4	377.9	Intermediate
SCI-1	09/07/12	6370.57	Transducer	358.4	377.9	Intermediate
SCI-1	09/06/12	6370.524	Transducer	358.4	377.9	Intermediate
SCI-1	09/05/12	6370.565	Transducer	358.4	377.9	Intermediate
SCI-1	09/04/12	6370.491	Transducer	358.4	377.9	Intermediate
SCI-1	09/03/12	6370.509	Transducer	358.4	377.9	Intermediate
SCI-1	09/02/12	6370.46	Transducer	358.4	377.9	Intermediate
SCI-1	09/01/12	6370.43	Transducer	358.4	377.9	Intermediate
SCI-1	08/31/12	6370.467	Transducer	358.4	377.9	Intermediate
SCI-1	08/30/12	6370.472	Transducer	358.4	377.9	Intermediate
SCI-1	08/29/12	6370.373	Transducer	358.4	377.9	Intermediate
SCI-1	08/28/12	6370.264	Transducer	358.4	377.9	Intermediate
SCI-1	08/27/12	6370.272	Transducer	358.4	377.9	Intermediate
SCI-1	08/26/12	6370.371	Transducer	358.4	377.9	Intermediate
SCI-1	08/25/12	6370.53	Transducer	358.4	377.9	Intermediate
SCI-1	08/24/12	6370.509	Transducer	358.4	377.9	Intermediate
SCI-1	08/23/12	6370.428	Transducer	358.4	377.9	Intermediate
SCI-1	08/22/12	6370.362	Transducer	358.4	377.9	Intermediate
SCI-1	08/21/12	6370.397	Transducer	358.4	377.9	Intermediate
SCI-1	08/20/12	6370.374	Transducer	358.4	377.9	Intermediate
SCI-1	08/19/12	6370.411	Transducer	358.4	377.9	Intermediate
SCI-1	08/18/12	6370.378	Transducer	358.4	377.9	Intermediate
SCI-1	08/17/12	6370.282	Transducer	358.4	377.9	Intermediate
SCI-1	08/16/12	6370.419	Transducer	358.4	377.9	Intermediate
SCI-1	08/15/12	6370.471	Transducer	358.4	377.9	Intermediate
SCI-1	08/14/12	6370.404	Transducer	358.4	377.9	Intermediate
SCI-1	08/13/12	6370.263	Transducer	358.4	377.9	Intermediate
SCI-1	08/12/12	6370.406	Transducer	358.4	377.9	Intermediate
SCI-1	08/11/12	6370.407	Transducer	358.4	377.9	Intermediate
SCI-1	08/10/12	6370.34	Transducer	358.4	377.9	Intermediate
SCI-1	08/09/12	6370.2	Manual	358.4	377.9	Intermediate
SCI-1	08/09/12	6370.299	Transducer	358.4	377.9	Intermediate
SCI-1	08/08/12	6370.372	Transducer	358.4	377.9	Intermediate
SCI-1	08/07/12	6370.433	Transducer	358.4	377.9	Intermediate
SCI-1	08/06/12	6370.057	Transducer	358.4	377.9	Intermediate
SCI-1	08/05/12	6370.133	Transducer	358.4	377.9	Intermediate
SCI-1	08/04/12	6370.544	Transducer	358.4	377.9	Intermediate
SCI-1	08/03/12	6370.354	Transducer	358.4	377.9	Intermediate
SCI-1	08/02/12	6370.451	Transducer	358.4	377.9	Intermediate
SCI-1	08/01/12	6370.279	Transducer	358.4	377.9	Intermediate
SCI-1	07/31/12	6370.393	Transducer	358.4	377.9	Intermediate
SCI-1	07/30/12	6370.399	Transducer	358.4	377.9	Intermediate
SCI-1	07/29/12	6370.226	Transducer	358.4	377.9	Intermediate
SCI-1	07/28/12	6370.171	Transducer	358.4	377.9	Intermediate
SCI-1	07/27/12	6370.257	Transducer	358.4	377.9	Intermediate
SCI-1	07/26/12	6370.513	Transducer	358.4	377.9	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-1	07/25/12	6370.546	Transducer	358.4	377.9	Intermediate
SCI-1	07/24/12	6370.332	Transducer	358.4	377.9	Intermediate
SCI-1	07/23/12	6370.265	Transducer	358.4	377.9	Intermediate
SCI-1	07/22/12	6370.218	Transducer	358.4	377.9	Intermediate
SCI-1	07/21/12	6370.147	Transducer	358.4	377.9	Intermediate
SCI-1	07/20/12	6370.087	Transducer	358.4	377.9	Intermediate
SCI-1	07/19/12	6370.162	Transducer	358.4	377.9	Intermediate
SCI-1	07/18/12	6370.37	Transducer	358.4	377.9	Intermediate
SCI-1	07/17/12	6370.502	Transducer	358.4	377.9	Intermediate
SCI-1	07/16/12	6370.432	Transducer	358.4	377.9	Intermediate
SCI-1	07/15/12	6370.335	Transducer	358.4	377.9	Intermediate
SCI-1	07/14/12	6370.264	Transducer	358.4	377.9	Intermediate
SCI-1	07/13/12	6370.254	Transducer	358.4	377.9	Intermediate
SCI-1	07/12/12	6370.236	Transducer	358.4	377.9	Intermediate
SCI-1	07/11/12	6370.125	Transducer	358.4	377.9	Intermediate
SCI-1	07/10/12	6370.119	Transducer	358.4	377.9	Intermediate
SCI-1	07/09/12	6370.122	Transducer	358.4	377.9	Intermediate
SCI-1	07/08/12	6370.047	Transducer	358.4	377.9	Intermediate
SCI-1	07/07/12	6370.068	Transducer	358.4	377.9	Intermediate
SCI-1	07/06/12	6370.158	Transducer	358.4	377.9	Intermediate
SCI-1	07/05/12	6370.265	Transducer	358.4	377.9	Intermediate
SCI-1	07/04/12	6370.298	Transducer	358.4	377.9	Intermediate
SCI-1	07/03/12	6370.284	Transducer	358.4	377.9	Intermediate
SCI-1	07/02/12	6370.278	Transducer	358.4	377.9	Intermediate
SCI-1	07/01/12	6370.337	Transducer	358.4	377.9	Intermediate
SCI-1	06/30/12	6370.341	Transducer	358.4	377.9	Intermediate
SCI-1	06/29/12	6370.066	Transducer	358.4	377.9	Intermediate
SCI-1	06/28/12	6370.061	Transducer	358.4	377.9	Intermediate
SCI-1	06/27/12	6370.291	Transducer	358.4	377.9	Intermediate
SCI-1	06/26/12	6370.178	Transducer	358.4	377.9	Intermediate
SCI-1	06/25/12	6369.976	Transducer	358.4	377.9	Intermediate
SCI-1	06/24/12	6370.066	Transducer	358.4	377.9	Intermediate
SCI-1	06/23/12	6370.328	Transducer	358.4	377.9	Intermediate
SCI-1	06/22/12	6370.002	Transducer	358.4	377.9	Intermediate
SCI-1	06/21/12	6370.029	Transducer	358.4	377.9	Intermediate
SCI-1	06/20/12	6370.469	Transducer	358.4	377.9	Intermediate
SCI-1	06/19/12	6370.507	Transducer	358.4	377.9	Intermediate
SCI-1	06/18/12	6370.465	Transducer	358.4	377.9	Intermediate
SCI-1	06/17/12	6369.87	Transducer	358.4	377.9	Intermediate
SCI-1	06/16/12	6370.085	Transducer	358.4	377.9	Intermediate
SCI-1	06/15/12	6370.333	Transducer	358.4	377.9	Intermediate
SCI-1	06/14/12	6370.385	Transducer	358.4	377.9	Intermediate
SCI-1	06/13/12	6370.202	Transducer	358.4	377.9	Intermediate
SCI-1	06/12/12	6369.898	Transducer	358.4	377.9	Intermediate
SCI-1	06/11/12	6370.043	Transducer	358.4	377.9	Intermediate
SCI-1	06/10/12	6370.459	Transducer	358.4	377.9	Intermediate
SCI-1	06/09/12	6370.41	Transducer	358.4	377.9	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-1	06/08/12	6370.106	Transducer	358.4	377.9	Intermediate
SCI-1	06/07/12	6370.3	Transducer	358.4	377.9	Intermediate
SCI-1	06/06/12	6370.261	Transducer	358.4	377.9	Intermediate
SCI-1	06/06/12	6370.292	Transducer	358.4	377.9	Intermediate
SCI-1	06/05/12	6370.101	Transducer	358.4	377.9	Intermediate
SCI-1	06/04/12	6369.977	Transducer	358.4	377.9	Intermediate
SCI-1	06/03/12	6370.123	Transducer	358.4	377.9	Intermediate
SCI-1	06/02/12	6370.202	Transducer	358.4	377.9	Intermediate
SCI-1	06/01/12	6370.039	Transducer	358.4	377.9	Intermediate
SCI-1	05/31/12	6370.133	Transducer	358.4	377.9	Intermediate
SCI-1	05/30/12	6370.086	Transducer	358.4	377.9	Intermediate
SCI-1	05/29/12	6369.944	Transducer	358.4	377.9	Intermediate
SCI-1	05/28/12	6369.954	Transducer	358.4	377.9	Intermediate
SCI-1	05/27/12	6370.177	Transducer	358.4	377.9	Intermediate
SCI-1	05/26/12	6370.2	Transducer	358.4	377.9	Intermediate
SCI-1	05/25/12	6370.421	Transducer	358.4	377.9	Intermediate
SCI-1	05/24/12	6370.8	Transducer	358.4	377.9	Intermediate
SCI-1	05/23/12	6370.584	Transducer	358.4	377.9	Intermediate
SCI-1	05/22/12	6370.108	Transducer	358.4	377.9	Intermediate
SCI-1	05/21/12	6369.643	Transducer	358.4	377.9	Intermediate
SCI-1	05/20/12	6369.893	Transducer	358.4	377.9	Intermediate
SCI-1	05/19/12	6370.461	Transducer	358.4	377.9	Intermediate
SCI-1	05/18/12	6370.563	Transducer	358.4	377.9	Intermediate
SCI-1	05/17/12	6370.235	Transducer	358.4	377.9	Intermediate
SCI-1	05/16/12	6369.856	Transducer	358.4	377.9	Intermediate
SCI-1	05/15/12	6369.807	Transducer	358.4	377.9	Intermediate
SCI-1	05/14/12	6369.85	Transducer	358.4	377.9	Intermediate
SCI-1	05/13/12	6369.633	Transducer	358.4	377.9	Intermediate
SCI-1	05/12/12	6369.617	Transducer	358.4	377.9	Intermediate
SCI-1	05/11/12	6370.297	Transducer	358.4	377.9	Intermediate
SCI-1	05/10/12	6370.156	Transducer	358.4	377.9	Intermediate
SCI-1	05/09/12	6369.781	Transducer	358.4	377.9	Intermediate
SCI-1	05/08/12	6369.787	Transducer	358.4	377.9	Intermediate
SCI-1	05/07/12	6370.007	Transducer	358.4	377.9	Intermediate
SCI-1	05/06/12	6370.158	Transducer	358.4	377.9	Intermediate
SCI-1	05/05/12	6370.101	Transducer	358.4	377.9	Intermediate
SCI-1	05/04/12	6369.978	Transducer	358.4	377.9	Intermediate
SCI-1	05/03/12	6370.12	Transducer	358.4	377.9	Intermediate
SCI-1	05/02/12	6370.29	Transducer	358.4	377.9	Intermediate
SCI-1	05/01/12	6370.324	Transducer	358.4	377.9	Intermediate
SCI-1	04/30/12	6370.029	Transducer	358.4	377.9	Intermediate
SCI-1	04/29/12	6370.226	Transducer	358.4	377.9	Intermediate
SCI-1	04/28/12	6370.268	Transducer	358.4	377.9	Intermediate
SCI-1	04/27/12	6370.437	Transducer	358.4	377.9	Intermediate
SCI-1	04/26/12	6370.025	Transducer	358.4	377.9	Intermediate
SCI-1	04/25/12	6370.22	Transducer	358.4	377.9	Intermediate
SCI-1	04/24/12	6370.082	Transducer	358.4	377.9	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-1	04/23/12	6369.729	Transducer	358.4	377.9	Intermediate
SCI-1	04/22/12	6369.802	Transducer	358.4	377.9	Intermediate
SCI-1	04/21/12	6369.896	Transducer	358.4	377.9	Intermediate
SCI-1	04/20/12	6370.027	Transducer	358.4	377.9	Intermediate
SCI-1	04/19/12	6370.283	Transducer	358.4	377.9	Intermediate
SCI-1	04/18/12	6369.992	Transducer	358.4	377.9	Intermediate
SCI-1	04/17/12	6369.673	Transducer	358.4	377.9	Intermediate
SCI-1	04/16/12	6369.825	Transducer	358.4	377.9	Intermediate
SCI-1	04/15/12	6370.606	Transducer	358.4	377.9	Intermediate
SCI-1	04/14/12	6370.857	Transducer	358.4	377.9	Intermediate
SCI-1	04/13/12	6370.398	Transducer	358.4	377.9	Intermediate
SCI-1	04/12/12	6370.548	Transducer	358.4	377.9	Intermediate
SCI-1	04/11/12	6370.122	Transducer	358.4	377.9	Intermediate
SCI-1	04/10/12	6370.076	Transducer	358.4	377.9	Intermediate
SCI-1	04/09/12	6369.932	Transducer	358.4	377.9	Intermediate
SCI-1	04/08/12	6369.436	Transducer	358.4	377.9	Intermediate
SCI-1	04/07/12	6369.879	Transducer	358.4	377.9	Intermediate
SCI-1	04/06/12	6370.25	Transducer	358.4	377.9	Intermediate
SCI-1	04/05/12	6370.182	Transducer	358.4	377.9	Intermediate
SCI-1	04/04/12	6370.025	Transducer	358.4	377.9	Intermediate
SCI-1	04/03/12	6370.356	Transducer	358.4	377.9	Intermediate
SCI-1	04/02/12	6370.813	Transducer	358.4	377.9	Intermediate
SCI-1	04/01/12	6370.435	Transducer	358.4	377.9	Intermediate
SCI-1	03/31/12	6370.157	Transducer	358.4	377.9	Intermediate
SCI-1	03/30/12	6370.228	Transducer	358.4	377.9	Intermediate
SCI-1	03/29/12	6370.313	Transducer	358.4	377.9	Intermediate
SCI-1	03/28/12	6370.109	Transducer	358.4	377.9	Intermediate
SCI-1	03/27/12	6370.193	Transducer	358.4	377.9	Intermediate
SCI-1	03/26/12	6370.294	Transducer	358.4	377.9	Intermediate
SCI-1	03/25/12	6370.004	Transducer	358.4	377.9	Intermediate
SCI-1	03/24/12	6369.972	Transducer	358.4	377.9	Intermediate
SCI-1	03/23/12	6370.07	Transducer	358.4	377.9	Intermediate
SCI-1	03/22/12	6370.218	Transducer	358.4	377.9	Intermediate
SCI-1	03/21/12	6370.098	Transducer	358.4	377.9	Intermediate
SCI-1	03/20/12	6370.737	Transducer	358.4	377.9	Intermediate
SCI-1	03/19/12	6370.841	Transducer	358.4	377.9	Intermediate
SCI-1	03/18/12	6370.797	Transducer	358.4	377.9	Intermediate
SCI-1	03/17/12	6370.525	Transducer	358.4	377.9	Intermediate
SCI-1	03/16/12	6370.25	Transducer	358.4	377.9	Intermediate
SCI-1	03/15/12	6370.092	Transducer	358.4	377.9	Intermediate
SCI-1	03/14/12	6370.268	Transducer	358.4	377.9	Intermediate
SCI-1	03/13/12	6370.115	Transducer	358.4	377.9	Intermediate
SCI-1	03/12/12	6370.429	Transducer	358.4	377.9	Intermediate
SCI-1	03/11/12	6370.806	Transducer	358.4	377.9	Intermediate
SCI-1	03/10/12	6370.107	Transducer	358.4	377.9	Intermediate
SCI-1	03/09/12	6369.409	Transducer	358.4	377.9	Intermediate
SCI-1	03/08/12	6370.407	Transducer	358.4	377.9	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-1	03/07/12	6371.08	Transducer	358.4	377.9	Intermediate
SCI-1	03/06/12	6370.418	Transducer	358.4	377.9	Intermediate
SCI-1	03/05/12	6369.962	Transducer	358.4	377.9	Intermediate
SCI-1	03/04/12	6369.872	Transducer	358.4	377.9	Intermediate
SCI-1	03/03/12	6370.099	Transducer	358.4	377.9	Intermediate
SCI-1	03/02/12	6370.766	Transducer	358.4	377.9	Intermediate
SCI-1	03/01/12	6370.582	Transducer	358.4	377.9	Intermediate
SCI-1	02/29/12	6370.212	Transducer	358.4	377.9	Intermediate
SCI-1	02/28/12	6370.691	Transducer	358.4	377.9	Intermediate
SCI-1	02/27/12	6370.263	Transducer	358.4	377.9	Intermediate
SCI-1	02/26/12	6370.677	Transducer	358.4	377.9	Intermediate
SCI-1	02/25/12	6369.969	Transducer	358.4	377.9	Intermediate
SCI-1	02/24/12	6370.183	Transducer	358.4	377.9	Intermediate
SCI-1	02/23/12	6370.898	Transducer	358.4	377.9	Intermediate
SCI-1	02/22/12	6370.236	Transducer	358.4	377.9	Intermediate
SCI-1	02/21/12	6370.106	Transducer	358.4	377.9	Intermediate
SCI-1	02/20/12	6370.876	Transducer	358.4	377.9	Intermediate
SCI-1	02/19/12	6370.51	Transducer	358.4	377.9	Intermediate
SCI-1	02/18/12	6370.52	Transducer	358.4	377.9	Intermediate
SCI-1	02/17/12	6370.348	Transducer	358.4	377.9	Intermediate
SCI-1	02/16/12	6370.191	Transducer	358.4	377.9	Intermediate
SCI-1	02/15/12	6370.921	Transducer	358.4	377.9	Intermediate
SCI-1	02/14/12	6370.802	Transducer	358.4	377.9	Intermediate
SCI-1	02/13/12	6371.085	Transducer	358.4	377.9	Intermediate
SCI-1	02/12/12	6370.388	Transducer	358.4	377.9	Intermediate
SCI-1	02/11/12	6370.341	Transducer	358.4	377.9	Intermediate
SCI-1	02/10/12	6370.326	Transducer	358.4	377.9	Intermediate
SCI-1	02/09/12	6370.414	Transducer	358.4	377.9	Intermediate
SCI-1	02/08/12	6370.082	Transducer	358.4	377.9	Intermediate
SCI-1	02/07/12	6370.554	Transducer	358.4	377.9	Intermediate
SCI-1	02/06/12	6370.425	Transducer	358.4	377.9	Intermediate
SCI-1	02/05/12	6370.036	Transducer	358.4	377.9	Intermediate
SCI-1	02/04/12	6370.174	Transducer	358.4	377.9	Intermediate
SCI-1	02/03/12	6370.75	Transducer	358.4	377.9	Intermediate
SCI-1	02/02/12	6370.621	Transducer	358.4	377.9	Intermediate
SCI-1	02/01/12	6370.34	Transducer	358.4	377.9	Intermediate
SCI-1	01/31/12	6370.729	Transducer	358.4	377.9	Intermediate
SCI-1	01/30/12	6370.412	Transducer	358.4	377.9	Intermediate
SCI-1	01/29/12	6370.002	Transducer	358.4	377.9	Intermediate
SCI-1	01/28/12	6370.021	Transducer	358.4	377.9	Intermediate
SCI-1	01/27/12	6370.761	Transducer	358.4	377.9	Intermediate
SCI-1	01/26/12	6370.316	Transducer	358.4	377.9	Intermediate
SCI-1	01/25/12	6370.227	Transducer	358.4	377.9	Intermediate
SCI-1	01/24/12	6370.839	Transducer	358.4	377.9	Intermediate
SCI-1	01/23/12	6370.321	Transducer	358.4	377.9	Intermediate
SCI-1	01/22/12	6371.456	Transducer	358.4	377.9	Intermediate
SCI-1	01/21/12	6370.478	Transducer	358.4	377.9	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-1	01/20/12	6370.92	Transducer	358.4	377.9	Intermediate
SCI-1	01/19/12	6370.585	Transducer	358.4	377.9	Intermediate
SCI-1	01/18/12	6370.312	Transducer	358.4	377.9	Intermediate
SCI-1	01/17/12	6370.763	Transducer	358.4	377.9	Intermediate
SCI-1	01/16/12	6370.935	Transducer	358.4	377.9	Intermediate
SCI-1	01/15/12	6370.494	Transducer	358.4	377.9	Intermediate
SCI-1	01/14/12	6370.252	Transducer	358.4	377.9	Intermediate
SCI-1	01/13/12	6370.616	Transducer	358.4	377.9	Intermediate
SCI-1	01/12/12	6370.628	Transducer	358.4	377.9	Intermediate
SCI-1	01/11/12	6370.821	Transducer	358.4	377.9	Intermediate
SCI-1	01/10/12	6370.606	Transducer	358.4	377.9	Intermediate
SCI-1	01/09/12	6370.521	Transducer	358.4	377.9	Intermediate
SCI-1	01/08/12	6371.087	Transducer	358.4	377.9	Intermediate
SCI-1	01/07/12	6370.871	Transducer	358.4	377.9	Intermediate
SCI-1	01/06/12	6370.974	Transducer	358.4	377.9	Intermediate
SCI-1	01/05/12	6370.354	Transducer	358.4	377.9	Intermediate
SCI-1	01/04/12	6370.567	Transducer	358.4	377.9	Intermediate
SCI-1	01/03/12	6370.294	Transducer	358.4	377.9	Intermediate
SCI-1	01/02/12	6369.949	Transducer	358.4	377.9	Intermediate
SCI-1	01/01/12	6370.117	Transducer	358.4	377.9	Intermediate
SCI-1	12/31/11	6370.839	Transducer	358.4	377.9	Intermediate
SCI-1	12/30/11	6370.76	Transducer	358.4	377.9	Intermediate
SCI-1	12/29/11	6370.58	Transducer	358.4	377.9	Intermediate
SCI-1	12/28/11	6370.701	Transducer	358.4	377.9	Intermediate
SCI-1	12/27/11	6370.477	Transducer	358.4	377.9	Intermediate
SCI-1	12/26/11	6370.705	Transducer	358.4	377.9	Intermediate
SCI-1	12/25/11	6370.241	Transducer	358.4	377.9	Intermediate
SCI-1	12/24/11	6370.322	Transducer	358.4	377.9	Intermediate
SCI-1	12/23/11	6370.396	Transducer	358.4	377.9	Intermediate
SCI-1	12/22/11	6370.885	Transducer	358.4	377.9	Intermediate
SCI-1	12/21/11	6370.904	Transducer	358.4	377.9	Intermediate
SCI-1	12/20/11	6370.934	Transducer	358.4	377.9	Intermediate
SCI-1	12/19/11	6371.429	Transducer	358.4	377.9	Intermediate
SCI-1	12/18/11	6370.533	Transducer	358.4	377.9	Intermediate
SCI-1	12/17/11	6370.198	Transducer	358.4	377.9	Intermediate
SCI-1	12/16/11	6370.455	Transducer	358.4	377.9	Intermediate
SCI-1	12/15/11	6370.642	Transducer	358.4	377.9	Intermediate
SCI-1	12/14/11	6371.2	Transducer	358.4	377.9	Intermediate
SCI-1	12/13/11	6371.012	Transducer	358.4	377.9	Intermediate
SCI-1	12/12/11	6370.967	Transducer	358.4	377.9	Intermediate
SCI-1	12/11/11	6370.799	Transducer	358.4	377.9	Intermediate
SCI-1	12/10/11	6370.376	Transducer	358.4	377.9	Intermediate
SCI-1	12/09/11	6370.793	Transducer	358.4	377.9	Intermediate
SCI-1	12/08/11	6370.934	Transducer	358.4	377.9	Intermediate
SCI-1	12/07/11	6370.575	Transducer	358.4	377.9	Intermediate
SCI-1	12/06/11	6370.724	Transducer	358.4	377.9	Intermediate
SCI-1	12/05/11	6370.983	Transducer	358.4	377.9	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-1	12/04/11	6370.963	Transducer	358.4	377.9	Intermediate
SCI-1	12/03/11	6371.583	Transducer	358.4	377.9	Intermediate
SCI-1	12/02/11	6370.698	Transducer	358.4	377.9	Intermediate
SCI-1	12/01/11	6371.578	Transducer	358.4	377.9	Intermediate
SCI-1	11/30/11	6371.338	Transducer	358.4	377.9	Intermediate
SCI-1	11/30/11	6370.884	Transducer	358.4	377.9	Intermediate
SCI-1	11/29/11	6370.874	Transducer	358.4	377.9	Intermediate
SCI-1	11/28/11	6370.663	Transducer	358.4	377.9	Intermediate
SCI-1	11/27/11	6370.214	Transducer	358.4	377.9	Intermediate
SCI-1	11/26/11	6371.161	Transducer	358.4	377.9	Intermediate
SCI-1	11/25/11	6371.216	Transducer	358.4	377.9	Intermediate
SCI-1	11/24/11	6370.838	Transducer	358.4	377.9	Intermediate
SCI-1	11/23/11	6370.458	Transducer	358.4	377.9	Intermediate
SCI-1	11/22/11	6370.737	Transducer	358.4	377.9	Intermediate
SCI-1	11/21/11	6370.937	Transducer	358.4	377.9	Intermediate
SCI-1	11/20/11	6371.089	Transducer	358.4	377.9	Intermediate
SCI-1	11/19/11	6371.57	Transducer	358.4	377.9	Intermediate
SCI-1	11/18/11	6371.242	Transducer	358.4	377.9	Intermediate
SCI-1	11/17/11	6370.495	Transducer	358.4	377.9	Intermediate
SCI-1	11/16/11	6371.098	Transducer	358.4	377.9	Intermediate
SCI-1	11/15/11	6371.161	Transducer	358.4	377.9	Intermediate
SCI-1	11/14/11	6371.335	Transducer	358.4	377.9	Intermediate
SCI-1	11/13/11	6371.43	Transducer	358.4	377.9	Intermediate
SCI-1	11/12/11	6371.423	Transducer	358.4	377.9	Intermediate
SCI-1	11/11/11	6370.908	Transducer	358.4	377.9	Intermediate
SCI-1	11/10/11	6370.405	Transducer	358.4	377.9	Intermediate
SCI-1	11/09/11	6370.558	Transducer	358.4	377.9	Intermediate
SCI-1	11/08/11	6371.27	Transducer	358.4	377.9	Intermediate
SCI-1	11/07/11	6371.147	Transducer	358.4	377.9	Intermediate
SCI-1	11/06/11	6371.243	Transducer	358.4	377.9	Intermediate
SCI-1	11/05/11	6371.699	Transducer	358.4	377.9	Intermediate
SCI-1	11/04/11	6371.159	Transducer	358.4	377.9	Intermediate
SCI-1	11/03/11	6370.528	Transducer	358.4	377.9	Intermediate
SCI-1	11/02/11	6371.523	Transducer	358.4	377.9	Intermediate
SCI-1	11/01/11	6371.153	Transducer	358.4	377.9	Intermediate
SCI-1	10/31/11	6370.791	Transducer	358.4	377.9	Intermediate
SCI-1	10/30/11	6371.043	Transducer	358.4	377.9	Intermediate
SCI-1	10/29/11	6370.81	Transducer	358.4	377.9	Intermediate
SCI-1	10/28/11	6370.97	Transducer	358.4	377.9	Intermediate
SCI-1	10/27/11	6371.29	Transducer	358.4	377.9	Intermediate
SCI-1	10/26/11	6371.234	Transducer	358.4	377.9	Intermediate
SCI-1	10/25/11	6371.116	Transducer	358.4	377.9	Intermediate
SCI-1	10/24/11	6370.871	Transducer	358.4	377.9	Intermediate
SCI-1	10/23/11	6370.932	Transducer	358.4	377.9	Intermediate
SCI-1	10/22/11	6370.933	Transducer	358.4	377.9	Intermediate
SCI-1	10/21/11	6370.924	Transducer	358.4	377.9	Intermediate
SCI-1	10/20/11	6371.25	Transducer	358.4	377.9	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-1	10/19/11	6370.841	Transducer	358.4	377.9	Intermediate
SCI-1	10/18/11	6370.891	Transducer	358.4	377.9	Intermediate
SCI-1	10/17/11	6371.152	Transducer	358.4	377.9	Intermediate
SCI-1	10/16/11	6370.899	Transducer	358.4	377.9	Intermediate
SCI-1	10/15/11	6370.889	Transducer	358.4	377.9	Intermediate
SCI-1	10/14/11	6371.065	Transducer	358.4	377.9	Intermediate
SCI-1	10/13/11	6370.826	Transducer	358.4	377.9	Intermediate
SCI-1	10/12/11	6371.102	Transducer	358.4	377.9	Intermediate
SCI-1	10/11/11	6371.201	Transducer	358.4	377.9	Intermediate
SCI-1	10/10/11	6371.015	Transducer	358.4	377.9	Intermediate
SCI-1	10/09/11	6371.027	Transducer	358.4	377.9	Intermediate
SCI-1	10/08/11	6371.368	Transducer	358.4	377.9	Intermediate
SCI-1	10/07/11	6371.352	Transducer	358.4	377.9	Intermediate
SCI-1	10/06/11	6371.688	Transducer	358.4	377.9	Intermediate
SCI-1	10/05/11	6371.275	Transducer	358.4	377.9	Intermediate
SCI-1	10/04/11	6371.106	Transducer	358.4	377.9	Intermediate
SCI-1	10/03/11	6371.059	Transducer	358.4	377.9	Intermediate
SCI-1	10/02/11	6371.044	Transducer	358.4	377.9	Intermediate
SCI-1	10/01/11	6371.037	Transducer	358.4	377.9	Intermediate
SCI-1	09/30/11	6370.727	Transducer	358.4	377.9	Intermediate
SCI-1	09/29/11	6371.049	Transducer	358.4	377.9	Intermediate
SCI-1	09/28/11	6370.899	Transducer	358.4	377.9	Intermediate
SCI-1	09/27/11	6371.005	Transducer	358.4	377.9	Intermediate
SCI-1	09/26/11	6371.234	Transducer	358.4	377.9	Intermediate
SCI-1	09/25/11	6371.153	Transducer	358.4	377.9	Intermediate
SCI-1	09/24/11	6371.011	Transducer	358.4	377.9	Intermediate
SCI-1	09/23/11	6370.94	Transducer	358.4	377.9	Intermediate
SCI-1	09/22/11	6371.058	Transducer	358.4	377.9	Intermediate
SCI-1	09/21/11	6371.079	Transducer	358.4	377.9	Intermediate
SCI-1	09/20/11	6371.083	Transducer	358.4	377.9	Intermediate
SCI-1	09/19/11	6370.972	Transducer	358.4	377.9	Intermediate
SCI-1	09/18/11	6371.038	Transducer	358.4	377.9	Intermediate
SCI-1	09/17/11	6371.131	Transducer	358.4	377.9	Intermediate
SCI-1	09/16/11	6371.162	Transducer	358.4	377.9	Intermediate
SCI-1	09/15/11	6371.144	Transducer	358.4	377.9	Intermediate
SCI-1	09/14/11	6371.143	Transducer	358.4	377.9	Intermediate
SCI-1	09/13/11	6371.048	Transducer	358.4	377.9	Intermediate
SCI-1	09/12/11	6370.994	Transducer	358.4	377.9	Intermediate
SCI-1	09/11/11	6371.01	Transducer	358.4	377.9	Intermediate
SCI-1	09/10/11	6371.052	Transducer	358.4	377.9	Intermediate
SCI-1	09/09/11	6371.014	Transducer	358.4	377.9	Intermediate
SCI-1	09/08/11	6370.87	Transducer	358.4	377.9	Intermediate
SCI-1	09/07/11	6371.032	Transducer	358.4	377.9	Intermediate
SCI-1	09/06/11	6371.036	Transducer	358.4	377.9	Intermediate
SCI-1	09/05/11	6370.929	Transducer	358.4	377.9	Intermediate
SCI-1	09/04/11	6370.995	Transducer	358.4	377.9	Intermediate
SCI-1	09/03/11	6371.14	Transducer	358.4	377.9	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-1	09/02/11	6371.048	Transducer	358.4	377.9	Intermediate
SCI-1	09/01/11	6371.071	Transducer	358.4	377.9	Intermediate
SCI-1	08/31/11	6371.167	Transducer	358.4	377.9	Intermediate
SCI-1	08/30/11	6371.182	Transducer	358.4	377.9	Intermediate
SCI-1	08/29/11	6371.166	Transducer	358.4	377.9	Intermediate
SCI-1	08/28/11	6371.103	Transducer	358.4	377.9	Intermediate
SCI-1	08/27/11	6371.009	Transducer	358.4	377.9	Intermediate
SCI-1	08/26/11	6371.004	Transducer	358.4	377.9	Intermediate
SCI-1	08/25/11	6371.013	Transducer	358.4	377.9	Intermediate
SCI-1	08/24/11	6371.09	Transducer	358.4	377.9	Intermediate
SCI-1	08/23/11	6371.087	Transducer	358.4	377.9	Intermediate
SCI-1	08/22/11	6370.995	Transducer	358.4	377.9	Intermediate
SCI-1	08/22/11	6370.98	Transducer	358.4	377.9	Intermediate
SCI-1	08/21/11	6371.05	Transducer	358.4	377.9	Intermediate
SCI-1	08/20/11	6371.14	Transducer	358.4	377.9	Intermediate
SCI-1	08/19/11	6371.13	Transducer	358.4	377.9	Intermediate
SCI-1	08/18/11	6370.95	Transducer	358.4	377.9	Intermediate
SCI-1	08/17/11	6370.93	Transducer	358.4	377.9	Intermediate
SCI-1	08/16/11	6371.06	Transducer	358.4	377.9	Intermediate
SCI-1	08/15/11	6371.03	Transducer	358.4	377.9	Intermediate
SCI-1	08/14/11	6370.85	Transducer	358.4	377.9	Intermediate
SCI-1	08/13/11	6370.96	Transducer	358.4	377.9	Intermediate
SCI-1	08/12/11	6371.02	Transducer	358.4	377.9	Intermediate
SCI-1	08/11/11	6371.02	Transducer	358.4	377.9	Intermediate
SCI-1	08/10/11	6371.11	Transducer	358.4	377.9	Intermediate
SCI-1	08/09/11	6371.09	Transducer	358.4	377.9	Intermediate
SCI-1	08/08/11	6371.12	Transducer	358.4	377.9	Intermediate
SCI-1	08/07/11	6371.09	Transducer	358.4	377.9	Intermediate
SCI-1	08/06/11	6371.05	Transducer	358.4	377.9	Intermediate
SCI-1	08/05/11	6371.07	Transducer	358.4	377.9	Intermediate
SCI-1	08/04/11	6371.07	Transducer	358.4	377.9	Intermediate
SCI-1	08/03/11	6371.05	Transducer	358.4	377.9	Intermediate
SCI-1	08/02/11	6371.04	Transducer	358.4	377.9	Intermediate
SCI-1	08/01/11	6370.95	Transducer	358.4	377.9	Intermediate
SCI-1	07/31/11	6370.91	Transducer	358.4	377.9	Intermediate
SCI-1	07/30/11	6370.9	Transducer	358.4	377.9	Intermediate
SCI-1	07/29/11	6370.98	Transducer	358.4	377.9	Intermediate
SCI-1	07/28/11	6371.09	Transducer	358.4	377.9	Intermediate
SCI-1	07/27/11	6371.13	Transducer	358.4	377.9	Intermediate
SCI-1	07/26/11	6371.08	Transducer	358.4	377.9	Intermediate
SCI-1	07/25/11	6370.94	Transducer	358.4	377.9	Intermediate
SCI-1	07/24/11	6370.97	Transducer	358.4	377.9	Intermediate
SCI-1	07/23/11	6371.08	Transducer	358.4	377.9	Intermediate
SCI-1	07/22/11	6371.13	Transducer	358.4	377.9	Intermediate
SCI-1	07/21/11	6371.12	Transducer	358.4	377.9	Intermediate
SCI-1	07/20/11	6371.07	Transducer	358.4	377.9	Intermediate
SCI-1	07/19/11	6370.98	Transducer	358.4	377.9	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-1	07/18/11	6370.89	Transducer	358.4	377.9	Intermediate
SCI-1	07/17/11	6370.95	Transducer	358.4	377.9	Intermediate
SCI-1	07/16/11	6371.09	Transducer	358.4	377.9	Intermediate
SCI-1	07/15/11	6371.14	Transducer	358.4	377.9	Intermediate
SCI-1	07/14/11	6371.12	Transducer	358.4	377.9	Intermediate
SCI-1	07/13/11	6371.08	Transducer	358.4	377.9	Intermediate
SCI-1	07/12/11	6371.06	Transducer	358.4	377.9	Intermediate
SCI-1	07/11/11	6371.06	Transducer	358.4	377.9	Intermediate
SCI-1	07/10/11	6371.09	Transducer	358.4	377.9	Intermediate
SCI-1	07/09/11	6371.17	Transducer	358.4	377.9	Intermediate
SCI-1	07/08/11	6371.14	Transducer	358.4	377.9	Intermediate
SCI-1	07/07/11	6371.07	Transducer	358.4	377.9	Intermediate
SCI-1	07/06/11	6371.07	Transducer	358.4	377.9	Intermediate
SCI-1	07/05/11	6371.07	Transducer	358.4	377.9	Intermediate
SCI-1	07/04/11	6371.08	Transducer	358.4	377.9	Intermediate
SCI-1	07/03/11	6371.02	Transducer	358.4	377.9	Intermediate
SCI-1	07/02/11	6371.08	Transducer	358.4	377.9	Intermediate
SCI-1	07/01/11	6371.14	Transducer	358.4	377.9	Intermediate
SCI-1	06/30/11	6371.15	Transducer	358.4	377.9	Intermediate
SCI-1	06/29/11	6371.06	Transducer	358.4	377.9	Intermediate
SCI-1	06/28/11	6370.98	Transducer	358.4	377.9	Intermediate
SCI-1	06/27/11	6371.15	Transducer	358.4	377.9	Intermediate
SCI-1	06/26/11	6371.14	Transducer	358.4	377.9	Intermediate
SCI-1	06/25/11	6371.19	Transducer	358.4	377.9	Intermediate
SCI-1	06/24/11	6371.2	Transducer	358.4	377.9	Intermediate
SCI-1	06/23/11	6371.09	Transducer	358.4	377.9	Intermediate
SCI-1	06/22/11	6371.06	Transducer	358.4	377.9	Intermediate
SCI-1	06/21/11	6371.16	Transducer	358.4	377.9	Intermediate
SCI-1	06/20/11	6371.38	Transducer	358.4	377.9	Intermediate
SCI-1	06/19/11	6371.28	Transducer	358.4	377.9	Intermediate
SCI-1	06/18/11	6371.19	Transducer	358.4	377.9	Intermediate
SCI-1	06/17/11	6371.37	Transducer	358.4	377.9	Intermediate
SCI-1	06/16/11	6371.36	Transducer	358.4	377.9	Intermediate
SCI-1	06/15/11	6371.16	Transducer	358.4	377.9	Intermediate
SCI-1	06/14/11	6371.21	Transducer	358.4	377.9	Intermediate
SCI-1	06/13/11	6371.26	Transducer	358.4	377.9	Intermediate
SCI-1	06/12/11	6371.34	Transducer	358.4	377.9	Intermediate
SCI-1	06/11/11	6371.27	Transducer	358.4	377.9	Intermediate
SCI-1	06/10/11	6371.32	Transducer	358.4	377.9	Intermediate
SCI-1	06/09/11	6371.38	Transducer	358.4	377.9	Intermediate
SCI-1	06/08/11	6371.38	Transducer	358.4	377.9	Intermediate
SCI-1	06/07/11	6371.43	Transducer	358.4	377.9	Intermediate
SCI-1	06/06/11	6371.23	Transducer	358.4	377.9	Intermediate
SCI-1	06/05/11	6371.07	Transducer	358.4	377.9	Intermediate
SCI-1	06/04/11	6371.24	Transducer	358.4	377.9	Intermediate
SCI-1	06/03/11	6371.37	Transducer	358.4	377.9	Intermediate
SCI-1	06/02/11	6371.29	Transducer	358.4	377.9	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-1	06/01/11	6371.01	Transducer	358.4	377.9	Intermediate
SCI-1	05/31/11	6371.03	Transducer	358.4	377.9	Intermediate
SCI-1	05/30/11	6371.56	Transducer	358.4	377.9	Intermediate
SCI-1	05/29/11	6371.6	Transducer	358.4	377.9	Intermediate
SCI-1	05/28/11	6371.51	Transducer	358.4	377.9	Intermediate
SCI-1	05/27/11	6371.46	Transducer	358.4	377.9	Intermediate
SCI-1	05/26/11	6371.23	Transducer	358.4	377.9	Intermediate
SCI-1	05/25/11	6371.3	Transducer	358.4	377.9	Intermediate
SCI-1	05/24/11	6371.58	Transducer	358.4	377.9	Intermediate
SCI-1	05/23/11	6371.32	Transducer	358.4	377.9	Intermediate
SCI-1	05/22/11	6371.2	Transducer	358.4	377.9	Intermediate
SCI-1	05/21/11	6371.2	Transducer	358.4	377.9	Intermediate
SCI-1	05/20/11	6371.34	Transducer	358.4	377.9	Intermediate
SCI-1	05/19/11	6371.79	Transducer	358.4	377.9	Intermediate
SCI-1	05/18/11	6371.81	Transducer	358.4	377.9	Intermediate
SCI-1	05/17/11	6371.7	Transducer	358.4	377.9	Intermediate
SCI-1	05/16/11	6371.29	Transducer	358.4	377.9	Intermediate
SCI-1	05/15/11	6371.37	Transducer	358.4	377.9	Intermediate
SCI-1	05/14/11	6371.03	Transducer	358.4	377.9	Intermediate
SCI-1	05/13/11	6370.88	Transducer	358.4	377.9	Intermediate
SCI-1	05/12/11	6371.26	Transducer	358.4	377.9	Intermediate
SCI-1	05/11/11	6371.85	Transducer	358.4	377.9	Intermediate
SCI-1	05/10/11	6371.85	Transducer	358.4	377.9	Intermediate
SCI-1	05/09/11	6371.94	Transducer	358.4	377.9	Intermediate
SCI-1	05/08/11	6371.73	Transducer	358.4	377.9	Intermediate
SCI-1	05/07/11	6371.67	Transducer	358.4	377.9	Intermediate
SCI-1	05/06/11	6371.34	Transducer	358.4	377.9	Intermediate
SCI-1	05/05/11	6371.22	Transducer	358.4	377.9	Intermediate
SCI-1	05/04/11	6371.17	Transducer	358.4	377.9	Intermediate
SCI-1	05/03/11	6370.78	Transducer	358.4	377.9	Intermediate
SCI-1	05/02/11	6370.9	Transducer	358.4	377.9	Intermediate
SCI-1	05/01/11	6371.51	Transducer	358.4	377.9	Intermediate
SCI-1	04/30/11	6371.78	Transducer	358.4	377.9	Intermediate
SCI-1	04/29/11	6371.62	Transducer	358.4	377.9	Intermediate
SCI-1	04/28/11	6370.83	Transducer	358.4	377.9	Intermediate
SCI-1	04/27/11	6371.62	Transducer	358.4	377.9	Intermediate
SCI-1	04/26/11	6371.78	Transducer	358.4	377.9	Intermediate
SCI-1	04/25/11	6371.54	Transducer	358.4	377.9	Intermediate
SCI-1	04/24/11	6371.45	Transducer	358.4	377.9	Intermediate
SCI-1	04/23/11	6371.57	Transducer	358.4	377.9	Intermediate
SCI-1	04/22/11	6371.6	Transducer	358.4	377.9	Intermediate
SCI-1	04/21/11	6371.36	Transducer	358.4	377.9	Intermediate
SCI-1	04/20/11	6371.26	Transducer	358.4	377.9	Intermediate
SCI-1	04/19/11	6371.81	Transducer	358.4	377.9	Intermediate
SCI-1	04/18/11	6371.63	Transducer	358.4	377.9	Intermediate
SCI-1	04/17/11	6371.52	Transducer	358.4	377.9	Intermediate
SCI-1	04/16/11	6371.26	Transducer	358.4	377.9	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-1	04/15/11	6371.31	Transducer	358.4	377.9	Intermediate
SCI-1	04/14/11	6371.78	Transducer	358.4	377.9	Intermediate
SCI-1	04/13/11	6371.59	Transducer	358.4	377.9	Intermediate
SCI-1	04/12/11	6371.14	Transducer	358.4	377.9	Intermediate
SCI-1	04/11/11	6370.95	Transducer	358.4	377.9	Intermediate
SCI-1	04/10/11	6371.54	Transducer	358.4	377.9	Intermediate
SCI-1	04/09/11	6371.79	Transducer	358.4	377.9	Intermediate
SCI-1	04/08/11	6371.85	Transducer	358.4	377.9	Intermediate
SCI-1	04/07/11	6371.63	Transducer	358.4	377.9	Intermediate
SCI-1	04/06/11	6371.8	Transducer	358.4	377.9	Intermediate
SCI-1	04/05/11	6371.1	Transducer	358.4	377.9	Intermediate
SCI-1	04/04/11	6371.47	Transducer	358.4	377.9	Intermediate
SCI-1	04/03/11	6371.77	Transducer	358.4	377.9	Intermediate
SCI-1	04/02/11	6371.3	Transducer	358.4	377.9	Intermediate
SCI-1	04/01/11	6371.5	Transducer	358.4	377.9	Intermediate
SCI-1	03/31/11	6371.44	Transducer	358.4	377.9	Intermediate
SCI-1	03/30/11	6371.27	Transducer	358.4	377.9	Intermediate
SCI-1	03/29/11	6371.62	Transducer	358.4	377.9	Intermediate
SCI-1	03/28/11	6371.69	Transducer	358.4	377.9	Intermediate
SCI-1	03/27/11	6371.94	Transducer	358.4	377.9	Intermediate
SCI-1	03/26/11	6371.9	Transducer	358.4	377.9	Intermediate
SCI-1	03/25/11	6371.62	Transducer	358.4	377.9	Intermediate
SCI-1	03/24/11	6371.68	Transducer	358.4	377.9	Intermediate
SCI-1	03/23/11	6371.58	Transducer	358.4	377.9	Intermediate
SCI-1	03/22/11	6372.19	Transducer	358.4	377.9	Intermediate
SCI-1	03/21/11	6371.76	Transducer	358.4	377.9	Intermediate
SCI-1	03/20/11	6371.74	Transducer	358.4	377.9	Intermediate
SCI-1	03/19/11	6371.46	Transducer	358.4	377.9	Intermediate
SCI-1	03/18/11	6371.53	Transducer	358.4	377.9	Intermediate
SCI-1	03/17/11	6371.74	Transducer	358.4	377.9	Intermediate
SCI-1	03/16/11	6371.56	Transducer	358.4	377.9	Intermediate
SCI-1	03/15/11	6371.62	Transducer	358.4	377.9	Intermediate
SCI-1	03/14/11	6371.16	Transducer	358.4	377.9	Intermediate
SCI-1	03/13/11	6371.73	Transducer	358.4	377.9	Intermediate
SCI-1	03/12/11	6371.75	Transducer	358.4	377.9	Intermediate
SCI-1	03/11/11	6371.54	Transducer	358.4	377.9	Intermediate
SCI-1	03/10/11	6370.89	Transducer	358.4	377.9	Intermediate
SCI-1	03/09/11	6371.23	Transducer	358.4	377.9	Intermediate
SCI-1	03/08/11	6372.42	Transducer	358.4	377.9	Intermediate
SCI-1	03/07/11	6372.42	Transducer	358.4	377.9	Intermediate
SCI-1	03/06/11	6371.63	Transducer	358.4	377.9	Intermediate
SCI-1	03/05/11	6371.06	Transducer	358.4	377.9	Intermediate
SCI-1	03/04/11	6371.89	Transducer	358.4	377.9	Intermediate
SCI-1	03/03/11	6371.57	Transducer	358.4	377.9	Intermediate
SCI-1	03/02/11	6371.42	Transducer	358.4	377.9	Intermediate
SCI-1	03/01/11	6371	Transducer	358.4	377.9	Intermediate
SCI-1	02/28/11	6371.37	Transducer	358.4	377.9	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-1	02/27/11	6372.28	Transducer	358.4	377.9	Intermediate
SCI-1	02/26/11	6372.07	Transducer	358.4	377.9	Intermediate
SCI-1	02/25/11	6371.67	Transducer	358.4	377.9	Intermediate
SCI-1	02/24/11	6372.14	Transducer	358.4	377.9	Intermediate
SCI-1	02/23/11	6371.9	Transducer	358.4	377.9	Intermediate
SCI-1	02/22/11	6371.87	Transducer	358.4	377.9	Intermediate
SCI-1	02/21/11	6372.2	Transducer	358.4	377.9	Intermediate
SCI-1	02/20/11	6372.55	Transducer	358.4	377.9	Intermediate
SCI-1	02/19/11	6371.65	Transducer	358.4	377.9	Intermediate
SCI-1	02/18/11	6371.67	Transducer	358.4	377.9	Intermediate
SCI-1	02/17/11	6372.36	Transducer	358.4	377.9	Intermediate
SCI-1	02/16/11	6371.96	Transducer	358.4	377.9	Intermediate
SCI-1	02/15/11	6371.85	Transducer	358.4	377.9	Intermediate
SCI-1	02/14/11	6371.57	Transducer	358.4	377.9	Intermediate
SCI-1	02/13/11	6371.33	Transducer	358.4	377.9	Intermediate
SCI-1	02/12/11	6371.13	Transducer	358.4	377.9	Intermediate
SCI-1	02/11/11	6371.64	Transducer	358.4	377.9	Intermediate
SCI-1	02/10/11	6371.66	Transducer	358.4	377.9	Intermediate
SCI-1	02/09/11	6371.82	Transducer	358.4	377.9	Intermediate
SCI-1	02/08/11	6372.14	Transducer	358.4	377.9	Intermediate
SCI-1	02/07/11	6371.32	Transducer	358.4	377.9	Intermediate
SCI-1	02/06/11	6372.21	Transducer	358.4	377.9	Intermediate
SCI-1	02/05/11	6371.97	Transducer	358.4	377.9	Intermediate
SCI-1	02/04/11	6371.85	Transducer	358.4	377.9	Intermediate
SCI-1	02/03/11	6371.45	Transducer	358.4	377.9	Intermediate
SCI-1	02/02/11	6371.89	Transducer	358.4	377.9	Intermediate
SCI-1	02/01/11	6372.28	Transducer	358.4	377.9	Intermediate
SCI-1	01/31/11	6372.16	Transducer	358.4	377.9	Intermediate
SCI-1	01/30/11	6371.95	Transducer	358.4	377.9	Intermediate
SCI-1	01/29/11	6372.07	Transducer	358.4	377.9	Intermediate
SCI-1	01/28/11	6371.69	Transducer	358.4	377.9	Intermediate
SCI-1	01/27/11	6371.52	Transducer	358.4	377.9	Intermediate
SCI-1	01/26/11	6371.93	Transducer	358.4	377.9	Intermediate
SCI-1	01/25/11	6371.6	Transducer	358.4	377.9	Intermediate
SCI-1	01/24/11	6372.02	Transducer	358.4	377.9	Intermediate
SCI-1	01/23/11	6372.19	Transducer	358.4	377.9	Intermediate
SCI-1	01/22/11	6371.96	Transducer	358.4	377.9	Intermediate
SCI-1	01/21/11	6371.95	Transducer	358.4	377.9	Intermediate
SCI-1	01/20/11	6372.26	Transducer	358.4	377.9	Intermediate
SCI-1	01/19/11	6372.19	Transducer	358.4	377.9	Intermediate
SCI-1	01/18/11	6372.36	Transducer	358.4	377.9	Intermediate
SCI-1	01/17/11	6372.22	Transducer	358.4	377.9	Intermediate
SCI-1	01/16/11	6372.11	Transducer	358.4	377.9	Intermediate
SCI-1	01/15/11	6371.63	Transducer	358.4	377.9	Intermediate
SCI-1	01/14/11	6371.93	Transducer	358.4	377.9	Intermediate
SCI-1	01/13/11	6371.6	Transducer	358.4	377.9	Intermediate
SCI-1	01/12/11	6371.52	Transducer	358.4	377.9	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-1	01/11/11	6371.42	Transducer	358.4	377.9	Intermediate
SCI-1	01/10/11	6372.33	Transducer	358.4	377.9	Intermediate
SCI-1	01/09/11	6372.44	Transducer	358.4	377.9	Intermediate
SCI-1	01/08/11	6372.29	Transducer	358.4	377.9	Intermediate
SCI-1	01/07/11	6372.02	Transducer	358.4	377.9	Intermediate
SCI-1	01/06/11	6371.67	Transducer	358.4	377.9	Intermediate
SCI-1	01/05/11	6371.76	Transducer	358.4	377.9	Intermediate
SCI-1	01/04/11	6371.97	Transducer	358.4	377.9	Intermediate
SCI-1	01/03/11	6371.94	Transducer	358.4	377.9	Intermediate
SCI-1	01/02/11	6371.42	Transducer	358.4	377.9	Intermediate
SCI-1	01/01/11	6371.98	Transducer	358.4	377.9	Intermediate
SCI-1	12/31/10	6372.61	Transducer	358.4	377.9	Intermediate
SCI-1	12/30/10	6373.43	Transducer	358.4	377.9	Intermediate
SCI-1	12/29/10	6372.37	Transducer	358.4	377.9	Intermediate
SCI-1	12/28/10	6372.22	Transducer	358.4	377.9	Intermediate
SCI-1	12/27/10	6372.37	Transducer	358.4	377.9	Intermediate
SCI-1	12/26/10	6371.85	Transducer	358.4	377.9	Intermediate
SCI-1	12/25/10	6371.63	Transducer	358.4	377.9	Intermediate
SCI-1	12/24/10	6372.08	Transducer	358.4	377.9	Intermediate
SCI-1	12/23/10	6372.09	Transducer	358.4	377.9	Intermediate
SCI-1	12/22/10	6371.75	Transducer	358.4	377.9	Intermediate
SCI-1	12/21/10	6372.1	Transducer	358.4	377.9	Intermediate
SCI-1	12/20/10	6372.39	Transducer	358.4	377.9	Intermediate
SCI-1	12/19/10	6372.33	Transducer	358.4	377.9	Intermediate
SCI-1	12/18/10	6372.23	Transducer	358.4	377.9	Intermediate
SCI-1	12/17/10	6372.51	Transducer	358.4	377.9	Intermediate
SCI-1	12/16/10	6372.61	Transducer	358.4	377.9	Intermediate
SCI-1	12/15/10	6372.84	Transducer	358.4	377.9	Intermediate
SCI-1	12/14/10	6372.31	Transducer	358.4	377.9	Intermediate
SCI-1	12/13/10	6371.9	Transducer	358.4	377.9	Intermediate
SCI-1	12/12/10	6371.82	Transducer	358.4	377.9	Intermediate
SCI-1	12/11/10	6372.45	Transducer	358.4	377.9	Intermediate
SCI-1	12/10/10	6372.43	Transducer	358.4	377.9	Intermediate
SCI-1	12/09/10	6372.26	Transducer	358.4	377.9	Intermediate
SCI-1	12/08/10	6371.83	Transducer	358.4	377.9	Intermediate
SCI-1	12/07/10	6372.32	Transducer	358.4	377.9	Intermediate
SCI-1	12/06/10	6371.85	Transducer	358.4	377.9	Intermediate
SCI-1	12/05/10	6371.98	Transducer	358.4	377.9	Intermediate
SCI-1	12/04/10	6372.1	Transducer	358.4	377.9	Intermediate
SCI-1	12/03/10	6371.97	Transducer	358.4	377.9	Intermediate
SCI-1	12/02/10	6371.95	Transducer	358.4	377.9	Intermediate
SCI-1	12/01/10	6371.6	Transducer	358.4	377.9	Intermediate
SCI-1	11/30/10	6371.64	Transducer	358.4	377.9	Intermediate
SCI-1	11/29/10	6372.95	Transducer	358.4	377.9	Intermediate
SCI-1	11/28/10	6372.82	Transducer	358.4	377.9	Intermediate
SCI-1	11/27/10	6371.89	Transducer	358.4	377.9	Intermediate
SCI-1	11/26/10	6371.71	Transducer	358.4	377.9	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-1	11/25/10	6372.59	Transducer	358.4	377.9	Intermediate
SCI-1	11/24/10	6372.86	Transducer	358.4	377.9	Intermediate
SCI-1	11/23/10	6371.97	Transducer	358.4	377.9	Intermediate
SCI-1	11/22/10	6372.69	Transducer	358.4	377.9	Intermediate
SCI-1	11/21/10	6372.56	Transducer	358.4	377.9	Intermediate
SCI-1	11/20/10	6372.39	Transducer	358.4	377.9	Intermediate
SCI-1	11/19/10	6372.07	Transducer	358.4	377.9	Intermediate
SCI-1	11/18/10	6371.44	Transducer	358.4	377.9	Intermediate
SCI-1	11/17/10	6372.56	Transducer	358.4	377.9	Intermediate
SCI-1	11/16/10	6372.17	Transducer	358.4	377.9	Intermediate
SCI-1	11/15/10	6372.76	Transducer	358.4	377.9	Intermediate
SCI-1	11/14/10	6372.31	Transducer	358.4	377.9	Intermediate
SCI-1	11/13/10	6371.79	Transducer	358.4	377.9	Intermediate
SCI-1	11/12/10	6371.84	Transducer	358.4	377.9	Intermediate
SCI-1	11/11/10	6372.34	Transducer	358.4	377.9	Intermediate
SCI-1	11/10/10	6372.44	Transducer	358.4	377.9	Intermediate
SCI-1	11/09/10	6372.95	Transducer	358.4	377.9	Intermediate
SCI-1	11/08/10	6372.36	Transducer	358.4	377.9	Intermediate
SCI-1	11/07/10	6372.11	Transducer	358.4	377.9	Intermediate
SCI-1	11/06/10	6372.14	Transducer	358.4	377.9	Intermediate
SCI-1	11/05/10	6372.06	Transducer	358.4	377.9	Intermediate
SCI-1	11/04/10	6371.59	Transducer	358.4	377.9	Intermediate
SCI-1	11/03/10	6371.65	Transducer	358.4	377.9	Intermediate
SCI-1	11/02/10	6371.43	Transducer	358.4	377.9	Intermediate
SCI-1	11/01/10	6371.92	Transducer	358.4	377.9	Intermediate
SCI-1	10/31/10	6372.27	Transducer	358.4	377.9	Intermediate
SCI-1	10/30/10	6371.99	Transducer	358.4	377.9	Intermediate
SCI-2	11/15/12	6208.29	Transducer	548	568	Intermediate
SCI-2	11/14/12	6208.26	Transducer	548	568	Intermediate
SCI-2	11/13/12	6208.31	Transducer	548	568	Intermediate
SCI-2	11/12/12	6208.32	Transducer	548	568	Intermediate
SCI-2	11/11/12	6208.69	Transducer	548	568	Intermediate
SCI-2	11/10/12	6208.62	Transducer	548	568	Intermediate
SCI-2	11/09/12	6208.41	Transducer	548	568	Intermediate
SCI-2	11/08/12	6208.26	Transducer	548	568	Intermediate
SCI-2	11/07/12	6208.1	Transducer	548	568	Intermediate
SCI-2	11/06/12	6208.13	Transducer	548	568	Intermediate
SCI-2	11/05/12	6208.16	Transducer	548	568	Intermediate
SCI-2	11/04/12	6208.22	Transducer	548	568	Intermediate
SCI-2	11/03/12	6208.31	Transducer	548	568	Intermediate
SCI-2	11/02/12	6208.35	Transducer	548	568	Intermediate
SCI-2	11/01/12	6208.24	Transducer	548	568	Intermediate
SCI-2	10/31/12	6208.26	Transducer	548	568	Intermediate
SCI-2	10/30/12	6208.26	Transducer	548	568	Intermediate
SCI-2	10/29/12	6208.26	Transducer	548	568	Intermediate
SCI-2	10/28/12	6208.34	Transducer	548	568	Intermediate
SCI-2	10/27/12	6208.28	Transducer	548	568	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-2	10/26/12	6208.34	Transducer	548	568	Intermediate
SCI-2	10/25/12	6208.51	Transducer	548	568	Intermediate
SCI-2	10/24/12	6208.46	Transducer	548	568	Intermediate
SCI-2	10/23/12	6208.41	Transducer	548	568	Intermediate
SCI-2	10/22/12	6208.41	Transducer	548	568	Intermediate
SCI-2	10/21/12	6208.42	Transducer	548	568	Intermediate
SCI-2	10/20/12	6208.31	Transducer	548	568	Intermediate
SCI-2	10/19/12	6208.21	Transducer	548	568	Intermediate
SCI-2	10/18/12	6208.24	Transducer	548	568	Intermediate
SCI-2	10/17/12	6208.34	Transducer	548	568	Intermediate
SCI-2	10/16/12	6208.17	Transducer	548	568	Intermediate
SCI-2	10/15/12	6208	Transducer	548	568	Intermediate
SCI-2	10/14/12	6208.03	Transducer	548	568	Intermediate
SCI-2	10/13/12	6208.17	Transducer	548	568	Intermediate
SCI-2	10/12/12	6208.06	Transducer	548	568	Intermediate
SCI-2	10/11/12	6208.1	Transducer	548	568	Intermediate
SCI-2	10/10/12	6208.05	Transducer	548	568	Intermediate
SCI-2	10/09/12	6208.12	Transducer	548	568	Intermediate
SCI-2	10/08/12	6208.07	Transducer	548	568	Intermediate
SCI-2	10/07/12	6208.02	Transducer	548	568	Intermediate
SCI-2	10/06/12	6208.03	Transducer	548	568	Intermediate
SCI-2	10/05/12	6207.97	Transducer	548	568	Intermediate
SCI-2	10/04/12	6207.92	Transducer	548	568	Intermediate
SCI-2	10/03/12	6207.99	Transducer	548	568	Intermediate
SCI-2	10/02/12	6207.83	Transducer	548	568	Intermediate
SCI-2	10/01/12	6207.82	Transducer	548	568	Intermediate
SCI-2	09/30/12	6207.82	Transducer	548	568	Intermediate
SCI-2	09/29/12	6207.82	Transducer	548	568	Intermediate
SCI-2	09/28/12	6207.82	Transducer	548	568	Intermediate
SCI-2	09/27/12	6207.83	Transducer	548	568	Intermediate
SCI-2	09/26/12	6207.87	Transducer	548	568	Intermediate
SCI-2	09/25/12	6207.78	Transducer	548	568	Intermediate
SCI-2	09/24/12	6207.69	Transducer	548	568	Intermediate
SCI-2	09/23/12	6207.66	Transducer	548	568	Intermediate
SCI-2	09/22/12	6207.69	Transducer	548	568	Intermediate
SCI-2	09/21/12	6207.7	Transducer	548	568	Intermediate
SCI-2	09/20/12	6207.67	Transducer	548	568	Intermediate
SCI-2	09/19/12	6207.65	Transducer	548	568	Intermediate
SCI-2	09/18/12	6207.62	Transducer	548	568	Intermediate
SCI-2	09/17/12	6207.7	Transducer	548	568	Intermediate
SCI-2	09/16/12	6207.59	Transducer	548	568	Intermediate
SCI-2	09/15/12	6207.48	Transducer	548	568	Intermediate
SCI-2	09/14/12	6207.44	Transducer	548	568	Intermediate
SCI-2	09/13/12	6207.49	Transducer	548	568	Intermediate
SCI-2	09/13/12	6207.608	Transducer	548	568	Intermediate
SCI-2	09/12/12	6207.721	Transducer	548	568	Intermediate
SCI-2	09/11/12	6207.68	Transducer	548	568	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-2	09/10/12	6207.588	Transducer	548	568	Intermediate
SCI-2	09/09/12	6207.561	Transducer	548	568	Intermediate
SCI-2	09/08/12	6207.575	Transducer	548	568	Intermediate
SCI-2	09/07/12	6207.729	Transducer	548	568	Intermediate
SCI-2	09/06/12	6207.677	Transducer	548	568	Intermediate
SCI-2	09/05/12	6207.699	Transducer	548	568	Intermediate
SCI-2	09/04/12	6207.625	Transducer	548	568	Intermediate
SCI-2	09/03/12	6207.641	Transducer	548	568	Intermediate
SCI-2	09/02/12	6207.6	Transducer	548	568	Intermediate
SCI-2	09/01/12	6207.584	Transducer	548	568	Intermediate
SCI-2	08/31/12	6207.605	Transducer	548	568	Intermediate
SCI-2	08/30/12	6207.584	Transducer	548	568	Intermediate
SCI-2	08/29/12	6207.514	Transducer	548	568	Intermediate
SCI-2	08/28/12	6207.484	Transducer	548	568	Intermediate
SCI-2	08/27/12	6207.559	Transducer	548	568	Intermediate
SCI-2	08/26/12	6207.67	Transducer	548	568	Intermediate
SCI-2	08/25/12	6207.763	Transducer	548	568	Intermediate
SCI-2	08/24/12	6207.687	Transducer	548	568	Intermediate
SCI-2	08/23/12	6207.59	Transducer	548	568	Intermediate
SCI-2	08/22/12	6207.531	Transducer	548	568	Intermediate
SCI-2	08/21/12	6207.555	Transducer	548	568	Intermediate
SCI-2	08/20/12	6207.523	Transducer	548	568	Intermediate
SCI-2	08/19/12	6207.538	Transducer	548	568	Intermediate
SCI-2	08/18/12	6207.494	Transducer	548	568	Intermediate
SCI-2	08/17/12	6207.418	Transducer	548	568	Intermediate
SCI-2	08/16/12	6207.542	Transducer	548	568	Intermediate
SCI-2	08/14/12	6207.66	Manual	548	568	Intermediate
SCI-2	08/14/12	6207.433	Transducer	548	568	Intermediate
SCI-2	08/13/12	6207.373	Transducer	548	568	Intermediate
SCI-2	08/12/12	6207.485	Transducer	548	568	Intermediate
SCI-2	08/11/12	6207.448	Transducer	548	568	Intermediate
SCI-2	08/10/12	6207.383	Transducer	548	568	Intermediate
SCI-2	08/09/12	6207.346	Transducer	548	568	Intermediate
SCI-2	08/08/12	6207.397	Transducer	548	568	Intermediate
SCI-2	08/07/12	6207.426	Transducer	548	568	Intermediate
SCI-2	08/06/12	6207.294	Transducer	548	568	Intermediate
SCI-2	08/05/12	6207.397	Transducer	548	568	Intermediate
SCI-2	08/04/12	6207.581	Transducer	548	568	Intermediate
SCI-2	08/03/12	6207.478	Transducer	548	568	Intermediate
SCI-2	08/02/12	6207.487	Transducer	548	568	Intermediate
SCI-2	08/01/12	6207.4	Transducer	548	568	Intermediate
SCI-2	07/31/12	6207.453	Transducer	548	568	Intermediate
SCI-2	07/30/12	6207.457	Transducer	548	568	Intermediate
SCI-2	07/29/12	6207.402	Transducer	548	568	Intermediate
SCI-2	07/28/12	6207.401	Transducer	548	568	Intermediate
SCI-2	07/27/12	6207.469	Transducer	548	568	Intermediate
SCI-2	07/26/12	6207.56	Transducer	548	568	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-2	07/25/12	6207.529	Transducer	548	568	Intermediate
SCI-2	07/24/12	6207.415	Transducer	548	568	Intermediate
SCI-2	07/23/12	6207.392	Transducer	548	568	Intermediate
SCI-2	07/22/12	6207.388	Transducer	548	568	Intermediate
SCI-2	07/21/12	6207.381	Transducer	548	568	Intermediate
SCI-2	07/20/12	6207.398	Transducer	548	568	Intermediate
SCI-2	07/19/12	6207.471	Transducer	548	568	Intermediate
SCI-2	07/18/12	6207.566	Transducer	548	568	Intermediate
SCI-2	07/17/12	6207.594	Transducer	548	568	Intermediate
SCI-2	07/16/12	6207.532	Transducer	548	568	Intermediate
SCI-2	07/15/12	6207.483	Transducer	548	568	Intermediate
SCI-2	07/14/12	6207.46	Transducer	548	568	Intermediate
SCI-2	07/13/12	6207.459	Transducer	548	568	Intermediate
SCI-2	07/12/12	6207.465	Transducer	548	568	Intermediate
SCI-2	07/11/12	6207.44	Transducer	548	568	Intermediate
SCI-2	07/10/12	6207.482	Transducer	548	568	Intermediate
SCI-2	07/09/12	6207.527	Transducer	548	568	Intermediate
SCI-2	07/08/12	6207.557	Transducer	548	568	Intermediate
SCI-2	07/07/12	6207.638	Transducer	548	568	Intermediate
SCI-2	07/06/12	6207.718	Transducer	548	568	Intermediate
SCI-2	07/05/12	6207.775	Transducer	548	568	Intermediate
SCI-2	07/04/12	6207.794	Transducer	548	568	Intermediate
SCI-2	07/03/12	6207.781	Transducer	548	568	Intermediate
SCI-2	07/02/12	6207.783	Transducer	548	568	Intermediate
SCI-2	07/01/12	6207.797	Transducer	548	568	Intermediate
SCI-2	06/30/12	6207.794	Transducer	548	568	Intermediate
SCI-2	06/29/12	6207.704	Transducer	548	568	Intermediate
SCI-2	06/28/12	6207.752	Transducer	548	568	Intermediate
SCI-2	06/27/12	6207.876	Transducer	548	568	Intermediate
SCI-2	06/26/12	6207.851	Transducer	548	568	Intermediate
SCI-2	06/25/12	6207.801	Transducer	548	568	Intermediate
SCI-2	06/24/12	6207.888	Transducer	548	568	Intermediate
SCI-2	06/23/12	6208.025	Transducer	548	568	Intermediate
SCI-2	06/22/12	6207.912	Transducer	548	568	Intermediate
SCI-2	06/21/12	6207.99	Transducer	548	568	Intermediate
SCI-2	06/20/12	6208.17	Transducer	548	568	Intermediate
SCI-2	06/19/12	6208.132	Transducer	548	568	Intermediate
SCI-2	06/18/12	6208.081	Transducer	548	568	Intermediate
SCI-2	06/17/12	6207.842	Transducer	548	568	Intermediate
SCI-2	06/16/12	6207.998	Transducer	548	568	Intermediate
SCI-2	06/15/12	6208.104	Transducer	548	568	Intermediate
SCI-2	06/14/12	6208.111	Transducer	548	568	Intermediate
SCI-2	06/13/12	6208.048	Transducer	548	568	Intermediate
SCI-2	06/12/12	6207.963	Transducer	548	568	Intermediate
SCI-2	06/11/12	6208.093	Transducer	548	568	Intermediate
SCI-2	06/10/12	6208.254	Transducer	548	568	Intermediate
SCI-2	06/09/12	6208.202	Transducer	548	568	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-2	06/08/12	6208.08	Transducer	548	568	Intermediate
SCI-2	06/07/12	6208.167	Transducer	548	568	Intermediate
SCI-2	06/06/12	6208.129	Transducer	548	568	Intermediate
SCI-2	06/06/12	6208.153	Transducer	548	568	Intermediate
SCI-2	06/05/12	6208.073	Transducer	548	568	Intermediate
SCI-2	06/04/12	6208.067	Transducer	548	568	Intermediate
SCI-2	06/03/12	6208.145	Transducer	548	568	Intermediate
SCI-2	06/02/12	6208.174	Transducer	548	568	Intermediate
SCI-2	06/01/12	6208.12	Transducer	548	568	Intermediate
SCI-2	05/31/12	6208.174	Transducer	548	568	Intermediate
SCI-2	05/30/12	6208.176	Transducer	548	568	Intermediate
SCI-2	05/29/12	6208.154	Transducer	548	568	Intermediate
SCI-2	05/28/12	6208.204	Transducer	548	568	Intermediate
SCI-2	05/27/12	6208.314	Transducer	548	568	Intermediate
SCI-2	05/26/12	6208.313	Transducer	548	568	Intermediate
SCI-2	05/25/12	6208.354	Transducer	548	568	Intermediate
SCI-2	05/24/12	6208.384	Transducer	548	568	Intermediate
SCI-2	05/23/12	6208.214	Transducer	548	568	Intermediate
SCI-2	05/22/12	6207.949	Transducer	548	568	Intermediate
SCI-2	05/21/12	6207.882	Transducer	548	568	Intermediate
SCI-2	05/20/12	6208.046	Transducer	548	568	Intermediate
SCI-2	05/19/12	6208.214	Transducer	548	568	Intermediate
SCI-2	05/18/12	6208.173	Transducer	548	568	Intermediate
SCI-2	05/17/12	6207.996	Transducer	548	568	Intermediate
SCI-2	05/16/12	6207.865	Transducer	548	568	Intermediate
SCI-2	05/15/12	6207.891	Transducer	548	568	Intermediate
SCI-2	05/14/12	6207.978	Transducer	548	568	Intermediate
SCI-2	05/13/12	6207.989	Transducer	548	568	Intermediate
SCI-2	05/12/12	6208.057	Transducer	548	568	Intermediate
SCI-2	05/11/12	6208.326	Transducer	548	568	Intermediate
SCI-2	05/10/12	6208.242	Transducer	548	568	Intermediate
SCI-2	05/09/12	6208.142	Transducer	548	568	Intermediate
SCI-2	05/08/12	6208.191	Transducer	548	568	Intermediate
SCI-2	05/07/12	6208.312	Transducer	548	568	Intermediate
SCI-2	05/06/12	6208.373	Transducer	548	568	Intermediate
SCI-2	05/05/12	6208.377	Transducer	548	568	Intermediate
SCI-2	05/04/12	6208.357	Transducer	548	568	Intermediate
SCI-2	05/03/12	6208.421	Transducer	548	568	Intermediate
SCI-2	05/02/12	6208.476	Transducer	548	568	Intermediate
SCI-2	05/01/12	6208.464	Transducer	548	568	Intermediate
SCI-2	04/30/12	6208.356	Transducer	548	568	Intermediate
SCI-2	04/29/12	6208.429	Transducer	548	568	Intermediate
SCI-2	04/28/12	6208.404	Transducer	548	568	Intermediate
SCI-2	04/27/12	6208.432	Transducer	548	568	Intermediate
SCI-2	04/26/12	6208.238	Transducer	548	568	Intermediate
SCI-2	04/25/12	6208.301	Transducer	548	568	Intermediate
SCI-2	04/24/12	6208.256	Transducer	548	568	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-2	04/23/12	6208.173	Transducer	548	568	Intermediate
SCI-2	04/22/12	6208.266	Transducer	548	568	Intermediate
SCI-2	04/21/12	6208.357	Transducer	548	568	Intermediate
SCI-2	04/20/12	6208.441	Transducer	548	568	Intermediate
SCI-2	04/19/12	6208.54	Transducer	548	568	Intermediate
SCI-2	04/18/12	6208.463	Transducer	548	568	Intermediate
SCI-2	04/17/12	6208.444	Transducer	548	568	Intermediate
SCI-2	04/16/12	6208.591	Transducer	548	568	Intermediate
SCI-2	04/15/12	6208.886	Transducer	548	568	Intermediate
SCI-2	04/14/12	6208.842	Transducer	548	568	Intermediate
SCI-2	04/13/12	6208.591	Transducer	548	568	Intermediate
SCI-2	04/12/12	6208.616	Transducer	548	568	Intermediate
SCI-2	04/11/12	6208.431	Transducer	548	568	Intermediate
SCI-2	04/10/12	6208.448	Transducer	548	568	Intermediate
SCI-2	04/09/12	6208.463	Transducer	548	568	Intermediate
SCI-2	04/08/12	6208.394	Transducer	548	568	Intermediate
SCI-2	04/07/12	6208.687	Transducer	548	568	Intermediate
SCI-2	04/06/12	6208.865	Transducer	548	568	Intermediate
SCI-2	04/05/12	6208.862	Transducer	548	568	Intermediate
SCI-2	04/04/12	6208.849	Transducer	548	568	Intermediate
SCI-2	04/03/12	6208.971	Transducer	548	568	Intermediate
SCI-2	04/02/12	6209.036	Transducer	548	568	Intermediate
SCI-2	04/01/12	6208.816	Transducer	548	568	Intermediate
SCI-2	03/31/12	6208.714	Transducer	548	568	Intermediate
SCI-2	03/30/12	6208.742	Transducer	548	568	Intermediate
SCI-2	03/29/12	6208.775	Transducer	548	568	Intermediate
SCI-2	03/28/12	6208.732	Transducer	548	568	Intermediate
SCI-2	03/27/12	6208.782	Transducer	548	568	Intermediate
SCI-2	03/26/12	6208.83	Transducer	548	568	Intermediate
SCI-2	03/25/12	6208.756	Transducer	548	568	Intermediate
SCI-2	03/24/12	6208.809	Transducer	548	568	Intermediate
SCI-2	03/23/12	6208.918	Transducer	548	568	Intermediate
SCI-2	03/22/12	6209.007	Transducer	548	568	Intermediate
SCI-2	03/21/12	6209	Transducer	548	568	Intermediate
SCI-2	03/20/12	6209.234	Transducer	548	568	Intermediate
SCI-2	03/19/12	6209.152	Transducer	548	568	Intermediate
SCI-2	03/18/12	6208.979	Transducer	548	568	Intermediate
SCI-2	03/17/12	6208.811	Transducer	548	568	Intermediate
SCI-2	03/16/12	6208.699	Transducer	548	568	Intermediate
SCI-2	03/15/12	6208.68	Transducer	548	568	Intermediate
SCI-2	03/14/12	6208.779	Transducer	548	568	Intermediate
SCI-2	03/13/12	6208.755	Transducer	548	568	Intermediate
SCI-2	03/12/12	6208.879	Transducer	548	568	Intermediate
SCI-2	03/11/12	6208.966	Transducer	548	568	Intermediate
SCI-2	03/10/12	6208.719	Transducer	548	568	Intermediate
SCI-2	03/09/12	6208.571	Transducer	548	568	Intermediate
SCI-2	03/08/12	6209.012	Transducer	548	568	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-2	03/07/12	6209.153	Transducer	548	568	Intermediate
SCI-2	03/06/12	6208.82	Transducer	548	568	Intermediate
SCI-2	03/05/12	6208.762	Transducer	548	568	Intermediate
SCI-2	03/04/12	6208.839	Transducer	548	568	Intermediate
SCI-2	03/03/12	6208.994	Transducer	548	568	Intermediate
SCI-2	03/02/12	6209.207	Transducer	548	568	Intermediate
SCI-2	03/01/12	6209.089	Transducer	548	568	Intermediate
SCI-2	02/29/12	6208.956	Transducer	548	568	Intermediate
SCI-2	02/28/12	6209.121	Transducer	548	568	Intermediate
SCI-2	02/27/12	6208.965	Transducer	548	568	Intermediate
SCI-2	02/26/12	6209.109	Transducer	548	568	Intermediate
SCI-2	02/25/12	6208.874	Transducer	548	568	Intermediate
SCI-2	02/24/12	6209.008	Transducer	548	568	Intermediate
SCI-2	02/23/12	6209.238	Transducer	548	568	Intermediate
SCI-2	02/22/12	6208.973	Transducer	548	568	Intermediate
SCI-2	02/21/12	6208.965	Transducer	548	568	Intermediate
SCI-2	02/20/12	6209.234	Transducer	548	568	Intermediate
SCI-2	02/19/12	6209.035	Transducer	548	568	Intermediate
SCI-2	02/18/12	6209.025	Transducer	548	568	Intermediate
SCI-2	02/17/12	6208.972	Transducer	548	568	Intermediate
SCI-2	02/16/12	6208.963	Transducer	548	568	Intermediate
SCI-2	02/15/12	6209.229	Transducer	548	568	Intermediate
SCI-2	02/14/12	6209.072	Transducer	548	568	Intermediate
SCI-2	02/13/12	6209.065	Transducer	548	568	Intermediate
SCI-2	02/12/12	6208.73	Transducer	548	568	Intermediate
SCI-2	02/11/12	6208.706	Transducer	548	568	Intermediate
SCI-2	02/10/12	6208.707	Transducer	548	568	Intermediate
SCI-2	02/09/12	6208.739	Transducer	548	568	Intermediate
SCI-2	02/08/12	6208.655	Transducer	548	568	Intermediate
SCI-2	02/07/12	6208.849	Transducer	548	568	Intermediate
SCI-2	02/06/12	6208.794	Transducer	548	568	Intermediate
SCI-2	02/05/12	6208.703	Transducer	548	568	Intermediate
SCI-2	02/04/12	6208.818	Transducer	548	568	Intermediate
SCI-2	02/03/12	6209.075	Transducer	548	568	Intermediate
SCI-2	02/02/12	6208.878	Transducer	548	568	Intermediate
SCI-2	02/01/12	6208.785	Transducer	548	568	Intermediate
SCI-2	01/31/12	6208.906	Transducer	548	568	Intermediate
SCI-2	01/30/12	6208.777	Transducer	548	568	Intermediate
SCI-2	01/29/12	6208.699	Transducer	548	568	Intermediate
SCI-2	01/28/12	6208.793	Transducer	548	568	Intermediate
SCI-2	01/27/12	6209.092	Transducer	548	568	Intermediate
SCI-2	01/26/12	6208.955	Transducer	548	568	Intermediate
SCI-2	01/25/12	6208.961	Transducer	548	568	Intermediate
SCI-2	01/24/12	6209.184	Transducer	548	568	Intermediate
SCI-2	01/23/12	6208.971	Transducer	548	568	Intermediate
SCI-2	01/22/12	6209.317	Transducer	548	568	Intermediate
SCI-2	01/21/12	6208.851	Transducer	548	568	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-2	01/20/12	6208.963	Transducer	548	568	Intermediate
SCI-2	01/19/12	6208.785	Transducer	548	568	Intermediate
SCI-2	01/18/12	6208.706	Transducer	548	568	Intermediate
SCI-2	01/17/12	6208.848	Transducer	548	568	Intermediate
SCI-2	01/16/12	6208.826	Transducer	548	568	Intermediate
SCI-2	01/15/12	6208.645	Transducer	548	568	Intermediate
SCI-2	01/14/12	6208.598	Transducer	548	568	Intermediate
SCI-2	01/13/12	6208.762	Transducer	548	568	Intermediate
SCI-2	01/12/12	6208.726	Transducer	548	568	Intermediate
SCI-2	01/11/12	6208.813	Transducer	548	568	Intermediate
SCI-2	01/10/12	6208.626	Transducer	548	568	Intermediate
SCI-2	01/09/12	6208.601	Transducer	548	568	Intermediate
SCI-2	01/08/12	6208.76	Transducer	548	568	Intermediate
SCI-2	01/07/12	6208.577	Transducer	548	568	Intermediate
SCI-2	01/06/12	6208.55	Transducer	548	568	Intermediate
SCI-2	01/05/12	6208.247	Transducer	548	568	Intermediate
SCI-2	01/04/12	6208.373	Transducer	548	568	Intermediate
SCI-2	01/03/12	6208.341	Transducer	548	568	Intermediate
SCI-2	01/02/12	6208.338	Transducer	548	568	Intermediate
SCI-2	01/01/12	6208.507	Transducer	548	568	Intermediate
SCI-2	12/31/11	6208.766	Transducer	548	568	Intermediate
SCI-2	12/30/11	6208.71	Transducer	548	568	Intermediate
SCI-2	12/29/11	6208.633	Transducer	548	568	Intermediate
SCI-2	12/28/11	6208.688	Transducer	548	568	Intermediate
SCI-2	12/27/11	6208.617	Transducer	548	568	Intermediate
SCI-2	12/26/11	6208.726	Transducer	548	568	Intermediate
SCI-2	12/25/11	6208.619	Transducer	548	568	Intermediate
SCI-2	12/24/11	6208.762	Transducer	548	568	Intermediate
SCI-2	12/23/11	6208.861	Transducer	548	568	Intermediate
SCI-2	12/22/11	6209.094	Transducer	548	568	Intermediate
SCI-2	12/21/11	6209.032	Transducer	548	568	Intermediate
SCI-2	12/20/11	6208.901	Transducer	548	568	Intermediate
SCI-2	12/19/11	6208.974	Transducer	548	568	Intermediate
SCI-2	12/18/11	6208.594	Transducer	548	568	Intermediate
SCI-2	12/17/11	6208.552	Transducer	548	568	Intermediate
SCI-2	12/16/11	6208.738	Transducer	548	568	Intermediate
SCI-2	12/15/11	6208.848	Transducer	548	568	Intermediate
SCI-2	12/14/11	6209.018	Transducer	548	568	Intermediate
SCI-2	12/13/11	6208.87	Transducer	548	568	Intermediate
SCI-2	12/12/11	6208.842	Transducer	548	568	Intermediate
SCI-2	12/11/11	6208.731	Transducer	548	568	Intermediate
SCI-2	12/10/11	6208.613	Transducer	548	568	Intermediate
SCI-2	12/09/11	6208.797	Transducer	548	568	Intermediate
SCI-2	12/08/11	6208.855	Transducer	548	568	Intermediate
SCI-2	12/07/11	6208.759	Transducer	548	568	Intermediate
SCI-2	12/06/11	6208.849	Transducer	548	568	Intermediate
SCI-2	12/05/11	6208.979	Transducer	548	568	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-2	12/04/11	6208.891	Transducer	548	568	Intermediate
SCI-2	12/03/11	6209.05	Transducer	548	568	Intermediate
SCI-2	12/02/11	6208.651	Transducer	548	568	Intermediate
SCI-2	12/01/11	6208.887	Transducer	548	568	Intermediate
SCI-2	11/30/11	6208.778	Transducer	548	568	Intermediate
SCI-2	11/30/11	6208.563	Transducer	548	568	Intermediate
SCI-2	11/29/11	6208.578	Transducer	548	568	Intermediate
SCI-2	11/28/11	6208.557	Transducer	548	568	Intermediate
SCI-2	11/27/11	6208.484	Transducer	548	568	Intermediate
SCI-2	11/26/11	6208.888	Transducer	548	568	Intermediate
SCI-2	11/25/11	6208.865	Transducer	548	568	Intermediate
SCI-2	11/24/11	6208.735	Transducer	548	568	Intermediate
SCI-2	11/23/11	6208.677	Transducer	548	568	Intermediate
SCI-2	11/22/11	6208.83	Transducer	548	568	Intermediate
SCI-2	11/21/11	6208.93	Transducer	548	568	Intermediate
SCI-2	11/20/11	6208.988	Transducer	548	568	Intermediate
SCI-2	11/19/11	6209.093	Transducer	548	568	Intermediate
SCI-2	11/18/11	6208.932	Transducer	548	568	Intermediate
SCI-2	11/17/11	6208.691	Transducer	548	568	Intermediate
SCI-2	11/16/11	6208.946	Transducer	548	568	Intermediate
SCI-2	11/15/11	6208.918	Transducer	548	568	Intermediate
SCI-2	11/14/11	6208.943	Transducer	548	568	Intermediate
SCI-2	11/13/11	6208.887	Transducer	548	568	Intermediate
SCI-2	11/12/11	6208.803	Transducer	548	568	Intermediate
SCI-2	11/11/11	6208.583	Transducer	548	568	Intermediate
SCI-2	11/10/11	6208.463	Transducer	548	568	Intermediate
SCI-2	11/09/11	6208.651	Transducer	548	568	Intermediate
SCI-2	11/08/11	6208.979	Transducer	548	568	Intermediate
SCI-2	11/07/11	6208.868	Transducer	548	568	Intermediate
SCI-2	11/06/11	6208.834	Transducer	548	568	Intermediate
SCI-2	11/05/11	6208.909	Transducer	548	568	Intermediate
SCI-2	11/04/11	6208.59	Transducer	548	568	Intermediate
SCI-2	11/03/11	6208.373	Transducer	548	568	Intermediate
SCI-2	11/02/11	6208.782	Transducer	548	568	Intermediate
SCI-2	11/01/11	6208.555	Transducer	548	568	Intermediate
SCI-2	10/31/11	6208.423	Transducer	548	568	Intermediate
SCI-2	10/30/11	6208.537	Transducer	548	568	Intermediate
SCI-2	10/29/11	6208.476	Transducer	548	568	Intermediate
SCI-2	10/28/11	6208.581	Transducer	548	568	Intermediate
SCI-2	10/27/11	6208.684	Transducer	548	568	Intermediate
SCI-2	10/26/11	6208.579	Transducer	548	568	Intermediate
SCI-2	10/25/11	6208.49	Transducer	548	568	Intermediate
SCI-2	10/24/11	6208.4	Transducer	548	568	Intermediate
SCI-2	10/23/11	6208.452	Transducer	548	568	Intermediate
SCI-2	10/22/11	6208.464	Transducer	548	568	Intermediate
SCI-2	10/21/11	6208.476	Transducer	548	568	Intermediate
SCI-2	10/20/11	6208.593	Transducer	548	568	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-2	10/19/11	6208.455	Transducer	548	568	Intermediate
SCI-2	10/18/11	6208.507	Transducer	548	568	Intermediate
SCI-2	10/17/11	6208.588	Transducer	548	568	Intermediate
SCI-2	10/16/11	6208.499	Transducer	548	568	Intermediate
SCI-2	10/15/11	6208.524	Transducer	548	568	Intermediate
SCI-2	10/14/11	6208.608	Transducer	548	568	Intermediate
SCI-2	10/13/11	6208.526	Transducer	548	568	Intermediate
SCI-2	10/12/11	6208.64	Transducer	548	568	Intermediate
SCI-2	10/11/11	6208.651	Transducer	548	568	Intermediate
SCI-2	10/10/11	6208.564	Transducer	548	568	Intermediate
SCI-2	10/09/11	6208.577	Transducer	548	568	Intermediate
SCI-2	10/08/11	6208.689	Transducer	548	568	Intermediate
SCI-2	10/07/11	6208.598	Transducer	548	568	Intermediate
SCI-2	10/06/11	6208.564	Transducer	548	568	Intermediate
SCI-2	10/05/11	6208.342	Transducer	548	568	Intermediate
SCI-2	10/04/11	6208.204	Transducer	548	568	Intermediate
SCI-2	10/03/11	6208.163	Transducer	548	568	Intermediate
SCI-2	10/02/11	6208.157	Transducer	548	568	Intermediate
SCI-2	10/01/11	6208.181	Transducer	548	568	Intermediate
SCI-2	09/30/11	6208.094	Transducer	548	568	Intermediate
SCI-2	09/29/11	6208.285	Transducer	548	568	Intermediate
SCI-2	09/28/11	6208.225	Transducer	548	568	Intermediate
SCI-2	09/27/11	6208.281	Transducer	548	568	Intermediate
SCI-2	09/26/11	6208.341	Transducer	548	568	Intermediate
SCI-2	09/25/11	6208.273	Transducer	548	568	Intermediate
SCI-2	09/24/11	6208.144	Transducer	548	568	Intermediate
SCI-2	09/23/11	6208.111	Transducer	548	568	Intermediate
SCI-2	09/22/11	6208.207	Transducer	548	568	Intermediate
SCI-2	09/21/11	6208.197	Transducer	548	568	Intermediate
SCI-2	09/20/11	6208.19	Transducer	548	568	Intermediate
SCI-2	09/19/11	6208.118	Transducer	548	568	Intermediate
SCI-2	09/18/11	6208.176	Transducer	548	568	Intermediate
SCI-2	09/17/11	6208.221	Transducer	548	568	Intermediate
SCI-2	09/16/11	6208.198	Transducer	548	568	Intermediate
SCI-2	09/15/11	6208.129	Transducer	548	568	Intermediate
SCI-2	09/14/11	6208.089	Transducer	548	568	Intermediate
SCI-2	09/13/11	6208.006	Transducer	548	568	Intermediate
SCI-2	09/12/11	6207.978	Transducer	548	568	Intermediate
SCI-2	09/11/11	6208.015	Transducer	548	568	Intermediate
SCI-2	09/10/11	6208.064	Transducer	548	568	Intermediate
SCI-2	09/09/11	6208.054	Transducer	548	568	Intermediate
SCI-2	09/08/11	6207.975	Transducer	548	568	Intermediate
SCI-2	09/07/11	6208.139	Transducer	548	568	Intermediate
SCI-2	09/06/11	6208.153	Transducer	548	568	Intermediate
SCI-2	09/05/11	6208.108	Transducer	548	568	Intermediate
SCI-2	09/04/11	6208.182	Transducer	548	568	Intermediate
SCI-2	09/03/11	6208.272	Transducer	548	568	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-2	09/02/11	6208.185	Transducer	548	568	Intermediate
SCI-2	09/01/11	6208.196	Transducer	548	568	Intermediate
SCI-2	08/31/11	6208.231	Transducer	548	568	Intermediate
SCI-2	08/30/11	6208.189	Transducer	548	568	Intermediate
SCI-2	08/29/11	6208.141	Transducer	548	568	Intermediate
SCI-2	08/28/11	6208.068	Transducer	548	568	Intermediate
SCI-2	08/27/11	6208.013	Transducer	548	568	Intermediate
SCI-2	08/26/11	6208.035	Transducer	548	568	Intermediate
SCI-2	08/25/11	6208.07	Transducer	548	568	Intermediate
SCI-2	08/24/11	6208.138	Transducer	548	568	Intermediate
SCI-2	08/23/11	6208.142	Transducer	548	568	Intermediate
SCI-2	08/22/11	6208.08	Transducer	548	568	Intermediate
SCI-2	08/22/11	6208.094	Transducer	548	568	Intermediate
SCI-2	08/21/11	6208.16	Transducer	548	568	Intermediate
SCI-2	08/20/11	6208.21	Transducer	548	568	Intermediate
SCI-2	08/19/11	6208.18	Transducer	548	568	Intermediate
SCI-2	08/18/11	6208.07	Transducer	548	568	Intermediate
SCI-2	08/17/11	6208.11	Transducer	548	568	Intermediate
SCI-2	08/16/11	6208.23	Transducer	548	568	Intermediate
SCI-2	08/15/11	6208.19	Transducer	548	568	Intermediate
SCI-2	08/14/11	6208.07	Transducer	548	568	Intermediate
SCI-2	08/13/11	6208.18	Transducer	548	568	Intermediate
SCI-2	08/12/11	6208.2	Transducer	548	568	Intermediate
SCI-2	08/11/11	6208.23	Transducer	548	568	Intermediate
SCI-2	08/10/11	6208.25	Transducer	548	568	Intermediate
SCI-2	08/09/11	6208.19	Transducer	548	568	Intermediate
SCI-2	08/08/11	6208.18	Transducer	548	568	Intermediate
SCI-2	08/07/11	6208.13	Transducer	548	568	Intermediate
SCI-2	08/06/11	6208.09	Transducer	548	568	Intermediate
SCI-2	08/05/11	6208.09	Transducer	548	568	Intermediate
SCI-2	08/04/11	6208.08	Transducer	548	568	Intermediate
SCI-2	08/03/11	6208.04	Transducer	548	568	Intermediate
SCI-2	08/02/11	6208.02	Transducer	548	568	Intermediate
SCI-2	08/01/11	6207.98	Transducer	548	568	Intermediate
SCI-2	07/31/11	6208	Transducer	548	568	Intermediate
SCI-2	07/30/11	6208.05	Transducer	548	568	Intermediate
SCI-2	07/29/11	6208.15	Transducer	548	568	Intermediate
SCI-2	07/28/11	6208.23	Transducer	548	568	Intermediate
SCI-2	07/27/11	6208.22	Transducer	548	568	Intermediate
SCI-2	07/26/11	6208.16	Transducer	548	568	Intermediate
SCI-2	07/25/11	6208.08	Transducer	548	568	Intermediate
SCI-2	07/24/11	6208.14	Transducer	548	568	Intermediate
SCI-2	07/23/11	6208.23	Transducer	548	568	Intermediate
SCI-2	07/22/11	6208.24	Transducer	548	568	Intermediate
SCI-2	07/21/11	6208.2	Transducer	548	568	Intermediate
SCI-2	07/20/11	6208.15	Transducer	548	568	Intermediate
SCI-2	07/19/11	6208.09	Transducer	548	568	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-2	07/18/11	6208.07	Transducer	548	568	Intermediate
SCI-2	07/17/11	6208.17	Transducer	548	568	Intermediate
SCI-2	07/16/11	6208.3	Transducer	548	568	Intermediate
SCI-2	07/15/11	6208.31	Transducer	548	568	Intermediate
SCI-2	07/14/11	6208.27	Transducer	548	568	Intermediate
SCI-2	07/13/11	6208.23	Transducer	548	568	Intermediate
SCI-2	07/12/11	6208.21	Transducer	548	568	Intermediate
SCI-2	07/11/11	6208.21	Transducer	548	568	Intermediate
SCI-2	07/10/11	6208.23	Transducer	548	568	Intermediate
SCI-2	07/09/11	6208.27	Transducer	548	568	Intermediate
SCI-2	07/08/11	6208.22	Transducer	548	568	Intermediate
SCI-2	07/07/11	6208.17	Transducer	548	568	Intermediate
SCI-2	07/06/11	6208.17	Transducer	548	568	Intermediate
SCI-2	07/05/11	6208.19	Transducer	548	568	Intermediate
SCI-2	07/04/11	6208.22	Transducer	548	568	Intermediate
SCI-2	07/03/11	6208.21	Transducer	548	568	Intermediate
SCI-2	07/02/11	6208.29	Transducer	548	568	Intermediate
SCI-2	07/01/11	6208.35	Transducer	548	568	Intermediate
SCI-2	06/30/11	6208.37	Transducer	548	568	Intermediate
SCI-2	06/29/11	6208.32	Transducer	548	568	Intermediate
SCI-2	06/28/11	6208.33	Transducer	548	568	Intermediate
SCI-2	06/27/11	6208.5	Transducer	548	568	Intermediate
SCI-2	06/26/11	6208.52	Transducer	548	568	Intermediate
SCI-2	06/25/11	6208.55	Transducer	548	568	Intermediate
SCI-2	06/24/11	6208.57	Transducer	548	568	Intermediate
SCI-2	06/23/11	6208.52	Transducer	548	568	Intermediate
SCI-2	06/22/11	6208.55	Transducer	548	568	Intermediate
SCI-2	06/21/11	6208.64	Transducer	548	568	Intermediate
SCI-2	06/20/11	6208.74	Transducer	548	568	Intermediate
SCI-2	06/19/11	6208.62	Transducer	548	568	Intermediate
SCI-2	06/18/11	6208.53	Transducer	548	568	Intermediate
SCI-2	06/17/11	6208.62	Transducer	548	568	Intermediate
SCI-2	06/16/11	6208.57	Transducer	548	568	Intermediate
SCI-2	06/15/11	6208.41	Transducer	548	568	Intermediate
SCI-2	06/14/11	6208.47	Transducer	548	568	Intermediate
SCI-2	06/13/11	6208.5	Transducer	548	568	Intermediate
SCI-2	06/12/11	6208.55	Transducer	548	568	Intermediate
SCI-2	06/11/11	6208.48	Transducer	548	568	Intermediate
SCI-2	06/10/11	6208.5	Transducer	548	568	Intermediate
SCI-2	06/09/11	6208.52	Transducer	548	568	Intermediate
SCI-2	06/08/11	6208.46	Transducer	548	568	Intermediate
SCI-2	06/07/11	6208.46	Transducer	548	568	Intermediate
SCI-2	06/06/11	6208.32	Transducer	548	568	Intermediate
SCI-2	06/05/11	6208.27	Transducer	548	568	Intermediate
SCI-2	06/04/11	6208.46	Transducer	548	568	Intermediate
SCI-2	06/03/11	6208.55	Transducer	548	568	Intermediate
SCI-2	06/02/11	6208.58	Transducer	548	568	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-2	06/01/11	6208.47	Transducer	548	568	Intermediate
SCI-2	05/31/11	6208.57	Transducer	548	568	Intermediate
SCI-2	05/30/11	6208.98	Transducer	548	568	Intermediate
SCI-2	05/29/11	6208.91	Transducer	548	568	Intermediate
SCI-2	05/28/11	6208.78	Transducer	548	568	Intermediate
SCI-2	05/27/11	6208.73	Transducer	548	568	Intermediate
SCI-2	05/26/11	6208.6	Transducer	548	568	Intermediate
SCI-2	05/25/11	6208.7	Transducer	548	568	Intermediate
SCI-2	05/24/11	6208.85	Transducer	548	568	Intermediate
SCI-2	05/23/11	6208.75	Transducer	548	568	Intermediate
SCI-2	05/22/11	6208.73	Transducer	548	568	Intermediate
SCI-2	05/21/11	6208.76	Transducer	548	568	Intermediate
SCI-2	05/20/11	6208.83	Transducer	548	568	Intermediate
SCI-2	05/19/11	6208.92	Transducer	548	568	Intermediate
SCI-2	05/18/11	6208.82	Transducer	548	568	Intermediate
SCI-2	05/17/11	6208.69	Transducer	548	568	Intermediate
SCI-2	05/16/11	6208.53	Transducer	548	568	Intermediate
SCI-2	05/15/11	6208.56	Transducer	548	568	Intermediate
SCI-2	05/14/11	6208.48	Transducer	548	568	Intermediate
SCI-2	05/13/11	6208.52	Transducer	548	568	Intermediate
SCI-2	05/12/11	6208.71	Transducer	548	568	Intermediate
SCI-2	05/11/11	6208.9	Transducer	548	568	Intermediate
SCI-2	05/10/11	6208.79	Transducer	548	568	Intermediate
SCI-2	05/09/11	6208.72	Transducer	548	568	Intermediate
SCI-2	05/08/11	6208.56	Transducer	548	568	Intermediate
SCI-2	05/07/11	6208.48	Transducer	548	568	Intermediate
SCI-2	05/06/11	6208.35	Transducer	548	568	Intermediate
SCI-2	05/05/11	6208.36	Transducer	548	568	Intermediate
SCI-2	05/04/11	6208.4	Transducer	548	568	Intermediate
SCI-2	05/03/11	6208.37	Transducer	548	568	Intermediate
SCI-2	05/02/11	6208.56	Transducer	548	568	Intermediate
SCI-2	05/01/11	6208.82	Transducer	548	568	Intermediate
SCI-2	04/30/11	6208.88	Transducer	548	568	Intermediate
SCI-2	04/29/11	6208.81	Transducer	548	568	Intermediate
SCI-2	04/28/11	6208.59	Transducer	548	568	Intermediate
SCI-2	04/27/11	6208.94	Transducer	548	568	Intermediate
SCI-2	04/26/11	6208.94	Transducer	548	568	Intermediate
SCI-2	04/25/11	6208.81	Transducer	548	568	Intermediate
SCI-2	04/24/11	6208.76	Transducer	548	568	Intermediate
SCI-2	04/23/11	6208.78	Transducer	548	568	Intermediate
SCI-2	04/22/11	6208.76	Transducer	548	568	Intermediate
SCI-2	04/21/11	6208.67	Transducer	548	568	Intermediate
SCI-2	04/20/11	6208.67	Transducer	548	568	Intermediate
SCI-2	04/19/11	6208.84	Transducer	548	568	Intermediate
SCI-2	04/18/11	6208.69	Transducer	548	568	Intermediate
SCI-2	04/17/11	6208.62	Transducer	548	568	Intermediate
SCI-2	04/16/11	6208.55	Transducer	548	568	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-2	04/15/11	6208.6	Transducer	548	568	Intermediate
SCI-2	04/14/11	6208.73	Transducer	548	568	Intermediate
SCI-2	04/13/11	6208.64	Transducer	548	568	Intermediate
SCI-2	04/12/11	6208.55	Transducer	548	568	Intermediate
SCI-2	04/11/11	6208.58	Transducer	548	568	Intermediate
SCI-2	04/10/11	6208.8	Transducer	548	568	Intermediate
SCI-2	04/09/11	6208.84	Transducer	548	568	Intermediate
SCI-2	04/08/11	6208.79	Transducer	548	568	Intermediate
SCI-2	04/07/11	6208.66	Transducer	548	568	Intermediate
SCI-2	04/06/11	6208.69	Transducer	548	568	Intermediate
SCI-2	04/05/11	6208.48	Transducer	548	568	Intermediate
SCI-2	04/04/11	6208.64	Transducer	548	568	Intermediate
SCI-2	04/03/11	6208.7	Transducer	548	568	Intermediate
SCI-2	04/02/11	6208.54	Transducer	548	568	Intermediate
SCI-2	04/01/11	6208.62	Transducer	548	568	Intermediate
SCI-2	03/31/11	6208.63	Transducer	548	568	Intermediate
SCI-2	03/30/11	6208.58	Transducer	548	568	Intermediate
SCI-2	03/29/11	6208.72	Transducer	548	568	Intermediate
SCI-2	03/28/11	6208.73	Transducer	548	568	Intermediate
SCI-2	03/27/11	6208.77	Transducer	548	568	Intermediate
SCI-2	03/26/11	6208.67	Transducer	548	568	Intermediate
SCI-2	03/25/11	6208.52	Transducer	548	568	Intermediate
SCI-2	03/24/11	6208.5	Transducer	548	568	Intermediate
SCI-2	03/23/11	6208.44	Transducer	548	568	Intermediate
SCI-2	03/22/11	6208.59	Transducer	548	568	Intermediate
SCI-2	03/21/11	6208.34	Transducer	548	568	Intermediate
SCI-2	03/20/11	6208.28	Transducer	548	568	Intermediate
SCI-2	03/19/11	6208.18	Transducer	548	568	Intermediate
SCI-2	03/18/11	6208.22	Transducer	548	568	Intermediate
SCI-2	03/17/11	6208.28	Transducer	548	568	Intermediate
SCI-2	03/16/11	6208.21	Transducer	548	568	Intermediate
SCI-2	03/15/11	6208.24	Transducer	548	568	Intermediate
SCI-2	03/14/11	6208.11	Transducer	548	568	Intermediate
SCI-2	03/13/11	6208.33	Transducer	548	568	Intermediate
SCI-2	03/12/11	6208.32	Transducer	548	568	Intermediate
SCI-2	03/11/11	6208.28	Transducer	548	568	Intermediate
SCI-2	03/10/11	6208.15	Transducer	548	568	Intermediate
SCI-2	03/09/11	6208.37	Transducer	548	568	Intermediate
SCI-2	03/08/11	6208.73	Transducer	548	568	Intermediate
SCI-2	03/07/11	6208.57	Transducer	548	568	Intermediate
SCI-2	03/06/11	6208.25	Transducer	548	568	Intermediate
SCI-2	03/05/11	6208.1	Transducer	548	568	Intermediate
SCI-2	03/04/11	6208.42	Transducer	548	568	Intermediate
SCI-2	03/03/11	6208.32	Transducer	548	568	Intermediate
SCI-2	03/02/11	6208.33	Transducer	548	568	Intermediate
SCI-2	03/01/11	6208.27	Transducer	548	568	Intermediate
SCI-2	02/28/11	6208.47	Transducer	548	568	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-2	02/27/11	6208.72	Transducer	548	568	Intermediate
SCI-2	02/26/11	6208.56	Transducer	548	568	Intermediate
SCI-2	02/25/11	6208.38	Transducer	548	568	Intermediate
SCI-2	02/24/11	6208.51	Transducer	548	568	Intermediate
SCI-2	02/23/11	6208.36	Transducer	548	568	Intermediate
SCI-2	02/22/11	6208.33	Transducer	548	568	Intermediate
SCI-2	02/21/11	6208.37	Transducer	548	568	Intermediate
SCI-2	02/20/11	6208.39	Transducer	548	568	Intermediate
SCI-2	02/19/11	6208.01	Transducer	548	568	Intermediate
SCI-2	02/18/11	6207.97	Transducer	548	568	Intermediate
SCI-2	02/17/11	6208.22	Transducer	548	568	Intermediate
SCI-2	02/16/11	6208.01	Transducer	548	568	Intermediate
SCI-2	02/15/11	6207.96	Transducer	548	568	Intermediate
SCI-2	02/14/11	6207.88	Transducer	548	568	Intermediate
SCI-2	02/13/11	6207.86	Transducer	548	568	Intermediate
SCI-2	02/12/11	6207.89	Transducer	548	568	Intermediate
SCI-2	02/11/11	6208.15	Transducer	548	568	Intermediate
SCI-2	02/10/11	6208.2	Transducer	548	568	Intermediate
SCI-2	02/09/11	6208.24	Transducer	548	568	Intermediate
SCI-2	02/08/11	6208.41	Transducer	548	568	Intermediate
SCI-2	02/07/11	6208.01	Transducer	548	568	Intermediate
SCI-2	02/06/11	6208.3	Transducer	548	568	Intermediate
SCI-2	02/05/11	6208.15	Transducer	548	568	Intermediate
SCI-2	02/04/11	6208.09	Transducer	548	568	Intermediate
SCI-2	02/03/11	6207.99	Transducer	548	568	Intermediate
SCI-2	02/02/11	6208.18	Transducer	548	568	Intermediate
SCI-2	02/01/11	6208.29	Transducer	548	568	Intermediate
SCI-2	01/31/11	6208.14	Transducer	548	568	Intermediate
SCI-2	01/30/11	6207.99	Transducer	548	568	Intermediate
SCI-2	01/29/11	6207.99	Transducer	548	568	Intermediate
SCI-2	01/28/11	6207.87	Transducer	548	568	Intermediate
SCI-2	01/27/11	6207.86	Transducer	548	568	Intermediate
SCI-2	01/26/11	6208.05	Transducer	548	568	Intermediate
SCI-2	01/25/11	6207.95	Transducer	548	568	Intermediate
SCI-2	01/24/11	6208.1	Transducer	548	568	Intermediate
SCI-2	01/23/11	6208.13	Transducer	548	568	Intermediate
SCI-2	01/22/11	6208.01	Transducer	548	568	Intermediate
SCI-2	01/21/11	6208.01	Transducer	548	568	Intermediate
SCI-2	01/20/11	6208.1	Transducer	548	568	Intermediate
SCI-2	01/19/11	6208.02	Transducer	548	568	Intermediate
SCI-2	01/18/11	6208.01	Transducer	548	568	Intermediate
SCI-2	01/17/11	6207.89	Transducer	548	568	Intermediate
SCI-2	01/16/11	6207.82	Transducer	548	568	Intermediate
SCI-2	01/15/11	6207.68	Transducer	548	568	Intermediate
SCI-2	01/14/11	6207.82	Transducer	548	568	Intermediate
SCI-2	01/13/11	6207.78	Transducer	548	568	Intermediate
SCI-2	01/12/11	6207.86	Transducer	548	568	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-2	01/11/11	6207.95	Transducer	548	568	Intermediate
SCI-2	01/10/11	6208.33	Transducer	548	568	Intermediate
SCI-2	01/09/11	6208.27	Transducer	548	568	Intermediate
SCI-2	01/08/11	6208.04	Transducer	548	568	Intermediate
SCI-2	01/07/11	6207.89	Transducer	548	568	Intermediate
SCI-2	01/06/11	6207.81	Transducer	548	568	Intermediate
SCI-2	01/05/11	6207.91	Transducer	548	568	Intermediate
SCI-2	01/04/11	6208.02	Transducer	548	568	Intermediate
SCI-2	01/03/11	6208.06	Transducer	548	568	Intermediate
SCI-2	01/02/11	6207.97	Transducer	548	568	Intermediate
SCI-2	01/01/11	6208.22	Transducer	548	568	Intermediate
SCI-2	12/31/10	6208.58	Transducer	548	568	Intermediate
SCI-2	12/30/10	6208.38	Transducer	548	568	Intermediate
SCI-2	12/29/10	6207.88	Transducer	548	568	Intermediate
SCI-2	12/28/10	6207.68	Transducer	548	568	Intermediate
SCI-2	12/27/10	6207.68	Transducer	548	568	Intermediate
SCI-2	12/26/10	6207.52	Transducer	548	568	Intermediate
SCI-2	12/25/10	6207.52	Transducer	548	568	Intermediate
SCI-2	12/24/10	6207.72	Transducer	548	568	Intermediate
SCI-2	12/23/10	6207.74	Transducer	548	568	Intermediate
SCI-2	12/22/10	6207.66	Transducer	548	568	Intermediate
SCI-2	12/21/10	6207.81	Transducer	548	568	Intermediate
SCI-2	12/20/10	6207.88	Transducer	548	568	Intermediate
SCI-2	12/19/10	6207.8	Transducer	548	568	Intermediate
SCI-2	12/18/10	6207.74	Transducer	548	568	Intermediate
SCI-2	12/17/10	6207.8	Transducer	548	568	Intermediate
SCI-2	12/16/10	6207.73	Transducer	548	568	Intermediate
SCI-2	12/15/10	6207.68	Transducer	548	568	Intermediate
SCI-2	12/14/10	6207.42	Transducer	548	568	Intermediate
SCI-2	12/13/10	6207.29	Transducer	548	568	Intermediate
SCI-2	12/12/10	6207.31	Transducer	548	568	Intermediate
SCI-2	12/11/10	6207.51	Transducer	548	568	Intermediate
SCI-2	12/10/10	6207.43	Transducer	548	568	Intermediate
SCI-2	12/09/10	6207.35	Transducer	548	568	Intermediate
SCI-2	12/08/10	6207.21	Transducer	548	568	Intermediate
SCI-2	12/07/10	6207.4	Transducer	548	568	Intermediate
SCI-2	12/06/10	6207.27	Transducer	548	568	Intermediate
SCI-2	12/05/10	6207.38	Transducer	548	568	Intermediate
SCI-2	12/04/10	6207.44	Transducer	548	568	Intermediate
SCI-2	12/03/10	6207.44	Transducer	548	568	Intermediate
SCI-2	12/02/10	6207.51	Transducer	548	568	Intermediate
SCI-2	12/01/10	6207.48	Transducer	548	568	Intermediate
SCI-2	11/30/10	6207.59	Transducer	548	568	Intermediate
SCI-2	11/29/10	6208.01	Transducer	548	568	Intermediate
SCI-2	11/28/10	6207.83	Transducer	548	568	Intermediate
SCI-2	11/27/10	6207.49	Transducer	548	568	Intermediate
SCI-2	11/26/10	6207.51	Transducer	548	568	Intermediate

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
SCI-2	11/25/10	6207.8	Transducer	548	568	Intermediate
SCI-2	11/24/10	6207.78	Transducer	548	568	Intermediate
SCI-2	11/23/10	6207.43	Transducer	548	568	Intermediate
SCI-2	11/22/10	6207.64	Transducer	548	568	Intermediate
SCI-2	11/21/10	6207.48	Transducer	548	568	Intermediate
SCI-2	11/20/10	6207.35	Transducer	548	568	Intermediate
SCI-2	11/19/10	6207.25	Transducer	548	568	Intermediate
SCI-2	11/18/10	6207.08	Transducer	548	568	Intermediate
SCI-2	11/17/10	6207.51	Transducer	548	568	Intermediate
SCI-2	11/16/10	6207.33	Transducer	548	568	Intermediate
SCI-2	11/15/10	6207.43	Transducer	548	568	Intermediate
SCI-2	11/14/10	6207.21	Transducer	548	568	Intermediate
SCI-2	11/13/10	6207.01	Transducer	548	568	Intermediate
SCI-2	11/12/10	6207.08	Transducer	548	568	Intermediate
SCI-2	11/11/10	6207.26	Transducer	548	568	Intermediate
SCI-2	11/10/10	6207.18	Transducer	548	568	Intermediate
SCI-2	11/09/10	6207.2	Transducer	548	568	Intermediate
SCI-2	11/08/10	6206.86	Transducer	548	568	Intermediate
SCI-2	11/07/10	6206.73	Transducer	548	568	Intermediate
SCI-2	11/06/10	6206.7	Transducer	548	568	Intermediate
SCI-2	11/05/10	6206.66	Transducer	548	568	Intermediate
SCI-2	11/04/10	6206.54	Transducer	548	568	Intermediate
SCI-2	11/03/10	6206.64	Transducer	548	568	Intermediate
SCI-2	11/02/10	6206.64	Transducer	548	568	Intermediate
SCI-2	11/01/10	6206.85	Transducer	548	568	Intermediate
SCI-2	10/31/10	6206.93	Transducer	548	568	Intermediate
SCI-2	10/30/10	6206.84	Transducer	548	568	Intermediate

Appendix C

Analytical Chemistry Results, Including Results from Previous Four Monitoring Events if Available

The following pages provide lists of (1) acronyms, abbreviations, symbols, and various analytical codes; (2) analytical laboratory qualifier codes; and (3) secondary validation flag codes that may be used in Appendix C. Please note that these are comprehensive lists, and this periodic monitoring report may not include all of the terms in the lists.

Acronyms and Abbreviations

Acronym, Abbreviation, or Symbol	Description
Miscellaneous	
%	percent
%D	percent difference
%R	percent recovery
%RSD	percent relative standard deviation
<	Based on qualifiers, the result was a nondetection.
—	none
4,4'-DDD	4,4'-dichlorodiphenyldichloroethane
4,4'-DDT	4,4'-dichlorodiphenyltrichloroethane
BHC	benzene hexachloride
CB	chlorinated biphenyl
CCB	continuing calibration blank
CCV	continuing calibration verification
CLP	Control Laboratory Program
CRDL	contract-required detection limit
CRI	CDRL check standard
DCG	Derived Concentration Guide (DOE)
DDE	dichlorodiphenyldichloroethylene
DNX	dinitroso-RDX (or hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine)
DOE	Department of Energy (U.S.)
DQO	data quality objective
EPA	Environmental Protection Agency (U.S.)
GC	gas chromatography
GC/MS	gas chromatography/mass spectrometry
GFAA	graphite furnace atomic absorption
GFPC	gas-flow proportional counter
GW	groundwater
HH OO	Human Health—Organism Only (NMWQCC standard)
HMX	1,3,5,7-tetranitro-1,3,5,7-tetrazocine
HPLC	high-pressure liquid chromatography
ICAL	initial calibration
ICPAES	inductively coupled plasma atomic (optical) emission spectroscopy
ICV	initial calibration verification
IDL	instrument detection limit

Acronyms and Abbreviations (continued)

Acronym, Abbreviation, or Symbol	Description
Miscellaneous (continued)	
IS	internal standard
LAL	lower acceptance limit
LANL	Los Alamos National Laboratory
LCS	laboratory control sample
LLEE	low-level electrolytic extraction
LOC	level of chlorination
LSC	liquid scintillation counting
Lvl	level
MCL	maximum contaminant level (EPA)
MDA	minimum detectable activity
MDC	minimum detectable concentration
MDL	method detection limit
MNX	mononitroso-RDX (or hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine)
MS	matrix spike
MSD	matrix spike duplicate
NM	NMWQCC
NMED	New Mexico Environmental Department
NMWQCC	New Mexico Water Quality Control Commission
OPR	ongoing precision recovery
PCB	polychlorinated biphenyl
PCDD	polychlorinated dibenzo-p-dioxin
PCDF	polychlorinated dibenzofuran
PQL	practical quantitation limit
Prelim	preliminary
QC	quality control
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine
RF	response factor
RL	reporting limit
RPD	relative percent difference
RRF	relative response factor
RRT	relative retention time
RT	retention time
Scr	screening
SDG	sample delivery group
SMO	Sample Management Office
SSC	suspended sediment concentration
SU	standard unit
TCDD	tetrachlorodibenzo-p-dioxin

Acronyms and Abbreviations (continued)

Acronym, Abbreviation, or Symbol	Description
Miscellaneous (continued)	
TCDF	tetrachlorodibenzofuran
TDS	total dissolved solids
TPH-DRO	total petroleum hydrocarbons—diesel range organics
TNX	trinitroso-RDX (or hexahydro-1,3,5-trinitroso-1,3,5-triazine)
TPU	total propagated uncertainty
UAL	upper acceptance limit
Field Matrix Codes	
W	water
WG	groundwater
WM	snowmelt
WP	persistent flow
WS	base flow
WT	storm runoff
Field Prep Codes	
F	filtered
UF	unfiltered
Lab Sample Type Codes	
CS	client sample
DL	dilution
DUP	duplicate
INIT	initial
RE	reanalysis
REDL	reanalysis dilution
REDP	reanalysis duplicate
RI	reissue
TRP	triplicate
Field QC Type Codes	
EQB	equipment rinsate blank
FB	field blank
FD	field duplicate
FR	field rinsate
FS	field split
FTB	field trip blank
FTR	field triplicate
INB	equipment blank taken during installation and not associated with a sampling event
ITB	trip blank taken during installation and not associated with a sampling event
NA	not applicable
PEB	performance evaluation blank

Acronyms and Abbreviations (continued)

Acronym, Abbreviation, or Symbol	Description
Field QC Type Codes (continued)	
PEK	performance evaluation known
REG	regular
RES	resample
SS	special sampling event, data unique
SS-EQB	equipment blank of special sampling event, data unique
SS-FB	field blank of special sampling event, data unique
SS-FD	field duplicate of special sampling event, data unique
SS-FTB	field trip blank of special sampling event, data unique
Analytical Suite Codes	
DIOX/FUR, Diox/Fur	dioxins and furans
DRO	diesel range organics
Geninorg, GENINORG, General Chemistry	general inorganics
GRO	gasoline range organics
HERB	herbicides
HEXP	high explosives
INORGANIC	inorganics
ISOTOPE, Isotope	isotope ratios
LCMS/MS	liquid chromatography mass spectrometry/mass spectrometry
METALS, Metals	metals
PEST/PCB, PESTPCB	pesticides and PCBs
RAD, Rad	radiochemistry
SVOC, SVOA	semivolatile organic compounds
VOC, VOA	volatile organic compounds
Detect Flag and Best Value Flag Codes	
N	no
Y	yes
Lab Codes	
ALTC	Alta Analytical Laboratory, Inc., San Diego, CA
ARSL	American Radiation Services, Inc.
CFA	Cape Fear Analytical, LLC, Wilmington, NC
C-INC	Isotope and Nuclear Chemistry Division (LANL)
COAST	Coastal Science Laboratories, Austin, TX
CST	Chemical Sciences and Technology Division (LANL)
EES6	Hydrology, Geochemistry, and Geology Group (LANL)
ESE	Environmental Sciences & Engineering, Inc., Gainesville, FL
FLD	measurement taken in field
GEL	General Engineering Laboratories, Inc.

Acronyms and Abbreviations (continued)

Acronym, Abbreviation, or Symbol	Description
Lab Codes (continued)	
GELC	General Engineering Laboratories, Inc., Charleston, SC
GEO	Geochron Laboratories, Boston, MA
HENV	Health and Environmental Laboratory (Johnson Controls, Northern New Mexico)
HUFFMAN	Huffman Laboratories, Inc., Golden, CO
KA	KEMRON Environmental Services, Inc., Vienna, VA
LVLI	Lionville Laboratory, Inc., Philadelphia, PA
PARA	Paragon Analytics, Inc., Salt Lake City, UT
PEC	Pacific Ecorisk Laboratories, Fairfield, CA
QESL	Quanterra Environmental Services, St. Louis, MO
QST	QST Environmental, Newberry, FL
RECRAP	RECRA Labnet, Lionville, PA
RFWC	Roy F. Weston, Inc., West Chester, PA
SGSW	Paradigm Analytical Laboratories, Inc., Wilmington, NC
SILENS	Stable Isotope Laboratory, Woods Hole, MA
STL2, STR	Severn Trent Laboratories, Inc., Richland, WA (historical)
STLA	Severn Trent Laboratories, Inc., Los Angeles, CA
STSL	Severn Trent Laboratories, Inc., St. Louis, MO
SwRI	Southwest Research Institute, San Antonio, TX
UAZ	University of Arizona, Tucson
UIL	University of Illinois, Urbana-Champaign
UMTL	University of Miami Tritium Lab

Analytical Laboratory Qualifier Codes

Code	Description
*	(Inorganic)—Duplicate analysis (relative percent difference [RPD]) not within control limits.
B	(Organic) —Analyte was present in the blank and the sample. (Inorganic) —Reported value was obtained from a reading that was less than the contract-required detection limit (CRDL) but greater than or equal to the instrument detection limit (IDL).
BJ	See B code and see J code.
BJP	See B code, see J code, and see P code.
BPX	(B) (Organic)—This analyte was detected in the associated laboratory method blank and the sample. (B) (Inorganic)—The result for this analyte was greater than the IDL but less than the CRDL. (P) (Pesticides/PCBs)—The quantitative results for this analyte between the primary and secondary gas chromatography (GC) columns were greater than 25% difference. (P) (SW-846 EPA Method 8310, High-Pressure Liquid Chromatography, [HPLC] Results)—The quantitative results for this analyte between the primary and secondary HPLC columns or primary and secondary HPLC detectors were greater than 40% difference. (X) (Organic/Inorganic)—The result for this analyte should be regarded as not detected.
D	The result for this analyte was reported from a dilution.
DJ	See D code and see J code.
DNA	Did not analyze because equipment was broken.
E	(Organic) Analyte exceeded the concentration range. (Inorganic) The serial dilution was exceeded.
E*	See E code and see * code.
EJ	See E code and see J code.
EJ*	See E code, see J code, and see * code.
EJN	(E) (Organic)—The result for this analyte exceeded the upper range of the instrument initial calibration curve. (E) (Inorganic) (inductively coupled plasma atomic [optical] emission spectroscopy [ICPAES])—The result for this analyte in the serial dilution analysis was outside acceptance criteria. (E) (Inorganic) (graphite furnace atomic absorption [GFAA])—The result for this analyte failed one or more Control Laboratory Program (CLP) acceptance criteria as explained in the case narrative. (J) (Organic/General Inorganics)—The result for this analyte was greater than the method detection limit (MDL) but less than the practical quantitation limit (PQL). (N) (Organic)—The reported analyte is a tentatively identified compound (TIC). (N) (Inorganic)—The result for this analyte in the matrix spike (MS) sample was outside acceptance criteria.
EN	See E code and see N code.
EN*	(E) (Organic)—The result for this analyte exceeded the upper range of the instrument initial calibration curve. (E) (Inorganic) (ICPAES)—The result for this analyte in the serial dilution analysis was outside acceptance criteria. (E) (Inorganic) (GFAA)—The result for this analyte failed one or more CLP acceptance criteria as explained in the case narrative. (N) (Organic)—The reported analyte is a TIC. (N) (Inorganic)—The result for this analyte in the MS sample was outside acceptance criteria. * (Inorganic)—The result for this analyte in the laboratory replicate analysis was outside acceptance criteria.
H	(Organic/Inorganic)—The required extraction or analysis holding time for this result was exceeded.

Analytical Laboratory Qualifier Codes (continued)

Code	Description
H*	(H) (Organic/Inorganic)—The required extraction or analysis holding time for this result was exceeded. * (Organic) and (Inorganic)—The result for this analyte in the laboratory control sample analysis was outside acceptance criteria.
HJ	See H code and see J code.
HJ*	(H) (Organic/Inorganic)—The required extraction or analysis holding time for this result was exceeded. (J) (Organic/General Inorganics)—The result for this analyte was greater than the MDL but less than the PQL. * (Inorganic)—The result for this analyte in the laboratory replicate analysis was outside acceptance criteria.
INS	(d15N)—The d15N of nitrate is a signature of the nitrate present in a sample. Therefore, nitrate has to be present to have a signature. A d15N value cannot be given to a blank because the blank does not have nitrate. This is different from most analytical methods, where a blank is run with the designator “nondetect” or “detected, but below detection limit.”
J	(Inorganic)—The associated numerical value is an estimated quantity. (Organic)—The associated numerical value is an estimated quantity.
J*	See J code and see * code.
JB	See J code and see B code
JN	See J code and see N code.
JN*	See J code, see N code, and see * code.
JP	See J code and see P code.
N	(Inorganic)—Spiked sample recovery was not within control limits.
N*	See N code and see * code.
N*E	See N code, see * code, and see E code.
NE	See N code and see E code.
P	Percent difference between the results on the two columns during the analysis differed by more than 40%.
PJ	See P code and see J code.
U	The material was analyzed for but was not detected above the level of the associated numeric value.
U*	See U code and see * code.
UD	See U code and see D code.
UE	See U code and see E code.
UE*	See U code, see E code, and see * code.
UEN	See U code, see E code, and see N code.
UH	See U code and see H code.

Analytical Laboratory Qualifier Codes (continued)

UH*	(U) (Organic/Inorganic)—The result for this analyte was not detected at the specified reporting limit. (H) (Organic/Inorganic)—The required extraction or analysis holding time for this result was exceeded. * (Inorganic)—The result for this analyte in the laboratory replicate analysis was outside acceptance criteria.
UI	(Rad) Gamma spectroscopy result should be regarded as an uncertain identification.
UN	EPA flag (Inorganic)—Compound was analyzed for but was not detected. Spiked sample recovery was not within control limits.
UN*	EPA flag (Inorganic)—See U code, see N code, and see * code.
UUI	(Rad) Gamma spectroscopy result should be regarded as an uncertain identification, and the analytical lab assigned these gamma spectroscopy results as not detected.
X	The analytical laboratory suspects the result is a nondetect despite positive quantification results.

Secondary Validation Flag Codes

Code	Description
A	The contractually required supporting documentation for this datum is absent.
I	The calculated sums are considered incomplete because of the lack of one or more congener results.
J	The analyte is classified as detected, but the reported concentration value is expected to be more uncertain than usual.
J-	The analyte is classified as detected, but the reported concentration value is expected to be more uncertain than usual with a potential negative bias.
J+	The analyte is classified as detected, but the reported concentration value is expected to be more uncertain than usual with a potential positive bias.
JN-	Presumptive evidence of the presence of the material is at an estimated quantity with a suspected negative bias.
JN+	Presumptive evidence of the presence of the material is at an estimated quantity with a suspected positive bias.
N	There is presumptive evidence of the presence of the material.
NJ	(Organic) Analyte has been tentatively identified, and the associated numerical value is estimated based upon a 1:1 response factor to the nearest eluting internal standard.
NQ	No validation qualifier flag is associated with this result, and the analyte is classified as detected.
PM	Manual review of raw data is recommended to determine if the observed noncompliances with quality acceptance criteria adversely impact data use.
R	The reported sample result is classified as rejected because of serious noncompliances regarding quality control (QC) acceptance criteria. The presence or absence of the analyte cannot be verified based on routine validation alone.
U	The analyte is classified as not detected.
UJ	The analyte is classified as not detected, with an expectation that the reported result is more uncertain than usual.

Table C-1 Chromium Investigation Monitoring Group Previously Unreported Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium-53/52	Cr-53/52	Y	0.97	—	—	—	%	Y	—	NQ	12-1565	CASA-12-14081	UIL
R-43 S1	903.9	11/16/10	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium-53/52	Cr-53/52	Y	1.02	—	—	—	%	Y	—	NQ	11-746	CASA-11-1378	UIL
R-43 S1	903.9	02/02/10	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium-53/52	Cr-53/52	Y	1.11	—	—	—	%	Y	—	NQ	10-3592	CASA-10-9842	UIL
R-43 S1	903.9	11/19/09	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium-53/52	Cr-53/52	Y	1.36	—	—	—	%	Y	—	NQ	10-1027	CASA-10-4776	UIL
R-43 S1	903.9	08/18/09	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium-53/52	Cr-53/52	Y	1.22	—	—	—	%	Y	—	NQ	09-3059	CASA-09-10396	UIL
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium-53/52	Cr-53/52	Y	1.64	—	—	—	%	Y	—	NQ	12-1565	CASA-12-14082	UIL
R-43 S2	969.1	11/16/10	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium-53/52	Cr-53/52	Y	2.01	—	—	—	%	Y	—	NQ	11-746	CASA-11-1381	UIL
R-43 S2	969.1	02/02/10	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium-53/52	Cr-53/52	Y	2.12	—	—	—	%	Y	—	NQ	10-3592	CASA-10-9845	UIL
R-43 S2	969.1	08/18/09	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium-53/52	Cr-53/52	Y	1.58	—	—	—	%	Y	—	NQ	09-3059	CASA-09-10401	UIL
R-43 S2	969.1	06/18/09	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium-53/52	Cr-53/52	Y	1.41	—	—	—	%	Y	—	NQ	09-2847	CAMO-09-10509	UIL
R-43 S2	969.1	06/18/09	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium-53/52	Cr-53/52	Y	1.43	—	—	—	%	Y	—	NQ	09-2847	CAMO-09-10512	UIL
R-62	1158.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium-53/52	Cr-53/52	Y	1.05	—	—	—	%	Y	—	NQ	12-1564	CAMO-12-14078	UIL

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.44	—	—	0.01	SU	Y	H	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.46	—	—	0.01	SU	Y	H	NQ	12-1338	CAMO-12-17129	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.14	—	—	0.01	SU	Y	H	J-	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.23	—	—	0.01	SU	Y	H	J-	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.79	—	—	0.01	SU	Y	H	J-	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	53.1	—	—	0.725	mg/L	Y	—	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	53.3	—	—	0.725	mg/L	Y	—	NQ	12-1338	CAMO-12-17129	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	53.4	—	—	0.73	mg/L	Y	—	NQ	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	50.6	—	—	0.73	mg/L	Y	—	NQ	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	48.1	—	—	0.73	mg/L	Y	—	NQ	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00631	0.00773	0.0359	—	pCi/L	Y	U	U	2013-246	CAMO-13-24238	GELC
MCOI-5	689.04	11/08/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00507	0.0051	0.039	—	pCi/L	Y	U	U	12-292	CAMO-12-1465	GELC
MCOI-5	689.04	07/07/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.000402	0.0038	0.035	—	pCi/L	Y	U	U	10-3605	CAMO-10-22836	GELC
MCOI-5	689.04	08/06/09	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0024	0.0026	0.045	—	pCi/L	Y	U	U	09-2808	CAMO-09-9532	GELC
MCOI-5	689.04	08/18/08	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00151	0.0044	0.028	—	pCi/L	Y	U	U	08-1709	CAMO-08-14497	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	16.1	—	—	1	ug/L	Y	—	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	15.5	—	—	1	ug/L	Y	—	NQ	12-1337	CAMO-12-14075	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	15.6	—	—	1	ug/L	Y	—	NQ	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	14.8	—	—	1	ug/L	Y	—	NQ	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	14	—	—	1	ug/L	Y	—	NQ	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	20.8	—	—	15	ug/L	Y	J	J	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	24.5	—	—	15	ug/L	Y	J	J	12-1337	CAMO-12-14075	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	21.2	—	—	15	ug/L	Y	J	J	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	22.5	—	—	15	ug/L	Y	J	J	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	21.2	—	—	15	ug/L	Y	J	J	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.143	—	—	0.067	mg/L	Y	J	J	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.09	—	—	0.067	mg/L	Y	J	J	12-1338	CAMO-12-17129	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.14	—	—	0.066	mg/L	Y	J	J-	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.142	—	—	0.066	mg/L	Y	J	J	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.132	—	—	0.066	mg/L	Y	J	J	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	20.8	—	—	0.05	mg/L	Y	—	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	19.5	—	—	0.05	mg/L	Y	—	NQ	12-1337	CAMO-12-14075	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	19	—	—	0.05	mg/L	Y	—	NQ	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	18.7	—	—	0.05	mg/L	Y	—	NQ	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	18.3	—	—	0.05	mg/L	Y	N	J-	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.494	1.64	5.91	—	pCi/L	Y	U	U	2013-246	CAMO-13-24238	GELC
MCOI-5	689.04	11/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.776	1.4	4.8	—	pCi/L	Y	U	U	12-292	CAMO-12-1465	GELC
MCOI-5	689.04	07/07/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	2.21	1.6	5.9	—	pCi/L	Y	U	U	10-3605	CAMO-10-22836	GELC
MCOI-5	689.04	08/06/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-3	1.4	3.9	—	pCi/L	Y	U	U	09-2808	CAMO-09-9532	GELC
MCOI-5	689.04	08/18/08	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.082	1.3	4.2	—	pCi/L	Y	U	U	08-1709	CAMO-08-14497	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	7.86	—	—	0.067	mg/L	Y	—	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	7.57	—	—	0.067	mg/L	Y	—	NQ	12-1338	CAMO-12-17129	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	6.73	—	—	0.066	mg/L	Y	—	NQ	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	6.69	—	—	0.066	mg/L	Y	—	NQ	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	6.79	—	—	0.066	mg/L	Y	—	J+	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	4.32	—	—	2	ug/L	Y	J	J	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	4.79	—	—	2	ug/L	Y	J	J	12-1337	CAMO-12-14075	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	3.4	—	—	2	ug/L	Y	J	J	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.59	—	—	2	ug/L	Y	J	J	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	4.03	—	—	2	ug/L	Y	J	J	11-2561	CAMO-11-10698	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
MCOI-5	689.04	10/30/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.889	1.56	6.39	—	pCi/L	Y	U	U	2013-246	CAMO-13-24238	GELC
MCOI-5	689.04	11/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.403	1	4	—	pCi/L	Y	U	U	12-292	CAMO-12-1465	GELC
MCOI-5	689.04	07/07/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.355	1.9	6.3	—	pCi/L	Y	U	U	10-3605	CAMO-10-22836	GELC
MCOI-5	689.04	08/06/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.265	1.3	4.1	—	pCi/L	Y	U	U	09-2808	CAMO-09-9532	GELC
MCOI-5	689.04	08/18/08	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.843	1.5	4.4	—	pCi/L	Y	U	U	08-1709	CAMO-08-14497	GELC
MCOI-5	689.04	10/30/12	WG	UF	INIT	REG	SVOC	SW-846:8270C	Dioxane[1,4-]	123-91-1	Y	5.28	—	—	3	ug/L	Y	J	J	2013-246	CAMO-13-24238	GELC
MCOI-5	689.04	06/04/12	WG	UF	RE	REG	SVOC	SW-846:8270C	Dioxane[1,4-]	123-91-1	Y	4.45	—	—	3.13	ug/L	Y	J	J	12-1337	CAMO-12-14070	GELC
MCOI-5	689.04	06/04/12	WG	UF	INIT	REG	SVOC	SW-846:8270C	Dioxane[1,4-]	123-91-1	Y	4.41	—	—	3	ug/L	N	J	J	12-1337	CAMO-12-14070	GELC
MCOI-5	689.04	11/08/11	WG	UF	INIT	REG	SVOC	SW-846:8270C	Dioxane[1,4-]	123-91-1	Y	5.19	—	—	3.3	ug/L	Y	J	J	12-292	CAMO-12-1465	GELC
MCOI-5	689.04	05/26/11	WG	UF	INIT	REG	SVOC	SW-846:8270C	Dioxane[1,4-]	123-91-1	Y	4.76	—	—	2	ug/L	Y	J	J	11-2561	CAMO-11-10699	GELC
MCOI-5	689.04	11/15/10	WG	UF	INIT	REG	SVOC	SW-846:8270C	Dioxane[1,4-]	123-91-1	Y	9.09	—	—	2	ug/L	Y	J	J	11-531	CAMO-11-1253	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.224	—	—	0.033	mg/L	Y	—	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.23	—	—	0.033	mg/L	Y	—	NQ	12-1338	CAMO-12-17129	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.207	—	—	0.033	mg/L	Y	—	NQ	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.243	—	—	0.033	mg/L	Y	—	NQ	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.224	—	—	0.033	mg/L	Y	—	NQ	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.346	0.598	2.46	—	pCi/L	Y	U	U	2013-246	CAMO-13-24238	GELC
MCOI-5	689.04	11/08/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.587	0.54	1.9	—	pCi/L	Y	U	U	12-292	CAMO-12-1465	GELC
MCOI-5	689.04	07/07/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.172	0.54	2.6	—	pCi/L	Y	U	U	10-3605	CAMO-10-22836	GELC
MCOI-5	689.04	08/06/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.82	0.4	1.2	—	pCi/L	Y	U	U	09-2808	CAMO-09-9532	GELC
MCOI-5	689.04	08/23/07	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	1.17	0.716	2.29	—	pCi/L	Y	U	U	192433	GU070800GMC520	GELC
MCOI-5	689.04	08/23/07	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.194	0.63	2.44	—	pCi/L	Y	U	U	192433	GU070800GMC501	GELC
MCOI-5	689.04	10/30/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	-0.638	0.648	2.63	—	pCi/L	Y	U	U	2013-246	CAMO-13-24238	GELC
MCOI-5	689.04	11/08/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.338	0.67	2.4	—	pCi/L	Y	U	U	12-292	CAMO-12-1465	GELC
MCOI-5	689.04	07/07/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	4.11	1.1	3	—	pCi/L	Y	—	NQ	10-3605	CAMO-10-22836	GELC
MCOI-5	689.04	08/06/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.98	0.76	2.2	—	pCi/L	Y	U	U	09-2808	CAMO-09-9532	GELC
MCOI-5	689.04	08/23/07	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	Y	4.79	0.994	2.55	—	pCi/L	Y	—	J	192433	GU070800GMC520	GELC
MCOI-5	689.04	08/23/07	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	2.09	0.93	2.95	—	pCi/L	Y	U	U	192433	GU070800GMC501	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	68.1	—	—	0.453	mg/L	Y	—	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	64.2	—	—	0.453	mg/L	Y	—	NQ	12-1337	CAMO-12-14075	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	62.3	—	—	0.45	mg/L	Y	—	NQ	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	60.8	—	—	0.45	mg/L	Y	—	NQ	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	60.3	—	—	0.45	mg/L	Y	—	NQ	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.96	—	—	0.11	mg/L	Y	—	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.77	—	—	0.11	mg/L	Y	—	NQ	12-1337	CAMO-12-14075	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.62	—	—	0.11	mg/L	Y	—	NQ	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.43	—	—	0.11	mg/L	Y	—	NQ	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.54	—	—	0.11	mg/L	Y	—	NQ	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.79	—	—	0.165	ug/L	Y	—	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.74	—	—	0.165	ug/L	Y	—	NQ	12-1337	CAMO-12-14075	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.6	—	—	0.17	ug/L	Y	—	NQ	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.54	—	—	0.17	ug/L	Y	—	NQ	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.34	—	—	0.17	ug/L	Y	—	NQ	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	2.21	3.27	11.8	—	pCi/L	Y	U	U	2013-246	CAMO-13-24238	GELC
MCOI-5	689.04	11/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-1.12	3.1	11	—	pCi/L	Y	U	U	12-292	CAMO-12-1465	GELC
MCOI-5	689.04	07/07/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.15	3.3	11	—	pCi/L	Y	U	U	10-3605	CAMO-10-22836	GELC
MCOI-5	689.04	08/06/09	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	29.6	14	35	—	pCi/L	Y	U	U	09-2808	CAMO-09-9532	GELC
MCOI-5	689.04	08/18/08	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-5.27	10	34	—	pCi/L	Y	U	U	08-1709	CAMO-08-14497	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.78	—	—	0.5	ug/L	Y	J	J	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.18	—	—	0.5	ug/L	Y	J	J	12-1337	CAMO-12-14075	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.776	—	—	0.5	ug/L	Y	J	J	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.775	—	—	0.5	ug/L	Y	J	J	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.701	—	—	0.5	ug/L	Y	J	J	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	3.89	—	—	0.17	mg/L	Y	—	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	3.75	—	—	0.17	mg/L	Y	—	NQ	12-1338	CAMO-12-17129	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	3.88	—	—	0.05	mg/L	Y	—	NQ	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	4.04	—	—	0.05	mg/L	Y	—	NQ	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	4	—	—	0.1	mg/L	Y	—	NQ	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	75	—	—	5	ug/L	Y	—	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	68.7	—	—	5	ug/L	Y	—	NQ	12-1338	CAMO-12-17129	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	75.1	—	—	5	ug/L	Y	—	NQ	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	82.8	—	—	5	ug/L	Y	—	NQ	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	87.9	—	—	5	ug/L	Y	—	NQ	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00249	0.00557	0.0239	—	pCi/L	Y	U	U	2013-246	CAMO-13-24238	GELC
MCOI-5	689.04	11/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.0033	0.026	—	pCi/L	Y	U	U	12-292	CAMO-12-1465	GELC
MCOI-5	689.04	07/07/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00159	0.0022	0.021	—	pCi/L	Y	U	U	10-3605	CAMO-10-22836	GELC
MCOI-5	689.04	08/06/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.0019	0.028	—	pCi/L	Y	U	U	09-2808	CAMO-09-9532	GELC
MCOI-5	689.04	08/18/08	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.0242	0.008	0.031	—	pCi/L	Y	U	U	08-1709	CAMO-08-14497	GELC
MCOI-5	689.04	10/30/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0125	0.00659	0.0398	—	pCi/L	Y	U	U	2013-246	CAMO-13-24238	GELC
MCOI-5	689.04	11/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0	0.0023	0.036	—	pCi/L	Y	U	U	12-292	CAMO-12-1465	GELC
MCOI-5	689.04	07/07/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00159	0.0036	0.022	—	pCi/L	Y	U	U	10-3605	CAMO-10-22836	GELC
MCOI-5	689.04	08/06/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0	0.0018	0.034	—	pCi/L	Y	U	U	09-2808	CAMO-09-9532	GELC
MCOI-5	689.04	08/18/08	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.0022	0.0058	0.037	—	pCi/L	Y	U	U	08-1709	CAMO-08-14497	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	0.984	—	—	0.05	mg/L	Y	—	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	0.52	—	—	0.05	mg/L	Y	—	NQ	12-1337	CAMO-12-14075	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	0.46	—	—	0.05	mg/L	Y	—	NQ	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	0.438	—	—	0.05	mg/L	Y	—	NQ	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	N	0.365	—	—	0.05	mg/L	Y	—	U	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	17.8	22.1	89.8	—	pCi/L	Y	U	U	2013-246	CAMO-13-24238	GELC
MCOI-5	689.04	11/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	12.9	18	72	—	pCi/L	Y	U	U	12-292	CAMO-12-1465	GELC
MCOI-5	689.04	07/07/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	13.9	20	70	—	pCi/L	Y	U	U	10-3605	CAMO-10-22836	GELC
MCOI-5	689.04	08/06/09	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	50.4	14	55	—	pCi/L	Y	U	U	09-2808	CAMO-09-9532	GELC
MCOI-5	689.04	08/18/08	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-1.82	17	58	—	pCi/L	Y	U	U	08-1709	CAMO-08-14497	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	72.6	—	—	0.053	mg/L	Y	—	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	65.1	—	—	0.053	mg/L	Y	—	NQ	12-1338	CAMO-12-17129	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	70.2	—	—	0.053	mg/L	Y	—	NQ	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	70	—	—	0.053	mg/L	Y	—	NQ	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	63.7	—	—	0.053	mg/L	Y	—	NQ	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	14.9	—	—	0.1	mg/L	Y	—	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	13.2	—	—	0.1	mg/L	Y	—	NQ	12-1337	CAMO-12-14075	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	12.8	—	—	0.1	mg/L	Y	—	J-	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	13	—	—	0.1	mg/L	Y	—	NQ	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	12.9	—	—	0.1	mg/L	Y	—	NQ	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-3.07	1.89	6.1	—	pCi/L	Y	U	U	2013-246	CAMO-13-24238	GELC
MCOI-5	689.04	11/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.725	1.3	5	—	pCi/L	Y	U	U	12-292	CAMO-12-1465	GELC
MCOI-5	689.04	07/07/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.16	1.8	5.3	—	pCi/L	Y	U	U	10-3605	CAMO-10-22836	GELC
MCOI-5	689.04	08/06/09	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.71	1.1	3.1	—	pCi/L	Y	U	U	09-2808	CAMO-09-9532	GELC
MCOI-5	689.04	08/18/08	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.82	1.2	3.4	—	pCi/L	Y	U	U	08-1709	CAMO-08-14497	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	195	—	—	1	uS/cm	Y	—	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	190	—	—	1	uS/cm	Y	—	NQ	12-1338	CAMO-12-17129	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	182	—	—	1	uS/cm	Y	—	NQ	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	182	—	—	1	uS/cm	Y	—	NQ	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	186	—	—	1	uS/cm	Y	—	NQ	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	93.8	—	—	1	ug/L	Y	—	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	89.6	—	—	1	ug/L	Y	—	NQ	12-1337	CAMO-12-14075	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	86.4	—	—	1	ug/L	Y	—	NQ	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	82.4	—	—	1	ug/L	Y	—	NQ	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	80.5	—	—	1	ug/L	Y	—	NQ	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.295	0.126	0.487	—	pCi/L	Y	U	U	2013-246	CAMO-13-24238	GELC
MCOI-5	689.04	11/08/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.33	0.15	0.47	—	pCi/L	Y	U	U	12-292	CAMO-12-1465	GELC
MCOI-5	689.04	07/07/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.368	0.15	0.47	—	pCi/L	Y	U	U	10-3605	CAMO-10-22836	GELC
MCOI-5	689.04	08/06/09	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.11	0.15	0.49	—	pCi/L	Y	U	U	09-2808	CAMO-09-9532	GELC
MCOI-5	689.04	08/18/08	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0919	0.11	0.39	—	pCi/L	Y	U	U	08-1709	CAMO-08-14497	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	13.3	—	—	0.133	mg/L	Y	—	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	12.8	—	—	0.133	mg/L	Y	—	NQ	12-1338	CAMO-12-17129	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	12.1	—	—	0.1	mg/L	Y	—	J+	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	12.2	—	—	0.1	mg/L	Y	—	NQ	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	13	—	—	0.1	mg/L	Y	—	NQ	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	169	—	—	3.4	mg/L	Y	—	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	156	—	—	3.4	mg/L	Y	—	NQ	12-1338	CAMO-12-17129	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	170	—	—	3.4	mg/L	Y	—	NQ	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	157	—	—	3.4	mg/L	Y	—	NQ	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	150	—	—	2.4	mg/L	Y	—	NQ	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.879	—	—	0.33	mg/L	Y	J	J	2013-246	CAMO-13-24238	GELC
MCOI-5	689.04	06/04/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.947	—	—	0.33	mg/L	Y	J	J	12-1338	CAMO-12-17124	GELC
MCOI-5	689.04	11/08/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.333	—	—	0.33	mg/L	Y	J	J	12-292	CAMO-12-1465	GELC
MCOI-5	689.04	08/10/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	N	1	—	—	0.33	mg/L	Y	U	U	11-3146	CAMO-11-24627	GELC
MCOI-5	689.04	05/26/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.858	—	—	0.33	mg/L	Y	J	J	11-2561	CAMO-11-10699	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.327	—	—	0.017	mg/L	Y	—	NQ	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.031	—	—	0.017	mg/L	Y	J	J	12-1338	CAMO-12-17129	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0428	—	—	0.015	mg/L	Y	J	J	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.136	—	—	0.015	mg/L	Y	—	NQ	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.0959	—	—	0.015	mg/L	Y	—	U	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	Y	2410	79.2	154	—	pCi/L	Y	—	NQ	2013-246	CAMO-13-24238	GELC
MCOI-5	689.04	11/08/11	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	Y	2320	260	180	—	pCi/L	Y	—	NQ	12-292	CAMO-12-1465	GELC
MCOI-5	689.04	05/26/11	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	Y	2370	250	170	—	pCi/L	Y	—	NQ	11-2561	CAMO-11-10699	GELC
MCOI-5	689.04	11/15/10	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	Y	3290	340	150	—	pCi/L	Y	—	NQ	11-531	CAMO-11-1253	GELC
MCOI-5	689.04	05/03/10	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	Y	3920	410	160	—	pCi/L	Y	—	NQ	10-3007	CAMO-10-16735	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.13	—	—	0.067	ug/L	Y	J	J	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.165	—	—	0.067	ug/L	Y	J	J	12-1337	CAMO-12-14075	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.106	—	—	0.067	ug/L	Y	J	J	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	N	0.2	—	—	0.067	ug/L	Y	U	U	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.092	—	—	0.067	ug/L	Y	J	J	11-2561	CAMO-11-10698	GELC
MCOI-5	689.04	10/30/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.0758	0.0155	0.0592	—	pCi/L	Y	—	NQ	2013-246	CAMO-13-24238	GELC
MCOI-5	689.04	11/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.0809	0.019	0.071	—	pCi/L	Y	—	NQ	12-292	CAMO-12-1465	GELC
MCOI-5	689.04	07/07/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.126	0.021	0.068	—	pCi/L	Y	—	NQ	10-3605	CAMO-10-22836	GELC
MCOI-5	689.04	08/06/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.0873	0.017	0.082	—	pCi/L	Y	—	NQ	09-2808	CAMO-09-9532	GELC
MCOI-5	689.04	08/18/08	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.121	0.015	0.051	—	pCi/L	Y	—	NQ	08-1709	CAMO-08-14497	GELC
MCOI-5	689.04	10/30/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0	0.00631	0.037	—	pCi/L	Y	U	U	2013-246	CAMO-13-24238	GELC
MCOI-5	689.04	11/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	-0.0104	0.0092	0.037	—	pCi/L	Y	U	U	12-292	CAMO-12-1465	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
MCOI-5	689.04	07/07/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0163	0.0074	0.041	—	pCi/L	Y	U	U	10-3605	CAMO-10-22836	GELC
MCOI-5	689.04	08/06/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	-0.00264	0.0059	0.04	—	pCi/L	Y	U	U	09-2808	CAMO-09-9532	GELC
MCOI-5	689.04	08/18/08	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0166	0.0062	0.027	—	pCi/L	Y	U	U	08-1709	CAMO-08-14497	GELC
MCOI-5	689.04	10/30/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.0485	0.0117	0.0402	—	pCi/L	Y	—	NQ	2013-246	CAMO-13-24238	GELC
MCOI-5	689.04	11/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	N	0.028	0.0091	0.031	—	pCi/L	Y	U	U	12-292	CAMO-12-1465	GELC
MCOI-5	689.04	07/07/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.0976	0.018	0.047	—	pCi/L	Y	—	NQ	10-3605	CAMO-10-22836	GELC
MCOI-5	689.04	08/06/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	N	0.0214	0.014	0.04	—	pCi/L	Y	U	U	09-2808	CAMO-09-9532	GELC
MCOI-5	689.04	08/18/08	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.0492	0.0092	0.027	—	pCi/L	Y	—	NQ	08-1709	CAMO-08-14497	GELC
MCOI-5	689.04	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	2.27	—	—	1	ug/L	Y	J	J	2013-246	CAMO-13-24255	GELC
MCOI-5	689.04	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	2.13	—	—	1	ug/L	Y	J	J	12-1337	CAMO-12-14075	GELC
MCOI-5	689.04	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	1.41	—	—	1	ug/L	Y	J	J	12-292	CAMO-12-1466	GELC
MCOI-5	689.04	08/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	1.34	—	—	1	ug/L	Y	J	J	11-3146	CAMO-11-24628	GELC
MCOI-5	689.04	05/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	2.18	—	—	1	ug/L	Y	J	J	11-2561	CAMO-11-10698	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.38	—	—	0.01	SU	Y	H	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.33	—	—	0.01	SU	Y	H	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.26	—	—	0.01	SU	Y	H	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.35	—	—	0.01	SU	Y	H	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.27	—	—	0.01	SU	Y	H	J-	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.37	—	—	0.01	SU	Y	H	J-	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	96	—	—	0.725	mg/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	97	—	—	0.725	mg/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	98.4	—	—	0.725	mg/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	100	—	—	0.725	mg/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	101	—	—	0.73	mg/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	101	—	—	0.73	mg/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/02/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00338	0.00756	0.0385	—	pCi/L	Y	U	U	2013-267	CAMO-13-24239	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	FD	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00202	0.0045	0.031	—	pCi/L	Y	U	U	12-312	CAMO-12-1471	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00226	0.006	0.035	—	pCi/L	Y	U	U	12-312	CAMO-12-1468	GELC
MCOI-6	686	07/06/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00106	0.0063	0.041	—	pCi/L	Y	U	U	10-3589	CAMO-10-22837	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	FD	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.000582	0.0017	0.032	—	pCi/L	Y	U	U	09-2970	CAMO-09-9537	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00286	0.0031	0.034	—	pCi/L	Y	U	U	09-2970	CAMO-09-9533	GELC
MCOI-6	686	08/12/08	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00668	0.0038	0.031	—	pCi/L	Y	U	U	08-1657	CAMO-08-14500	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0587	—	—	0.017	mg/L	Y	—	J+	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.0265	—	—	0.017	mg/L	Y	J	U	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0193	—	—	0.017	mg/L	Y	J	J	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.0234	—	—	0.016	mg/L	Y	J	U	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	UJ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	UJ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	46.9	—	—	1	ug/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	44.8	—	—	1	ug/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	45.9	—	—	1	ug/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	45.4	—	—	1	ug/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Barium	Ba	Y	48.2	—	—	1	ug/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	46	—	—	1	ug/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	50.4	—	—	15	ug/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	50.8	—	—	15	ug/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	49.9	—	—	15	ug/L	Y	J	J	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	48.6	—	—	15	ug/L	Y	J	J	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	49.6	—	—	15	ug/L	Y	J	J	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Boron	B	Y	51.3	—	—	15	ug/L	Y	—	NQ	12-312	CAMO-12-1472	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
MCOI-6	686	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.702	—	—	0.067	mg/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.633	—	—	0.067	mg/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.646	—	—	0.067	mg/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.692	—	—	0.067	mg/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.669	—	—	0.066	mg/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.658	—	—	0.066	mg/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	71.6	—	—	0.05	mg/L	Y	—	J-	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	67	—	—	0.05	mg/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	67.8	—	—	0.05	mg/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	69.8	—	—	0.05	mg/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	70.6	—	—	0.05	mg/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Calcium	Ca	Y	74.7	—	—	0.05	mg/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/02/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.31	1.62	5.73	—	pCi/L	Y	U	U	2013-267	CAMO-13-24239	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	FD	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.68	0.78	2.8	—	pCi/L	Y	U	U	12-312	CAMO-12-1471	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-3.46	1.5	4.4	—	pCi/L	Y	U	U	12-312	CAMO-12-1468	GELC
MCOI-6	686	07/06/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-2.84	1.7	5.1	—	pCi/L	Y	U	U	10-3589	CAMO-10-22837	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.362	1.3	4.2	—	pCi/L	Y	U	U	09-2970	CAMO-09-9533	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	FD	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.39	1.4	4.6	—	pCi/L	Y	U	U	09-2970	CAMO-09-9537	GELC
MCOI-6	686	08/12/08	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.0224	1.4	4.5	—	pCi/L	Y	U	U	08-1657	CAMO-08-14500	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	58.6	—	—	0.67	mg/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	54.8	—	—	0.67	mg/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	60.3	—	—	0.67	mg/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	62.3	—	—	0.335	mg/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	64.6	—	—	0.33	mg/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	64.8	—	—	0.33	mg/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/02/12	WG	UF	INIT	REG	VOC	SW-846:8260B	Chloroform	67-66-3	Y	0.32	—	—	0.3	ug/L	Y	J	J	2013-267	CAMO-13-24239	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	REG	VOC	SW-846:8260B	Chloroform	67-66-3	Y	0.34	—	—	0.25	ug/L	Y	J	J	12-313	CAMO-12-1468	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	FD	VOC	SW-846:8260B	Chloroform	67-66-3	Y	0.35	—	—	0.25	ug/L	Y	J	J	12-313	CAMO-12-1471	GELC
MCOI-6	686	08/10/11	WG	UF	INIT	REG	VOC	SW-846:8260B	Chloroform	67-66-3	Y	0.32	—	—	0.25	ug/L	Y	J	J	11-3152	CAMO-11-24630	GELC
MCOI-6	686	05/31/11	WG	UF	INIT	REG	VOC	SW-846:8260B	Chloroform	67-66-3	Y	0.3	—	—	0.25	ug/L	Y	J	J	11-2587	CAMO-11-10700	GELC
MCOI-6	686	07/06/10	WG	UF	INIT	REG	VOC	SW-846:8260B	Chloroform	67-66-3	Y	0.27	—	—	0.25	ug/L	Y	J	J	10-3589	CAMO-10-22837	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	61.6	—	—	2	ug/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	64.6	—	—	2	ug/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	58.4	—	—	2	ug/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	59.6	—	—	2	ug/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	61.8	—	—	2	ug/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	INORGANIC	SW-846:6020	Chromium	Cr	Y	60.9	—	—	2	ug/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/02/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.53	1.31	4.46	—	pCi/L	Y	U	U	2013-267	CAMO-13-24239	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	FD	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.0279	0.86	3	—	pCi/L	Y	U	U	12-312	CAMO-12-1471	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	1.05	0.98	3.1	—	pCi/L	Y	U	U	12-312	CAMO-12-1468	GELC
MCOI-6	686	07/06/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-2.33	1.7	4.6	—	pCi/L	Y	U	U	10-3589	CAMO-10-22837	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	FD	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.19	1.5	4.1	—	pCi/L	Y	U	U	09-2970	CAMO-09-9537	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	2.42	1.3	4.9	—	pCi/L	Y	U	U	09-2970	CAMO-09-9533	GELC
MCOI-6	686	08/12/08	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.8	1.6	4.5	—	pCi/L	Y	U	U	08-1657	CAMO-08-14500	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Copper	Cu	Y	13.1	—	—	3	ug/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Copper	Cu	Y	5.52	—	—	3	ug/L	Y	J	J	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Copper	Cu	Y	12.1	—	—	3	ug/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Copper	Cu	Y	9.42	—	—	3	ug/L	Y	J	J	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Copper	Cu	Y	13.2	—	—	3	ug/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Copper	Cu	Y	13	—	—	3	ug/L	Y	—	NQ	12-312	CAMO-12-1472	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
MCOI-6	686	11/02/12	WG	UF	INIT	REG	SVOC	SW-846:8270C	Dioxane[1,4-]	123-91-1	Y	9.69	—	—	3.06	ug/L	Y	J	J	2013-267	CAMO-13-24239	GELC
MCOI-6	686	06/04/12	WG	UF	RE	REG	SVOC	SW-846:8270C	Dioxane[1,4-]	123-91-1	Y	11.2	—	—	3.13	ug/L	Y	—	NQ	12-1340	CAMO-12-14071	GELC
MCOI-6	686	06/04/12	WG	UF	INIT	REG	SVOC	SW-846:8270C	Dioxane[1,4-]	123-91-1	Y	9.26	—	—	3.13	ug/L	N	J	J	12-1340	CAMO-12-14071	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	REG	SVOC	SW-846:8270C	Dioxane[1,4-]	123-91-1	Y	12.1	—	—	3.1	ug/L	Y	—	NQ	12-313	CAMO-12-1468	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	FD	SVOC	SW-846:8270C	Dioxane[1,4-]	123-91-1	Y	12.1	—	—	3.2	ug/L	Y	—	NQ	12-313	CAMO-12-1471	GELC
MCOI-6	686	05/31/11	WG	UF	RE	REG	SVOC	SW-846:8270C	Dioxane[1,4-]	123-91-1	Y	10.8	—	—	2.2	ug/L	Y	J	J	11-2587	CAMO-11-10700	GELC
MCOI-6	686	05/31/11	WG	UF	INIT	REG	SVOC	SW-846:8270C	Dioxane[1,4-]	123-91-1	Y	9.83	—	—	2	ug/L	N	J	J-	11-2587	CAMO-11-10700	GELC
MCOI-6	686	11/10/10	WG	UF	INIT	REG	SVOC	SW-846:8270C	Dioxane[1,4-]	123-91-1	Y	11.5	—	—	2.2	ug/L	Y	—	NQ	11-471	CAMO-11-1256	GELC
MCOI-6	686	11/10/10	WG	UF	INIT	FD	SVOC	SW-846:8270C	Dioxane[1,4-]	123-91-1	Y	13.6	—	—	2	ug/L	Y	—	NQ	11-471	CAMO-11-1258	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.563	—	—	0.033	mg/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.503	—	—	0.033	mg/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.558	—	—	0.033	mg/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.548	—	—	0.033	mg/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.539	—	—	0.033	mg/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.547	—	—	0.033	mg/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/02/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.198	0.645	2.74	—	pCi/L	Y	U	U	2013-267	CAMO-13-24239	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	0.121	0.57	2.5	—	pCi/L	Y	U	U	12-312	CAMO-12-1471	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	2.11	1	2.6	—	pCi/L	Y	U	U	12-312	CAMO-12-1468	GELC
MCOI-6	686	07/06/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	3.55	1.2	2.9	—	pCi/L	Y	—	U	10-3589	CAMO-10-22837	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	-0.139	0.46	2	—	pCi/L	Y	U	U	09-2970	CAMO-09-9537	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.103	0.49	2.1	—	pCi/L	Y	U	U	09-2970	CAMO-09-9533	GELC
MCOI-6	686	08/13/07	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.402	0.79	2.97	—	pCi/L	Y	U	U	191539	GU070800GMC601	GELC
MCOI-6	686	11/02/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.92	0.954	3.08	—	pCi/L	Y	U	U	2013-267	CAMO-13-24239	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	N	1.32	0.81	2.6	—	pCi/L	Y	U	U	12-312	CAMO-12-1471	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	2.2	0.8	2.3	—	pCi/L	Y	U	U	12-312	CAMO-12-1468	GELC
MCOI-6	686	07/06/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	3.14	1	2.9	—	pCi/L	Y	—	NQ	10-3589	CAMO-10-22837	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	Y	3.64	0.86	1.9	—	pCi/L	Y	—	NQ	09-2970	CAMO-09-9537	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.91	0.93	2.9	—	pCi/L	Y	U	U	09-2970	CAMO-09-9533	GELC
MCOI-6	686	08/13/07	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	4.37	0.96	2.53	—	pCi/L	Y	—	J	191539	GU070800GMC601	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	240	—	—	0.453	mg/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	223	—	—	0.453	mg/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	228	—	—	0.453	mg/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	233	—	—	0.453	mg/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	235	—	—	0.45	mg/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	248	—	—	0.45	mg/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	15	—	—	0.11	mg/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	13.5	—	—	0.11	mg/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	14.3	—	—	0.11	mg/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	14.2	—	—	0.11	mg/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	14.2	—	—	0.11	mg/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	15	—	—	0.11	mg/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	3.88	—	—	2	ug/L	Y	J	J	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	3.59	—	—	2	ug/L	Y	J	J	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	5.63	—	—	2	ug/L	Y	J	J	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	4.48	—	—	2	ug/L	Y	J	J	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	4.07	—	—	2	ug/L	Y	J	J	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Manganese	Mn	Y	4.06	—	—	2	ug/L	Y	J	J	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.55	—	—	0.165	ug/L	Y	—	J	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.44	—	—	0.165	ug/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.69	—	—	0.165	ug/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
MCOI-6	686	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.32	—	—	0.165	ug/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.39	—	—	0.17	ug/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.4	—	—	0.17	ug/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/02/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	3.59	2.91	10.7	—	pCi/L	Y	U	U	2013-267	CAMO-13-24239	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	0.0677	1.3	4.4	—	pCi/L	Y	U	U	12-312	CAMO-12-1468	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	FD	RAD	EPA:901.1	Neptunium-237	Np-237	N	0.776	1.6	5.7	—	pCi/L	Y	U	U	12-312	CAMO-12-1471	GELC
MCOI-6	686	07/06/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-1.13	3.2	10	—	pCi/L	Y	U	U	10-3589	CAMO-10-22837	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	FD	RAD	EPA:901.1	Neptunium-237	Np-237	N	17.5	11	37	—	pCi/L	Y	U	U	09-2970	CAMO-09-9537	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	11.5	11	38	—	pCi/L	Y	U	U	09-2970	CAMO-09-9533	GELC
MCOI-6	686	08/12/08	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	10.3	10	34	—	pCi/L	Y	U	U	08-1657	CAMO-08-14500	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	38.1	—	—	0.5	ug/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	40.1	—	—	0.5	ug/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	40.8	—	—	0.5	ug/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	34.3	—	—	0.5	ug/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	39.9	—	—	0.5	ug/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	INORGANIC	SW-846:6020	Nickel	Ni	Y	38.3	—	—	0.5	ug/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	8.5	—	—	0.425	mg/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	7.96	—	—	0.17	mg/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	8.33	—	—	0.17	mg/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	8.07	—	—	0.1	mg/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	8.76	—	—	0.1	mg/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	8.93	—	—	0.1	mg/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	63.5	—	—	5	ug/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	60.6	—	—	5	ug/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	59.4	—	—	5	ug/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	64.3	—	—	5	ug/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	63.1	—	—	5	ug/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	63.1	—	—	5	ug/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/02/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00181	0.00542	0.0174	—	pCi/L	Y	U	U	2013-267	CAMO-13-24239	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00206	0.0029	0.023	—	pCi/L	Y	U	U	12-312	CAMO-12-1471	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.0025	0.028	—	pCi/L	Y	U	U	12-312	CAMO-12-1468	GELC
MCOI-6	686	07/06/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.0086	0.027	—	pCi/L	Y	U	U	10-3589	CAMO-10-22837	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00366	0.0026	0.032	—	pCi/L	Y	U	U	09-2970	CAMO-09-9533	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-2.06E-10	0.0024	0.03	—	pCi/L	Y	U	U	09-2970	CAMO-09-9537	GELC
MCOI-6	686	08/12/08	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.003	0.03	—	pCi/L	Y	U	U	08-1657	CAMO-08-14500	GELC
MCOI-6	686	11/02/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00361	0.00722	0.0288	—	pCi/L	Y	U	U	2013-267	CAMO-13-24239	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00412	0.0036	0.032	—	pCi/L	Y	U	U	12-312	CAMO-12-1471	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	8.29E-10	0.005	0.039	—	pCi/L	Y	U	U	12-312	CAMO-12-1468	GELC
MCOI-6	686	07/06/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00815	0.0058	0.028	—	pCi/L	Y	U	U	10-3589	CAMO-10-22837	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00365	0.0045	0.036	—	pCi/L	Y	U	U	09-2970	CAMO-09-9533	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.0069	0.0042	0.034	—	pCi/L	Y	U	U	09-2970	CAMO-09-9537	GELC
MCOI-6	686	08/12/08	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0	0.003	0.037	—	pCi/L	Y	U	U	08-1657	CAMO-08-14500	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.06	—	—	0.05	mg/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	0.882	—	—	0.05	mg/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	0.908	—	—	0.05	mg/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	0.99	—	—	0.05	mg/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Potassium	K	Y	1.2	—	—	0.05	mg/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.11	—	—	0.05	mg/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/02/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-3.1	15.1	55.2	—	pCi/L	Y	U	U	2013-267	CAMO-13-24239	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	FD	RAD	EPA:901.1	Potassium-40	K-40	N	-31.8	12	35	—	pCi/L	Y	U	U	12-312	CAMO-12-1471	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
MCOI-6	686	11/09/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-13.6	13	34	—	pCi/L	Y	U	U	12-312	CAMO-12-1468	GELC
MCOI-6	686	07/06/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-16.4	19	66	—	pCi/L	Y	U	U	10-3589	CAMO-10-22837	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	FD	RAD	EPA:901.1	Potassium-40	K-40	N	-16.7	18	61	—	pCi/L	Y	U	U	09-2970	CAMO-09-9537	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-19.1	17	58	—	pCi/L	Y	U	U	09-2970	CAMO-09-9533	GELC
MCOI-6	686	08/12/08	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-23.9	18	51	—	pCi/L	Y	U	U	08-1657	CAMO-08-14500	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	74.9	—	—	0.053	mg/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	64.9	—	—	0.053	mg/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	71.1	—	—	0.053	mg/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	71	—	—	0.053	mg/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	68.6	—	—	0.053	mg/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	72.2	—	—	0.053	mg/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	28.8	—	—	0.1	mg/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	27.4	—	—	0.1	mg/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	26.1	—	—	0.1	mg/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	26.1	—	—	0.1	mg/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	26.8	—	—	0.1	mg/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Sodium	Na	Y	28.3	—	—	0.1	mg/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/02/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.0195	1.2	4.65	—	pCi/L	Y	U	U	2013-267	CAMO-13-24239	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	FD	RAD	EPA:901.1	Sodium-22	Na-22	N	0.368	0.82	3	—	pCi/L	Y	U	U	12-312	CAMO-12-1471	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.371	0.72	2.7	—	pCi/L	Y	U	U	12-312	CAMO-12-1468	GELC
MCOI-6	686	07/06/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.28	1.5	5.4	—	pCi/L	Y	U	U	10-3589	CAMO-10-22837	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	FD	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.829	1.2	3.5	—	pCi/L	Y	U	U	09-2970	CAMO-09-9537	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.34	1.2	4.2	—	pCi/L	Y	U	U	09-2970	CAMO-09-9533	GELC
MCOI-6	686	08/12/08	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.622	1.2	3.8	—	pCi/L	Y	U	U	08-1657	CAMO-08-14500	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	591	—	—	1	uS/cm	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	600	—	—	1	uS/cm	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	601	—	—	1	uS/cm	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	594	—	—	1	uS/cm	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	611	—	—	1	uS/cm	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	608	—	—	1	uS/cm	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	325	—	—	1	ug/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	322	—	—	1	ug/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	315	—	—	1	ug/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	321	—	—	1	ug/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	322	—	—	1	ug/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Strontium	Sr	Y	339	—	—	1	ug/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/02/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.146	0.133	0.462	—	pCi/L	Y	U	U	2013-267	CAMO-13-24239	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	FD	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.257	0.12	0.48	—	pCi/L	Y	U	U	12-312	CAMO-12-1471	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.339	0.15	0.49	—	pCi/L	Y	U	U	12-312	CAMO-12-1468	GELC
MCOI-6	686	07/06/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0848	0.097	0.41	—	pCi/L	Y	U	U	10-3589	CAMO-10-22837	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0337	0.075	0.26	—	pCi/L	Y	U	U	09-2970	CAMO-09-9533	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	FD	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.107	0.07	0.23	—	pCi/L	Y	U	U	09-2970	CAMO-09-9537	GELC
MCOI-6	686	08/12/08	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0728	0.075	0.26	—	pCi/L	Y	U	U	08-1657	CAMO-08-14500	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	66.1	—	—	1.33	mg/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	60.6	—	—	1.33	mg/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	66.8	—	—	1.33	mg/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	65.1	—	—	0.665	mg/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	66.1	—	—	0.5	mg/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	66.4	—	—	0.5	mg/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	390	—	—	3.4	mg/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
MCOI-6	686	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	419	—	—	3.4	mg/L	Y	—	J	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	420	—	—	3.4	mg/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	413	—	—	3.4	mg/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	401	—	—	3.4	mg/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	417	—	—	3.4	mg/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/02/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.163	—	—	0.035	mg/L	Y	—	J-	2013-267	CAMO-13-24239	GELC
MCOI-6	686	08/17/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.0945	—	—	0.035	mg/L	Y	J	J-	12-1509	CAMO-12-21734	GELC
MCOI-6	686	06/04/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.146	—	—	0.035	mg/L	Y	—	NQ	12-1339	CAMO-12-14006	GELC
MCOI-6	686	03/05/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.0853	—	—	0.035	mg/L	Y	J	J-	12-1052	CAMO-12-12017	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	U	12-312	CAMO-12-1468	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	FD	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	U	12-312	CAMO-12-1471	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0976	—	—	0.017	mg/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.0859	—	—	0.017	mg/L	Y	—	U	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0634	—	—	0.017	mg/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0696	—	—	0.015	mg/L	Y	—	J-	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0409	—	—	0.015	mg/L	Y	J	J	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0398	—	—	0.015	mg/L	Y	J	J	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/02/12	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	Y	3720	117	110	—	pCi/L	Y	—	NQ	2013-267	CAMO-13-24239	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	Y	4280	450	180	—	pCi/L	Y	—	NQ	12-312	CAMO-12-1468	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	FD	RAD	EPA:906.0	Tritium	H-3	Y	4180	440	180	—	pCi/L	Y	—	NQ	12-312	CAMO-12-1471	GELC
MCOI-6	686	05/31/11	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	Y	4280	430	180	—	pCi/L	Y	—	NQ	11-2587	CAMO-11-10700	GELC
MCOI-6	686	11/10/10	WG	UF	INIT	FD	RAD	EPA:906.0	Tritium	H-3	Y	5040	510	200	—	pCi/L	Y	—	NQ	11-471	CAMO-11-1258	GELC
MCOI-6	686	11/10/10	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	Y	5240	530	200	—	pCi/L	Y	—	NQ	11-471	CAMO-11-1256	GELC
MCOI-6	686	05/11/10	WG	UF	INIT	FD	RAD	EPA:906.0	Tritium	H-3	Y	6450	650	180	—	pCi/L	Y	—	NQ	10-3131	CAMO-10-16981	GELC
MCOI-6	686	05/11/10	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	Y	6680	670	180	—	pCi/L	Y	—	NQ	10-3131	CAMO-10-16737	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.26	—	—	0.067	ug/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.31	—	—	0.067	ug/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.41	—	—	0.067	ug/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.46	—	—	0.067	ug/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.39	—	—	0.067	ug/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	INORGANIC	SW-846:6020	Uranium	U	Y	1.4	—	—	0.067	ug/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/02/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.617	0.0441	0.0708	—	pCi/L	Y	—	NQ	2013-267	CAMO-13-24239	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	1.11	0.099	0.075	—	pCi/L	Y	—	NQ	12-312	CAMO-12-1471	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	1.06	0.095	0.075	—	pCi/L	Y	—	NQ	12-312	CAMO-12-1468	GELC
MCOI-6	686	07/06/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.982	0.087	0.07	—	pCi/L	Y	—	NQ	10-3589	CAMO-10-22837	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.751	0.074	0.12	—	pCi/L	Y	—	NQ	09-2970	CAMO-09-9533	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.814	0.081	0.12	—	pCi/L	Y	—	NQ	09-2970	CAMO-09-9537	GELC
MCOI-6	686	08/12/08	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.655	0.069	0.15	—	pCi/L	Y	—	NQ	08-1657	CAMO-08-14500	GELC
MCOI-6	686	11/02/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0264	0.0125	0.0442	—	pCi/L	Y	U	U	2013-267	CAMO-13-24239	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0367	0.013	0.04	—	pCi/L	Y	U	U	12-312	CAMO-12-1468	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0439	0.015	0.039	—	pCi/L	Y	—	U	12-312	CAMO-12-1471	GELC
MCOI-6	686	07/06/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	Y	0.0541	0.015	0.042	—	pCi/L	Y	—	NQ	10-3589	CAMO-10-22837	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0078	0.0096	0.058	—	pCi/L	Y	U	U	09-2970	CAMO-09-9533	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0168	0.012	0.062	—	pCi/L	Y	U	U	09-2970	CAMO-09-9537	GELC
MCOI-6	686	08/12/08	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0163	0.012	0.086	—	pCi/L	Y	U	U	08-1657	CAMO-08-14500	GELC
MCOI-6	686	11/02/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.281	0.0302	0.0481	—	pCi/L	Y	—	NQ	2013-267	CAMO-13-24239	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.428	0.048	0.033	—	pCi/L	Y	—	NQ	12-312	CAMO-12-1468	GELC
MCOI-6	686	11/09/11	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.412	0.046	0.033	—	pCi/L	Y	—	NQ	12-312	CAMO-12-1471	GELC
MCOI-6	686	07/06/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.432	0.046	0.049	—	pCi/L	Y	—	NQ	10-3589	CAMO-10-22837	GELC
MCOI-6	686	08/19/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.325	0.041	0.058	—	pCi/L	Y	—	NQ	09-2970	CAMO-09-9533	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
MCOI-6	686	08/19/09	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.318	0.042	0.062	—	pCi/L	Y	—	NQ	09-2970	CAMO-09-9537	GELC
MCOI-6	686	08/12/08	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.233	0.036	0.079	—	pCi/L	Y	—	NQ	08-1657	CAMO-08-14500	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	1.33	—	—	1	ug/L	Y	J	J	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	1.53	—	—	1	ug/L	Y	J	J	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	N	5	—	—	1	ug/L	Y	U	U	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	1.31	—	—	1	ug/L	Y	J	J	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Vanadium	V	N	5	—	—	1	ug/L	Y	U	U	12-312	CAMO-12-1472	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	1.37	—	—	1	ug/L	Y	J	J	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	24.8	—	—	3.3	ug/L	Y	—	NQ	2013-267	CAMO-13-24256	GELC
MCOI-6	686	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	30.2	—	—	3.3	ug/L	Y	—	NQ	12-1509	CAMO-12-21742	GELC
MCOI-6	686	06/04/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	33.4	—	—	3.3	ug/L	Y	—	NQ	12-1339	CAMO-12-14021	GELC
MCOI-6	686	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	27.9	—	—	3.3	ug/L	Y	—	NQ	12-1052	CAMO-12-12026	GELC
MCOI-6	686	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	39.2	—	—	3.3	ug/L	Y	—	NQ	12-312	CAMO-12-1467	GELC
MCOI-6	686	11/09/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Zinc	Zn	Y	39.3	—	—	3.3	ug/L	Y	—	NQ	12-312	CAMO-12-1472	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.92	—	—	0.01	SU	Y	H	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.48	—	—	0.01	SU	Y	H	J-	12-384	CAMO-12-1475	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.67	—	—	0.01	SU	Y	H	J-	12-384	CAMO-12-1478	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.41	—	—	0.01	SU	Y	H	J-	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.81	—	—	0.01	SU	Y	H	J-	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.77	—	—	0.01	SU	Y	H	J-	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	66	—	—	0.725	mg/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	63.1	—	—	0.73	mg/L	Y	—	NQ	12-384	CAMO-12-1478	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	64.1	—	—	0.73	mg/L	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	65.9	—	—	0.73	mg/L	Y	—	NQ	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	66.7	—	—	0.73	mg/L	Y	—	NQ	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	61.5	—	—	0.73	mg/L	Y	—	NQ	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00259	0.00449	0.0295	—	pCi/L	Y	U	U	2013-247	CAMO-13-24240	GELC
R-1	1031.12	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00514	0.0045	0.032	—	pCi/L	Y	U	U	10-3684	CAMO-10-22844	GELC
R-1	1031.12	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00756	0.0071	0.034	—	pCi/L	Y	U	U	10-1817	CAMO-10-9329	GELC
R-1	1031.12	08/13/09	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00286	0.0088	0.033	—	pCi/L	Y	U	U	09-2878	CAMO-09-9549	GELC
R-1	1031.12	08/15/08	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.000048	0.014	0.031	—	pCi/L	Y	U	U	08-1699	CAMO-08-14505	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	13.7	—	—	1	ug/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	14.6	—	—	1	ug/L	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Barium	Ba	Y	14.3	—	—	1	ug/L	Y	—	NQ	12-384	CAMO-12-1478	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	15.4	—	—	1	ug/L	Y	—	NQ	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	14.6	—	—	1	ug/L	Y	—	NQ	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	14.2	—	—	1	ug/L	Y	—	NQ	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	11.3	—	—	0.05	mg/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Calcium	Ca	Y	11.3	—	—	0.05	mg/L	Y	—	NQ	12-384	CAMO-12-1478	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	11.5	—	—	0.05	mg/L	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	12.1	—	—	0.05	mg/L	Y	—	NQ	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	11.7	—	—	0.05	mg/L	Y	—	NQ	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	11.5	—	—	0.05	mg/L	Y	—	NQ	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.788	1.43	5.03	—	pCi/L	Y	U	U	2013-247	CAMO-13-24240	GELC
R-1	1031.12	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.63	1.6	5.7	—	pCi/L	Y	U	U	10-3684	CAMO-10-22844	GELC
R-1	1031.12	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.31	1.5	5.3	—	pCi/L	Y	U	U	10-1817	CAMO-10-9329	GELC
R-1	1031.12	08/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.621	1.4	4.9	—	pCi/L	Y	U	U	09-2878	CAMO-09-9549	GELC
R-1	1031.12	08/15/08	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.43	1.3	4.1	—	pCi/L	Y	U	U	08-1699	CAMO-08-14505	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.02	—	—	0.067	mg/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.82	—	—	0.066	mg/L	Y	—	NQ	12-384	CAMO-12-1478	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-1	1031.12	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.8	—	—	0.066	mg/L	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.9	—	—	0.066	mg/L	Y	—	NQ	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.99	—	—	0.066	mg/L	Y	—	J+	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.77	—	—	0.066	mg/L	Y	—	NQ	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	4.27	—	—	2	ug/L	Y	J	J	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.49	—	—	2	ug/L	Y	J	J	12-384	CAMO-12-1478	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	4.46	—	—	2	ug/L	Y	J	J	12-384	CAMO-12-1475	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.75	—	—	2	ug/L	Y	J	J	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	4.37	—	—	2	ug/L	Y	J	J	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.9	—	—	2	ug/L	Y	J	J	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	1.11	1.28	5.36	—	pCi/L	Y	U	U	2013-247	CAMO-13-24240	GELC
R-1	1031.12	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.973	1.4	4.9	—	pCi/L	Y	U	U	10-3684	CAMO-10-22844	GELC
R-1	1031.12	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.58	1.6	4.7	—	pCi/L	Y	U	U	10-1817	CAMO-10-9329	GELC
R-1	1031.12	08/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.239	1.4	4.4	—	pCi/L	Y	U	U	09-2878	CAMO-09-9549	GELC
R-1	1031.12	08/15/08	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	1.71	1.5	5.2	—	pCi/L	Y	U	U	08-1699	CAMO-08-14505	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.187	—	—	0.033	mg/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.179	—	—	0.033	mg/L	Y	—	NQ	12-384	CAMO-12-1478	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.169	—	—	0.033	mg/L	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.164	—	—	0.033	mg/L	Y	—	NQ	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.194	—	—	0.033	mg/L	Y	—	NQ	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.16	—	—	0.033	mg/L	Y	—	NQ	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.0647	0.579	2.65	—	pCi/L	Y	U	U	2013-247	CAMO-13-24240	GELC
R-1	1031.12	07/13/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.769	0.69	2.5	—	pCi/L	Y	U	U	10-3684	CAMO-10-22844	GELC
R-1	1031.12	08/13/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	Y	2.18	0.38	0.67	—	pCi/L	Y	—	NQ	09-2878	CAMO-09-9549	GELC
R-1	1031.12	08/13/07	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.56	0.606	1.61	—	pCi/L	Y	U	U	191539	GU070800G01R01	GELC
R-1	1031.12	07/06/06	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.383	0.362	1.41	—	pCi/L	Y	U	U	166714	GU060500G01R01	GELC
R-1	1031.12	07/06/06	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	1.92	0.749	2.25	—	pCi/L	Y	U	U	166714	GU060500G01R90	GELC
R-1	1031.12	10/30/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	2.61	0.947	2.92	—	pCi/L	Y	U	U	2013-247	CAMO-13-24240	GELC
R-1	1031.12	07/13/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.204	0.73	2.7	—	pCi/L	Y	U	U	10-3684	CAMO-10-22844	GELC
R-1	1031.12	08/13/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.34	0.73	2.3	—	pCi/L	Y	U	U	09-2878	CAMO-09-9549	GELC
R-1	1031.12	08/13/07	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	3.08	1.02	3.09	—	pCi/L	Y	U	U	191539	GU070800G01R01	GELC
R-1	1031.12	07/06/06	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	2.23	0.536	1.66	—	pCi/L	Y	—	J	166714	GU060500G01R01	GELC
R-1	1031.12	07/06/06	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	N	1.74	0.74	2.89	—	pCi/L	Y	U	U	166714	GU060500G01R90	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	45.1	—	—	0.453	mg/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	43.8	—	—	0.45	mg/L	Y	—	NQ	12-384	CAMO-12-1478	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	44.6	—	—	0.45	mg/L	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	47.5	—	—	0.45	mg/L	Y	—	NQ	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	45.5	—	—	0.45	mg/L	Y	—	NQ	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	45.6	—	—	0.45	mg/L	Y	—	NQ	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.11	—	—	0.11	mg/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.78	—	—	0.11	mg/L	Y	—	J	12-384	CAMO-12-1478	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.85	—	—	0.11	mg/L	Y	—	J	12-384	CAMO-12-1475	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.19	—	—	0.11	mg/L	Y	—	NQ	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.96	—	—	0.11	mg/L	Y	—	NQ	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.12	—	—	0.11	mg/L	Y	—	NQ	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.24	—	—	0.165	ug/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.46	—	—	0.17	ug/L	Y	—	NQ	12-384	CAMO-12-1478	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.44	—	—	0.17	ug/L	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	N	1.01	—	—	0.17	ug/L	Y	—	U	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.13	—	—	0.17	ug/L	Y	—	NQ	11-2615	CAMO-11-10748	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-1	1031.12	02/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.25	—	—	0.17	ug/L	Y	—	NQ	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-1.29	2.85	9.74	—	pCi/L	Y	U	U	2013-247	CAMO-13-24240	GELC
R-1	1031.12	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	5.8	2.9	10	—	pCi/L	Y	U	U	10-3684	CAMO-10-22844	GELC
R-1	1031.12	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	15.7	10	34	—	pCi/L	Y	U	U	10-1817	CAMO-10-9329	GELC
R-1	1031.12	08/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	12.5	15	33	—	pCi/L	Y	U	U	09-2878	CAMO-09-9549	GELC
R-1	1031.12	08/15/08	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-5.92	13	35	—	pCi/L	Y	U	U	08-1699	CAMO-08-14505	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	11	—	—	0.5	ug/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	17.7	—	—	0.5	ug/L	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	INORGANIC	SW-846:6020	Nickel	Ni	Y	17.5	—	—	0.5	ug/L	Y	—	NQ	12-384	CAMO-12-1478	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	8.19	—	—	0.5	ug/L	Y	—	NQ	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	9.12	—	—	0.5	ug/L	Y	—	NQ	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	8.41	—	—	0.5	ug/L	Y	—	NQ	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.316	—	—	0.017	mg/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.304	—	—	0.05	mg/L	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.316	—	—	0.05	mg/L	Y	—	NQ	12-384	CAMO-12-1478	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.316	—	—	0.05	mg/L	Y	—	NQ	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.375	—	—	0.05	mg/L	Y	—	J+	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.311	—	—	0.05	mg/L	Y	—	J-	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.34	—	—	0.05	ug/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.349	—	—	0.05	ug/L	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.343	—	—	0.05	ug/L	Y	—	NQ	12-384	CAMO-12-1478	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.334	—	—	0.05	ug/L	Y	—	NQ	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.386	—	—	0.05	ug/L	Y	—	J	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.368	—	—	0.05	ug/L	Y	—	NQ	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00545	0.00545	0.0262	—	pCi/L	Y	U	U	2013-247	CAMO-13-24240	GELC
R-1	1031.12	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.0031	0.0044	0.041	—	pCi/L	Y	U	U	10-3684	CAMO-10-22844	GELC
R-1	1031.12	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.003	0.049	—	pCi/L	Y	U	U	10-1817	CAMO-10-9329	GELC
R-1	1031.12	08/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.0152	0.0078	0.035	—	pCi/L	Y	U	U	09-2878	CAMO-09-9549	GELC
R-1	1031.12	08/15/08	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00159	0.0062	0.022	—	pCi/L	Y	U	U	08-1699	CAMO-08-14505	GELC
R-1	1031.12	10/30/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00272	0.00721	0.0435	—	pCi/L	Y	U	U	2013-247	CAMO-13-24240	GELC
R-1	1031.12	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00929	0.0069	0.042	—	pCi/L	Y	U	U	10-3684	CAMO-10-22844	GELC
R-1	1031.12	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.000832	0.0037	0.034	—	pCi/L	Y	U	U	10-1817	CAMO-10-9329	GELC
R-1	1031.12	08/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.0108	0.0065	0.042	—	pCi/L	Y	U	U	09-2878	CAMO-09-9549	GELC
R-1	1031.12	08/15/08	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00318	0.0045	0.027	—	pCi/L	Y	U	U	08-1699	CAMO-08-14505	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.69	—	—	0.05	mg/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Potassium	K	Y	1.71	—	—	0.05	mg/L	Y	—	NQ	12-384	CAMO-12-1478	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.67	—	—	0.05	mg/L	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.8	—	—	0.05	mg/L	Y	—	J	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.82	—	—	0.05	mg/L	Y	—	J	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.95	—	—	0.05	mg/L	Y	—	NQ	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	1.81	19.6	69.6	—	pCi/L	Y	U	U	2013-247	CAMO-13-24240	GELC
R-1	1031.12	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	11.3	19	71	—	pCi/L	Y	U	U	10-3684	CAMO-10-22844	GELC
R-1	1031.12	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	21.4	17	64	—	pCi/L	Y	U	U	10-1817	CAMO-10-9329	GELC
R-1	1031.12	08/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-34.1	18	54	—	pCi/L	Y	U	U	09-2878	CAMO-09-9549	GELC
R-1	1031.12	08/15/08	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	46.9	26	45	—	pCi/L	Y	UI	R	08-1699	CAMO-08-14505	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	80.3	—	—	0.053	mg/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	74.5	—	—	0.053	mg/L	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	72.7	—	—	0.053	mg/L	Y	—	NQ	12-384	CAMO-12-1478	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	78.9	—	—	0.053	mg/L	Y	—	NQ	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	74.3	—	—	0.053	mg/L	Y	—	NQ	11-2615	CAMO-11-10748	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-1	1031.12	02/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	77.7	—	—	0.053	mg/L	Y	—	NQ	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	13.3	—	—	0.1	mg/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	11.8	—	—	0.1	mg/L	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Sodium	Na	Y	11.6	—	—	0.1	mg/L	Y	—	NQ	12-384	CAMO-12-1478	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	12	—	—	0.1	mg/L	Y	—	NQ	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	12.2	—	—	0.1	mg/L	Y	—	NQ	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	12.8	—	—	0.1	mg/L	Y	—	NQ	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.15	1.49	5.98	—	pCi/L	Y	U	U	2013-247	CAMO-13-24240	GELC
R-1	1031.12	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	2.2	1.2	4.8	—	pCi/L	Y	U	U	10-3684	CAMO-10-22844	GELC
R-1	1031.12	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.7	1.6	4.9	—	pCi/L	Y	U	U	10-1817	CAMO-10-9329	GELC
R-1	1031.12	08/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.951	1.5	4.8	—	pCi/L	Y	U	U	09-2878	CAMO-09-9549	GELC
R-1	1031.12	08/15/08	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.369	1.3	4.3	—	pCi/L	Y	U	U	08-1699	CAMO-08-14505	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	141	—	—	1	uS/cm	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	138	—	—	1	uS/cm	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	139	—	—	1	uS/cm	Y	—	NQ	12-384	CAMO-12-1478	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	134	—	—	1	uS/cm	Y	—	NQ	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	140	—	—	1	uS/cm	Y	—	NQ	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	142	—	—	1	uS/cm	Y	—	NQ	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	51.8	—	—	1	ug/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Strontium	Sr	Y	50.6	—	—	1	ug/L	Y	—	NQ	12-384	CAMO-12-1478	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	51.4	—	—	1	ug/L	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	53	—	—	1	ug/L	Y	—	NQ	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	50.3	—	—	1	ug/L	Y	—	NQ	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	54.6	—	—	1	ug/L	Y	—	NQ	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.225	0.147	0.49	—	pCi/L	Y	U	U	2013-247	CAMO-13-24240	GELC
R-1	1031.12	07/13/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0194	0.1	0.4	—	pCi/L	Y	U	U	10-3684	CAMO-10-22844	GELC
R-1	1031.12	02/11/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.33	0.16	0.5	—	pCi/L	Y	U	U	10-1817	CAMO-10-9329	GELC
R-1	1031.12	08/13/09	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.155	0.11	0.4	—	pCi/L	Y	U	U	09-2878	CAMO-09-9549	GELC
R-1	1031.12	08/15/08	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.253	0.11	0.34	—	pCi/L	Y	U	U	08-1699	CAMO-08-14505	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.39	—	—	0.133	mg/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.29	—	—	0.1	mg/L	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.3	—	—	0.1	mg/L	Y	—	NQ	12-384	CAMO-12-1478	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.26	—	—	0.1	mg/L	Y	—	NQ	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.5	—	—	0.1	mg/L	Y	—	NQ	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.47	—	—	0.1	mg/L	Y	—	NQ	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	143	—	—	3.4	mg/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	120	—	—	3.4	mg/L	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	140	—	—	3.4	mg/L	Y	—	NQ	12-384	CAMO-12-1478	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	133	—	—	3.4	mg/L	Y	—	NQ	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	139	—	—	2.4	mg/L	Y	—	NQ	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	146	—	—	2.4	mg/L	Y	—	NQ	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.774	—	—	0.33	mg/L	Y	J	J	2013-247	CAMO-13-24240	GELC
R-1	1031.12	11/18/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	N	1	—	—	0.33	mg/L	Y	U	U	12-383	CAMO-12-1474	GELC
R-1	1031.12	11/18/11	WG	UF	INIT	FD	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	N	1	—	—	0.33	mg/L	Y	U	U	12-383	CAMO-12-1476	GELC
R-1	1031.12	08/02/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.495	—	—	0.33	mg/L	Y	J	J	11-3001	CAMO-11-24660	GELC
R-1	1031.12	06/03/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.412	—	—	0.33	mg/L	Y	J	J	11-2615	CAMO-11-10747	GELC
R-1	1031.12	02/14/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.449	—	—	0.33	mg/L	Y	J	J	11-1348	CAMO-11-4636	GELC
R-1	1031.12	10/30/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	1.785	0.791	2.41	—	pCi/L	Y	U	U	2013-251	CAMO-13-24240	ARSL
R-1	1031.12	11/18/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.61	0.67	2.31	—	pCi/L	Y	U	U	12-436	CAMO-12-1474	ARSL
R-1	1031.12	11/18/11	WG	UF	INIT	FD	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.37	0.71	2.42	—	pCi/L	Y	U	U	12-436	CAMO-12-1476	ARSL

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-1	1031.12	06/03/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.644	0.7728	2.6082	—	pCi/L	Y	U	U	11-2628	CAMO-11-10747	ARSL
R-1	1031.12	11/12/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.4186	0.7084	2.3506	—	pCi/L	Y	U	U	11-564	CAMO-11-1262	ARSL
R-1	1031.12	11/12/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	23.7636	3.703	2.3506	—	pCi/L	N	—	R	11-564	CAMO-11-1262	ARSL
R-1	1031.12	02/11/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.0966	0.2898	0.2898	—	pCi/L	Y	U	U	10-1902	CAMO-10-9329	UMTL
R-1	1031.12	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.933	—	—	0.067	ug/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	INORGANIC	SW-846:6020	Uranium	U	Y	0.759	—	—	0.067	ug/L	Y	—	NQ	12-384	CAMO-12-1478	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.78	—	—	0.067	ug/L	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.487	—	—	0.067	ug/L	Y	—	NQ	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.633	—	—	0.067	ug/L	Y	—	NQ	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.872	—	—	0.067	ug/L	Y	N	J+	11-1348	CAMO-11-4638	GELC
R-1	1031.12	10/30/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.729	0.0509	0.0719	—	pCi/L	Y	—	NQ	2013-247	CAMO-13-24240	GELC
R-1	1031.12	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.768	0.071	0.068	—	pCi/L	Y	—	NQ	10-3684	CAMO-10-22844	GELC
R-1	1031.12	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.759	0.086	0.08	—	pCi/L	Y	—	NQ	10-1817	CAMO-10-9329	GELC
R-1	1031.12	08/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.747	0.067	0.092	—	pCi/L	Y	—	NQ	09-2878	CAMO-09-9549	GELC
R-1	1031.12	08/15/08	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.698	0.059	0.084	—	pCi/L	Y	—	NQ	08-1699	CAMO-08-14505	GELC
R-1	1031.12	10/30/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0115	0.0101	0.0449	—	pCi/L	Y	U	U	2013-247	CAMO-13-24240	GELC
R-1	1031.12	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0262	0.0095	0.041	—	pCi/L	Y	U	U	10-3684	CAMO-10-22844	GELC
R-1	1031.12	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0345	0.016	0.064	—	pCi/L	Y	U	U	10-1817	CAMO-10-9329	GELC
R-1	1031.12	08/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00597	0.0085	0.045	—	pCi/L	Y	U	U	09-2878	CAMO-09-9549	GELC
R-1	1031.12	08/15/08	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00604	0.0061	0.045	—	pCi/L	Y	U	U	08-1699	CAMO-08-14505	GELC
R-1	1031.12	10/30/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.335	0.0328	0.0488	—	pCi/L	Y	—	NQ	2013-247	CAMO-13-24240	GELC
R-1	1031.12	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.276	0.034	0.047	—	pCi/L	Y	—	NQ	10-3684	CAMO-10-22844	GELC
R-1	1031.12	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.267	0.042	0.057	—	pCi/L	Y	—	NQ	10-1817	CAMO-10-9329	GELC
R-1	1031.12	08/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.333	0.037	0.046	—	pCi/L	Y	—	NQ	09-2878	CAMO-09-9549	GELC
R-1	1031.12	08/15/08	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.232	0.027	0.044	—	pCi/L	Y	—	NQ	08-1699	CAMO-08-14505	GELC
R-1	1031.12	10/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	8.1	—	—	1	ug/L	Y	—	NQ	2013-247	CAMO-13-24257	GELC
R-1	1031.12	11/18/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.18	—	—	1	ug/L	Y	—	NQ	12-384	CAMO-12-1478	GELC
R-1	1031.12	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.18	—	—	1	ug/L	Y	—	NQ	12-384	CAMO-12-1475	GELC
R-1	1031.12	08/02/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	8.57	—	—	1	ug/L	Y	—	NQ	11-3001	CAMO-11-24661	GELC
R-1	1031.12	06/03/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	9	—	—	1	ug/L	Y	—	NQ	11-2615	CAMO-11-10748	GELC
R-1	1031.12	02/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	8.36	—	—	1	ug/L	Y	—	NQ	11-1348	CAMO-11-4638	GELC
R-11	855	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.09	—	—	0.01	SU	Y	H	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.11	—	—	0.01	SU	Y	H	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.98	—	—	0.01	SU	Y	H	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.08	—	—	0.01	SU	Y	H	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.53	—	—	0.01	SU	Y	H	J-	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	69.2	—	—	0.725	mg/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	69.7	—	—	0.725	mg/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	70.4	—	—	0.725	mg/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	70.8	—	—	0.725	mg/L	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	67.1	—	—	0.73	mg/L	Y	—	NQ	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0123	0.00867	0.0349	—	pCi/L	Y	U	U	2013-270	CASA-13-24209	GELC
R-11	855	08/17/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00254	0.00568	0.0348	—	pCi/L	Y	U	U	12-1508	CASA-12-21643	GELC
R-11	855	07/08/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00182	0.0021	0.028	—	pCi/L	Y	U	U	10-3621	CASA-10-22657	GELC
R-11	855	01/29/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00222	0.0019	0.027	—	pCi/L	Y	U	U	10-1502	CASA-10-9459	GELC
R-11	855	08/10/09	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00286	0.0024	0.03	—	pCi/L	Y	U	U	09-2826	CASA-09-10366	GELC
R-11	855	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.114	—	—	0.017	mg/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.124	—	—	0.017	mg/L	Y	—	U	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.0757	—	—	0.017	mg/L	Y	—	U	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.105	—	—	0.016	mg/L	Y	—	U	12-1058	CASA-12-11713	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-11	855	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	40.4	—	—	1	ug/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	39.8	—	—	1	ug/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	36.9	—	—	1	ug/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	36.2	—	—	1	ug/L	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	36	—	—	1	ug/L	Y	—	J	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	28.3	—	—	15	ug/L	Y	J	J	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	28.9	—	—	15	ug/L	Y	J	J	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	28.7	—	—	15	ug/L	Y	J	J	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	28.4	—	—	15	ug/L	Y	J	J	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	25.6	—	—	15	ug/L	Y	J	J	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.126	—	—	0.067	mg/L	Y	J	J	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.0882	—	—	0.067	mg/L	Y	J	J	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	N	0.2	—	—	0.067	mg/L	Y	U	U	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.125	—	—	0.067	mg/L	Y	J	J	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.11	—	—	0.066	mg/L	Y	J	J	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	24.4	—	—	0.05	mg/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	22.7	—	—	0.05	mg/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	21.7	—	—	0.05	mg/L	Y	—	J+	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	21.8	—	—	0.05	mg/L	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	18.8	—	—	0.05	mg/L	Y	—	NQ	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.37	1.23	4.54	—	pCi/L	Y	U	U	2013-270	CASA-13-24209	GELC
R-11	855	08/17/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.44	1.86	7.55	—	pCi/L	Y	U	U	12-1508	CASA-12-21643	GELC
R-11	855	07/08/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.17	1.8	6.6	—	pCi/L	Y	U	U	10-3621	CASA-10-22657	GELC
R-11	855	01/29/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.342	1.4	4.6	—	pCi/L	Y	U	U	10-1502	CASA-10-9459	GELC
R-11	855	08/10/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.27	1.3	4.4	—	pCi/L	Y	U	U	09-2826	CASA-09-10366	GELC
R-11	855	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	5.26	—	—	0.067	mg/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	4.83	—	—	0.067	mg/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	4.94	—	—	0.067	mg/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	4.63	—	—	0.067	mg/L	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	5.62	—	—	0.066	mg/L	Y	—	NQ	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	23.7	—	—	2	ug/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	20.3	—	—	2	ug/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	20.5	—	—	2	ug/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	21.4	—	—	2	ug/L	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	19.1	—	—	2	ug/L	Y	—	NQ	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.04	1.24	4.29	—	pCi/L	Y	U	U	2013-270	CASA-13-24209	GELC
R-11	855	08/17/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-2.91	2.18	7.34	—	pCi/L	Y	U	U	12-1508	CASA-12-21643	GELC
R-11	855	07/08/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	1.36	1.3	4.9	—	pCi/L	Y	U	U	10-3621	CASA-10-22657	GELC
R-11	855	01/29/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	2.71	1.6	6	—	pCi/L	Y	U	U	10-1502	CASA-10-9459	GELC
R-11	855	08/10/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	1.43	1.3	4.8	—	pCi/L	Y	U	U	09-2826	CASA-09-10366	GELC
R-11	855	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Copper	Cu	Y	3.05	—	—	3	ug/L	Y	J	J	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Copper	Cu	N	10	—	—	3	ug/L	Y	U	U	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Copper	Cu	N	10	—	—	3	ug/L	Y	U	U	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Copper	Cu	N	10	—	—	3	ug/L	Y	U	U	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Copper	Cu	N	10	—	—	3	ug/L	Y	U	U	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.421	—	—	0.033	mg/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.378	—	—	0.033	mg/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.411	—	—	0.033	mg/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.404	—	—	0.033	mg/L	Y	—	NQ	12-1058	CASA-12-11713	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-11	855	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.53	—	—	0.033	mg/L	Y	—	NQ	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.27	0.862	2.89	—	pCi/L	Y	U	U	2013-270	CASA-13-24209	GELC
R-11	855	08/17/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.134	0.376	2.15	—	pCi/L	Y	U	U	12-1508	CASA-12-21643	GELC
R-11	855	07/08/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.89	0.71	1.7	—	pCi/L	Y	—	U	10-3621	CASA-10-22657	GELC
R-11	855	08/10/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	Y	1.71	0.53	1.5	—	pCi/L	Y	—	NQ	09-2826	CASA-09-10366	GELC
R-11	855	08/17/07	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.27	0.741	2.28	—	pCi/L	Y	U	U	191952	GU070800G11R01	GELC
R-11	855	11/05/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.23	0.697	2.26	—	pCi/L	Y	U	U	2013-270	CASA-13-24209	GELC
R-11	855	08/17/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.7	0.823	2.66	—	pCi/L	Y	U	U	12-1508	CASA-12-21643	GELC
R-11	855	07/08/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	5.09	1.2	2.8	—	pCi/L	Y	—	NQ	10-3621	CASA-10-22657	GELC
R-11	855	08/10/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.693	0.6	2	—	pCi/L	Y	U	U	09-2826	CASA-09-10366	GELC
R-11	855	08/17/07	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.28	0.805	2.64	—	pCi/L	Y	U	U	191952	GU070800G11R01	GELC
R-11	855	11/05/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	88.9	—	—	0.453	mg/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	81.8	—	—	0.453	mg/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	79	—	—	0.453	mg/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	79.5	—	—	0.453	mg/L	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	64.8	—	—	0.45	mg/L	Y	—	NQ	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	6.77	—	—	0.11	mg/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	6.08	—	—	0.11	mg/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	6.05	—	—	0.11	mg/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	6.07	—	—	0.11	mg/L	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.34	—	—	0.11	mg/L	Y	—	NQ	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.51	—	—	0.165	ug/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.46	—	—	0.165	ug/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.56	—	—	0.165	ug/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.52	—	—	0.165	ug/L	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.55	—	—	0.17	ug/L	Y	—	J	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	0.342	2.55	9.17	—	pCi/L	Y	U	U	2013-270	CASA-13-24209	GELC
R-11	855	08/17/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-6.01	3.29	10.6	—	pCi/L	Y	U	U	12-1508	CASA-12-21643	GELC
R-11	855	07/08/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-1.27	2.9	9.4	—	pCi/L	Y	U	U	10-3621	CASA-10-22657	GELC
R-11	855	01/29/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-1.53	9	29	—	pCi/L	Y	U	U	10-1502	CASA-10-9459	GELC
R-11	855	08/10/09	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	10.4	12	41	—	pCi/L	Y	U	U	09-2826	CASA-09-10366	GELC
R-11	855	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.619	—	—	0.5	ug/L	Y	J	J	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.617	—	—	0.5	ug/L	Y	J	J	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.709	—	—	0.5	ug/L	Y	J	J	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.68	—	—	0.5	ug/L	Y	J	J	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	N	2	—	—	0.5	ug/L	Y	U	U	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	5.93	—	—	0.425	mg/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	5.26	—	—	0.17	mg/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	5.85	—	—	0.17	mg/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	5.25	—	—	0.05	mg/L	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.27	—	—	0.05	mg/L	Y	—	NQ	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.86	—	—	0.05	ug/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.899	—	—	0.05	ug/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.92	—	—	0.05	ug/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.843	—	—	0.05	ug/L	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.55	—	—	0.2	ug/L	Y	—	NQ	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.0105	0.00628	0.0201	—	pCi/L	Y	U	U	2013-270	CASA-13-24209	GELC
R-11	855	08/17/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.00359	0.0171	—	pCi/L	Y	U	U	12-1508	CASA-12-21643	GELC
R-11	855	07/08/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.0024	0.023	—	pCi/L	Y	U	U	10-3621	CASA-10-22657	GELC
R-11	855	01/29/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00979	0.0048	0.033	—	pCi/L	Y	U	U	10-1502	CASA-10-9459	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-11	855	08/10/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.0204	0.0076	0.03	—	pCi/L	Y	U	U	09-2826	CASA-09-10366	GELC
R-11	855	11/05/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00837	0.00662	0.0334	—	pCi/L	Y	U	U	2013-270	CASA-13-24209	GELC
R-11	855	08/17/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00761	0.00567	0.0306	—	pCi/L	Y	U	U	12-1508	CASA-12-21643	GELC
R-11	855	07/08/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00681	0.0034	0.023	—	pCi/L	Y	U	U	10-3621	CASA-10-22657	GELC
R-11	855	01/29/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00783	0.0048	0.023	—	pCi/L	Y	U	U	10-1502	CASA-10-9459	GELC
R-11	855	08/10/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.0037	0.0059	0.036	—	pCi/L	Y	U	U	09-2826	CASA-09-10366	GELC
R-11	855	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.65	—	—	0.05	mg/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.54	—	—	0.05	mg/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.47	—	—	0.05	mg/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.5	—	—	0.05	mg/L	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.95	—	—	0.05	mg/L	Y	—	J	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	15.8	17.4	70.2	—	pCi/L	Y	U	U	2013-270	CASA-13-24209	GELC
R-11	855	08/17/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-3.04	17	76.7	—	pCi/L	Y	U	U	12-1508	CASA-12-21643	GELC
R-11	855	07/08/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	18.3	20	73	—	pCi/L	Y	U	U	10-3621	CASA-10-22657	GELC
R-11	855	01/29/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-11.9	15	52	—	pCi/L	Y	U	U	10-1502	CASA-10-9459	GELC
R-11	855	08/10/09	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-25.7	16	49	—	pCi/L	Y	U	U	09-2826	CASA-09-10366	GELC
R-11	855	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Selenium	Se	Y	1.88	—	—	1.5	ug/L	Y	J	J	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Selenium	Se	Y	1.76	—	—	1.5	ug/L	Y	J	J	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Selenium	Se	Y	1.66	—	—	1.5	ug/L	Y	J	J	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Selenium	Se	Y	1.6	—	—	1.5	ug/L	Y	J	J	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Selenium	Se	N	5	—	—	1.5	ug/L	Y	U	UJ	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	80.4	—	—	0.053	mg/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	70.8	—	—	0.053	mg/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	72.3	—	—	0.053	mg/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	73.7	—	—	0.053	mg/L	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	75.8	—	—	0.053	mg/L	Y	—	NQ	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	13.5	—	—	0.1	mg/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	12.9	—	—	0.1	mg/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	11.8	—	—	0.1	mg/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	12.7	—	—	0.1	mg/L	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	13.8	—	—	0.1	mg/L	Y	—	NQ	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.73	1.17	3.75	—	pCi/L	Y	U	U	2013-270	CASA-13-24209	GELC
R-11	855	08/17/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.956	1.78	6.84	—	pCi/L	Y	U	U	12-1508	CASA-12-21643	GELC
R-11	855	07/08/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-3.88	1.5	3.4	—	pCi/L	Y	U	U	10-3621	CASA-10-22657	GELC
R-11	855	01/29/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.878	1.2	4.3	—	pCi/L	Y	U	U	10-1502	CASA-10-9459	GELC
R-11	855	08/10/09	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.942	1.2	4.2	—	pCi/L	Y	U	U	09-2826	CASA-09-10366	GELC
R-11	855	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	234	—	—	1	uS/cm	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	228	—	—	1	uS/cm	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	228	—	—	1	uS/cm	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	222	—	—	1	uS/cm	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	192	—	—	1	uS/cm	Y	—	NQ	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	96.3	—	—	1	ug/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	96.6	—	—	1	ug/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	87.5	—	—	1	ug/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	90.1	—	—	1	ug/L	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	71.7	—	—	1	ug/L	Y	—	NQ	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.391	0.135	0.399	—	pCi/L	Y	U	U	2013-270	CASA-13-24209	GELC
R-11	855	08/17/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.149	0.135	0.467	—	pCi/L	Y	U	U	12-1508	CASA-12-21643	GELC
R-11	855	07/08/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.354	0.13	0.48	—	pCi/L	Y	U	U	10-3621	CASA-10-22657	GELC
R-11	855	01/29/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0676	0.13	0.47	—	pCi/L	Y	U	U	10-1502	CASA-10-9459	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-11	855	08/10/09	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.41	0.14	0.41	—	pCi/L	Y	U	U	09-2826	CASA-09-10366	GELC
R-11	855	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	13.4	—	—	0.133	mg/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	12	—	—	0.133	mg/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	12.2	—	—	0.133	mg/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	11.1	—	—	0.133	mg/L	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	6.71	—	—	0.1	mg/L	Y	—	NQ	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	214	—	—	3.4	mg/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	177	—	—	3.4	mg/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	210	—	—	3.4	mg/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	197	—	—	3.4	mg/L	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	164	—	—	3.4	mg/L	Y	—	NQ	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0308	—	—	0.017	mg/L	Y	J	J	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.0349	—	—	0.017	mg/L	Y	J	U	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0595	—	—	0.017	mg/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.05	—	—	0.015	mg/L	Y	U	UJ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0394	—	—	0.015	mg/L	Y	J	J	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	5.262	1.136	2.422	—	pCi/L	Y	—	NQ	2013-293	CASA-13-24209	ARSL
R-11	855	11/16/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	4.02	0.99	2.42	—	pCi/L	Y	—	NQ	12-414	CASA-12-1379	ARSL
R-11	855	05/23/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	3.7996	0.9016	2.093	—	pCi/L	Y	—	NQ	11-2519	CASA-11-10811	ARSL
R-11	855	11/11/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	44.7258	6.8264	2.3184	—	pCi/L	N	—	R	11-556	CASA-11-1371	ARSL
R-11	855	11/11/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	5.4096	1.127	2.3184	—	pCi/L	Y	—	NQ	11-556	CASA-11-1371	ARSL
R-11	855	05/05/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	4.025	0.9338	2.2218	—	pCi/L	N	—	R	10-3122	CASA-10-16778	ARSL
R-11	855	05/05/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	4.64	1	2.22	—	pCi/L	Y	—	NQ	10-3122	CASA-10-16778	ARSL
R-11	855	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.758	—	—	0.067	ug/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.714	—	—	0.067	ug/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.782	—	—	0.067	ug/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.678	—	—	0.067	ug/L	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.748	—	—	0.067	ug/L	Y	—	NQ	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.516	0.039	0.0617	—	pCi/L	Y	—	J	2013-270	CASA-13-24209	GELC
R-11	855	08/17/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.556	0.0409	0.0735	—	pCi/L	Y	—	NQ	12-1508	CASA-12-21643	GELC
R-11	855	07/08/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.58	0.057	0.067	—	pCi/L	Y	—	NQ	10-3621	CASA-10-22657	GELC
R-11	855	01/29/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.589	0.074	0.14	—	pCi/L	Y	—	NQ	10-1502	CASA-10-9459	GELC
R-11	855	08/10/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.546	0.057	0.11	—	pCi/L	Y	—	NQ	09-2826	CASA-09-10366	GELC
R-11	855	11/05/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0132	0.0104	0.0385	—	pCi/L	Y	U	U	2013-270	CASA-13-24209	GELC
R-11	855	08/17/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0136	0.00833	0.0475	—	pCi/L	Y	U	U	12-1508	CASA-12-21643	GELC
R-11	855	07/08/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0195	0.0081	0.041	—	pCi/L	Y	U	U	10-3621	CASA-10-22657	GELC
R-11	855	01/29/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0136	0.0097	0.079	—	pCi/L	Y	U	U	10-1502	CASA-10-9459	GELC
R-11	855	08/10/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0179	0.0096	0.054	—	pCi/L	Y	U	U	09-2826	CASA-09-10366	GELC
R-11	855	11/05/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.218	0.0258	0.0419	—	pCi/L	Y	—	J	2013-270	CASA-13-24209	GELC
R-11	855	08/17/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.184	0.0229	0.0373	—	pCi/L	Y	—	NQ	12-1508	CASA-12-21643	GELC
R-11	855	07/08/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.229	0.03	0.047	—	pCi/L	Y	—	NQ	10-3621	CASA-10-22657	GELC
R-11	855	01/29/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.231	0.041	0.088	—	pCi/L	Y	—	NQ	10-1502	CASA-10-9459	GELC
R-11	855	08/10/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.276	0.036	0.055	—	pCi/L	Y	—	NQ	09-2826	CASA-09-10366	GELC
R-11	855	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.53	—	—	1	ug/L	Y	—	NQ	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	6.54	—	—	1	ug/L	Y	—	NQ	12-1508	CASA-12-21647	GELC
R-11	855	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	6.38	—	—	1	ug/L	Y	—	NQ	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.84	—	—	1	ug/L	Y	—	NQ	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	14.8	—	—	1	ug/L	Y	—	J	12-366	CASA-12-1380	GELC
R-11	855	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	5.94	—	—	3.3	ug/L	Y	J	J	2013-270	CASA-13-24217	GELC
R-11	855	08/17/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	9.79	—	—	3.3	ug/L	Y	J	J	12-1508	CASA-12-21647	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-11	855	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	N	9.94	—	—	3.3	ug/L	Y	J	U	12-1311	CASA-12-14062	GELC
R-11	855	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	8.85	—	—	3.3	ug/L	Y	J	J	12-1058	CASA-12-11713	GELC
R-11	855	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	52.9	—	—	3.3	ug/L	Y	—	NQ	12-366	CASA-12-1380	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.06	—	—	0.01	SU	Y	H	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.9	—	—	0.01	SU	Y	H	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.32	—	—	0.01	SU	Y	H	J-	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.28	—	—	0.01	SU	Y	H	J-	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.89	—	—	0.01	SU	Y	H	J-	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	62.2	—	—	0.725	mg/L	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	61.7	—	—	0.725	mg/L	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	59.5	—	—	0.73	mg/L	Y	—	NQ	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	62.2	—	—	0.73	mg/L	Y	—	NQ	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	62.4	—	—	0.73	mg/L	Y	—	NQ	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0077	0.00574	0.0292	—	pCi/L	Y	U	U	2013-258	CAMO-13-24241	GELC
R-13	958.33	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00378	0.0026	0.034	—	pCi/L	Y	U	U	10-3667	CAMO-10-22848	GELC
R-13	958.33	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00306	0.01	0.033	—	pCi/L	Y	U	U	10-1817	CAMO-10-9343	GELC
R-13	958.33	08/06/09	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00813	0.0036	0.027	—	pCi/L	Y	U	U	09-2808	CAMO-09-9558	GELC
R-13	958.33	08/14/08	WG	UF	INIT	FD	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.017	0.0086	0.03	—	pCi/L	Y	U	U	08-1683	CAMO-08-14536	GELC
R-13	958.33	08/14/08	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.0086	0.012	0.031	—	pCi/L	Y	U	U	08-1683	CAMO-08-14532	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.031	—	—	0.017	mg/L	Y	J	J	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.017	mg/L	Y	U	U	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	UJ	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	25.1	—	—	1	ug/L	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	26.3	—	—	1	ug/L	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	25.5	—	—	1	ug/L	Y	—	NQ	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	26	—	—	1	ug/L	Y	—	NQ	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	26.4	—	—	1	ug/L	Y	—	NQ	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.0682	—	—	0.067	mg/L	Y	J	J	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	N	0.2	—	—	0.067	mg/L	Y	U	U	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	N	0.2	—	—	0.066	mg/L	Y	U	U	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	N	0.2	—	—	0.066	mg/L	Y	U	U	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	N	0.2	—	—	0.066	mg/L	Y	U	U	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	13.6	—	—	0.05	mg/L	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	14.1	—	—	0.05	mg/L	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	14.4	—	—	0.05	mg/L	Y	—	NQ	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	13.9	—	—	0.05	mg/L	Y	—	NQ	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	14.5	—	—	0.05	mg/L	Y	—	NQ	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.91	1.31	4.23	—	pCi/L	Y	U	U	2013-258	CAMO-13-24241	GELC
R-13	958.33	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.04	1.9	6.5	—	pCi/L	Y	U	U	10-3667	CAMO-10-22848	GELC
R-13	958.33	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-2.65	2.2	7.6	—	pCi/L	Y	U	U	10-1817	CAMO-10-9343	GELC
R-13	958.33	08/06/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.73	1.5	5.4	—	pCi/L	Y	U	U	09-2808	CAMO-09-9558	GELC
R-13	958.33	08/14/08	WG	UF	INIT	FD	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.21	1.1	4	—	pCi/L	Y	U	U	08-1683	CAMO-08-14536	GELC
R-13	958.33	08/14/08	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.136	1.3	4.3	—	pCi/L	Y	U	U	08-1683	CAMO-08-14532	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.41	—	—	0.067	mg/L	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.39	—	—	0.067	mg/L	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.34	—	—	0.066	mg/L	Y	—	NQ	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.33	—	—	0.066	mg/L	Y	—	NQ	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.3	—	—	0.066	mg/L	Y	—	NQ	11-2553	CAMO-11-10702	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-13	958.33	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	4.91	—	—	2	ug/L	Y	J	J	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	3.39	—	—	2	ug/L	Y	J	J	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.98	—	—	2	ug/L	Y	J	J	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	3.24	—	—	2	ug/L	Y	J	J	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	2.62	—	—	2	ug/L	Y	J	J	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.158	1.1	4.07	—	pCi/L	Y	U	U	2013-258	CAMO-13-24241	GELC
R-13	958.33	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.51	1.7	5.8	—	pCi/L	Y	U	U	10-3667	CAMO-10-22848	GELC
R-13	958.33	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	2.69	1.6	6.1	—	pCi/L	Y	U	U	10-1817	CAMO-10-9343	GELC
R-13	958.33	08/06/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.432	1.4	4.6	—	pCi/L	Y	U	U	09-2808	CAMO-09-9558	GELC
R-13	958.33	08/14/08	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.19	1.6	4.6	—	pCi/L	Y	U	U	08-1683	CAMO-08-14532	GELC
R-13	958.33	08/14/08	WG	UF	INIT	FD	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.99	1.1	3	—	pCi/L	Y	U	U	08-1683	CAMO-08-14536	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.301	—	—	0.033	mg/L	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.306	—	—	0.033	mg/L	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.275	—	—	0.033	mg/L	Y	—	NQ	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.274	—	—	0.033	mg/L	Y	—	NQ	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.32	—	—	0.033	mg/L	Y	—	NQ	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.631	0.7	2.6	—	pCi/L	Y	U	U	2013-258	CAMO-13-24241	GELC
R-13	958.33	07/13/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.747	0.62	2.2	—	pCi/L	Y	U	U	10-3667	CAMO-10-22848	GELC
R-13	958.33	08/06/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	Y	11.1	1.8	2.5	—	pCi/L	Y	—	NQ	09-2808	CAMO-09-9558	GELC
R-13	958.33	08/16/07	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.25	0.352	2.12	—	pCi/L	Y	U	U	191858	GU070800G13R01	GELC
R-13	958.33	07/03/06	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.0249	0.532	2.72	—	pCi/L	Y	U	U	166561	GU060500G13R01	GELC
R-13	958.33	10/31/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	-0.196	0.775	2.87	—	pCi/L	Y	U	U	2013-258	CAMO-13-24241	GELC
R-13	958.33	07/13/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.62	0.88	2.8	—	pCi/L	Y	U	U	10-3667	CAMO-10-22848	GELC
R-13	958.33	08/06/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	14.5	3.1	6.9	—	pCi/L	Y	—	NQ	09-2808	CAMO-09-9558	GELC
R-13	958.33	08/16/07	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.376	0.621	2.12	—	pCi/L	Y	U	U	191858	GU070800G13R01	GELC
R-13	958.33	07/03/06	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	-0.177	0.456	2.1	—	pCi/L	Y	U	U	166561	GU060500G13R01	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	48.2	—	—	0.453	mg/L	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	50.1	—	—	0.453	mg/L	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	50.2	—	—	0.45	mg/L	Y	—	NQ	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	48.6	—	—	0.45	mg/L	Y	—	NQ	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	51	—	—	0.45	mg/L	Y	—	NQ	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.48	—	—	0.11	mg/L	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.6	—	—	0.11	mg/L	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.46	—	—	0.11	mg/L	Y	—	J	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.39	—	—	0.11	mg/L	Y	—	NQ	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.59	—	—	0.11	mg/L	Y	—	NQ	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.05	—	—	0.165	ug/L	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.14	—	—	0.165	ug/L	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.2	—	—	0.17	ug/L	Y	—	NQ	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.939	—	—	0.17	ug/L	Y	—	NQ	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.04	—	—	0.17	ug/L	Y	—	NQ	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-1.1	2.19	7.66	—	pCi/L	Y	U	U	2013-258	CAMO-13-24241	GELC
R-13	958.33	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	1.31	2.9	9.7	—	pCi/L	Y	U	U	10-3667	CAMO-10-22848	GELC
R-13	958.33	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	8.64	7.4	23	—	pCi/L	Y	U	U	10-1817	CAMO-10-9343	GELC
R-13	958.33	08/06/09	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-7.8	12	37	—	pCi/L	Y	U	U	09-2808	CAMO-09-9558	GELC
R-13	958.33	08/14/08	WG	UF	INIT	FD	RAD	EPA:901.1	Neptunium-237	Np-237	N	12.4	10	34	—	pCi/L	Y	U	U	08-1683	CAMO-08-14536	GELC
R-13	958.33	08/14/08	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	4.62	10	33	—	pCi/L	Y	U	U	08-1683	CAMO-08-14532	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.509	—	—	0.5	ug/L	Y	J	J	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.558	—	—	0.5	ug/L	Y	J	J	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	N	2	—	—	0.5	ug/L	Y	U	U	12-421	CAMO-12-1482	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-13	958.33	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.809	—	—	0.5	ug/L	Y	J	J	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	N	2	—	—	0.5	ug/L	Y	U	U	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.682	—	—	0.017	mg/L	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.71	—	—	0.085	mg/L	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.755	—	—	0.05	mg/L	Y	—	NQ	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.053	—	—	0.01	mg/L	Y	—	NQ	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.73	—	—	0.05	mg/L	Y	—	NQ	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.403	—	—	0.05	ug/L	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.419	—	—	0.05	ug/L	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.418	—	—	0.05	ug/L	Y	—	NQ	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.404	—	—	0.05	ug/L	Y	—	NQ	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.426	—	—	0.05	ug/L	Y	—	NQ	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.00728	0.035	—	pCi/L	Y	U	U	2013-258	CAMO-13-24241	GELC
R-13	958.33	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.0113	0.0068	0.03	—	pCi/L	Y	U	U	10-3667	CAMO-10-22848	GELC
R-13	958.33	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.0022	0.0038	0.038	—	pCi/L	Y	U	U	10-1817	CAMO-10-9343	GELC
R-13	958.33	08/06/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.0147	0.0094	0.028	—	pCi/L	Y	U	U	09-2808	CAMO-09-9558	GELC
R-13	958.33	08/14/08	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.0051	0.025	—	pCi/L	Y	U	U	08-1683	CAMO-08-14532	GELC
R-13	958.33	08/14/08	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.0025	0.025	—	pCi/L	Y	U	U	08-1683	CAMO-08-14536	GELC
R-13	958.33	10/31/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00364	0.00814	0.0581	—	pCi/L	Y	U	U	2013-258	CAMO-13-24241	GELC
R-13	958.33	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0136	0.012	0.031	—	pCi/L	Y	U	U	10-3667	CAMO-10-22848	GELC
R-13	958.33	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	1.31E-10	0.0031	0.027	—	pCi/L	Y	U	U	10-1817	CAMO-10-9343	GELC
R-13	958.33	08/06/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0055	0.0049	0.034	—	pCi/L	Y	U	U	09-2808	CAMO-09-9558	GELC
R-13	958.33	08/14/08	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00357	0.0025	0.03	—	pCi/L	Y	U	U	08-1683	CAMO-08-14532	GELC
R-13	958.33	08/14/08	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0124	0.0054	0.03	—	pCi/L	Y	U	U	08-1683	CAMO-08-14536	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.24	—	—	0.05	mg/L	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.48	—	—	0.05	mg/L	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.4	—	—	0.05	mg/L	Y	—	NQ	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.45	—	—	0.05	mg/L	Y	—	NQ	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.29	—	—	0.05	mg/L	Y	—	NQ	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	21.5	14.9	58.3	—	pCi/L	Y	U	U	2013-258	CAMO-13-24241	GELC
R-13	958.33	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	1.51	20	71	—	pCi/L	Y	U	U	10-3667	CAMO-10-22848	GELC
R-13	958.33	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	8.04	19	68	—	pCi/L	Y	U	U	10-1817	CAMO-10-9343	GELC
R-13	958.33	08/06/09	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	31.1	14	55	—	pCi/L	Y	U	U	09-2808	CAMO-09-9558	GELC
R-13	958.33	08/14/08	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	5.6	17	59	—	pCi/L	Y	U	U	08-1683	CAMO-08-14532	GELC
R-13	958.33	08/14/08	WG	UF	INIT	FD	RAD	EPA:901.1	Potassium-40	K-40	N	-1.59	17	57	—	pCi/L	Y	U	U	08-1683	CAMO-08-14536	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	71.1	—	—	0.053	mg/L	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	74.8	—	—	0.053	mg/L	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	71.2	—	—	0.053	mg/L	Y	—	NQ	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	71.6	—	—	0.053	mg/L	Y	—	NQ	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	73.2	—	—	0.053	mg/L	Y	—	NQ	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	9.81	—	—	0.1	mg/L	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.3	—	—	0.1	mg/L	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10	—	—	0.1	mg/L	Y	—	NQ	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10	—	—	0.1	mg/L	Y	—	NQ	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.4	—	—	0.1	mg/L	Y	—	NQ	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.961	1.14	3.85	—	pCi/L	Y	U	U	2013-258	CAMO-13-24241	GELC
R-13	958.33	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.349	1.7	5.7	—	pCi/L	Y	U	U	10-3667	CAMO-10-22848	GELC
R-13	958.33	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.0559	1.5	4.8	—	pCi/L	Y	U	U	10-1817	CAMO-10-9343	GELC
R-13	958.33	08/06/09	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.33	1.5	5.3	—	pCi/L	Y	U	U	09-2808	CAMO-09-9558	GELC
R-13	958.33	08/14/08	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.827	1.1	3.4	—	pCi/L	Y	U	U	08-1683	CAMO-08-14532	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-13	958.33	08/14/08	WG	UF	INIT	FD	RAD	EPA:901.1	Sodium-22	Na-22	N	0.288	1.2	4	—	pCi/L	Y	U	U	08-1683	CAMO-08-14536	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	141	—	—	1	uS/cm	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	138	—	—	1	uS/cm	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	140	—	—	1	uS/cm	Y	—	NQ	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	135	—	—	1	uS/cm	Y	—	NQ	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	138	—	—	1	uS/cm	Y	—	NQ	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	51	—	—	1	ug/L	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	53.2	—	—	1	ug/L	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	53	—	—	1	ug/L	Y	—	NQ	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	51.8	—	—	1	ug/L	Y	—	NQ	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	52.6	—	—	1	ug/L	Y	—	NQ	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.224	0.147	0.489	—	pCi/L	Y	U	U	2013-258	CAMO-13-24241	GELC
R-13	958.33	07/13/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0338	0.14	0.49	—	pCi/L	Y	U	U	10-3667	CAMO-10-22848	GELC
R-13	958.33	02/11/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.152	0.096	0.32	—	pCi/L	Y	U	U	10-1817	CAMO-10-9343	GELC
R-13	958.33	08/06/09	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.141	0.1	0.34	—	pCi/L	Y	U	U	09-2808	CAMO-09-9558	GELC
R-13	958.33	08/14/08	WG	UF	INIT	FD	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0304	0.11	0.41	—	pCi/L	Y	U	U	08-1683	CAMO-08-14536	GELC
R-13	958.33	08/14/08	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0642	0.11	0.39	—	pCi/L	Y	U	U	08-1683	CAMO-08-14532	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.14	—	—	0.133	mg/L	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.2	—	—	0.133	mg/L	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.18	—	—	0.1	mg/L	Y	—	NQ	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.98	—	—	0.1	mg/L	Y	—	NQ	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.93	—	—	0.1	mg/L	Y	—	NQ	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	133	—	—	3.4	mg/L	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	124	—	—	3.4	mg/L	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	124	—	—	3.4	mg/L	Y	—	NQ	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	131	—	—	3.4	mg/L	Y	—	NQ	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	137	—	—	2.4	mg/L	Y	—	NQ	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	1.037	0.628	1.997	—	pCi/L	Y	U	U	2013-291	CAMO-13-24241	ARSL
R-13	958.33	11/22/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-1.1	0.71	2.43	—	pCi/L	Y	U	U	12-422	CAMO-12-1480	ARSL
R-13	958.33	05/25/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.7084	0.6762	2.3506	—	pCi/L	Y	U	U	11-2581	CAMO-11-10703	ARSL
R-13	958.33	11/09/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	3.3488	0.9016	2.3184	—	pCi/L	N	—	R	11-474	CAMO-11-1269	ARSL
R-13	958.33	11/09/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.9016	0.7084	2.3184	—	pCi/L	Y	U	U	11-474	CAMO-11-1269	ARSL
R-13	958.33	02/11/10	WG	UF	INIT	FD	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.7728	0.2898	0.2898	—	pCi/L	Y	—	U	10-1902	CAMO-10-9346	UMTL
R-13	958.33	02/11/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	4.991	0.2898	0.2898	—	pCi/L	Y	—	NQ	10-1902	CAMO-10-9343	UMTL
R-13	958.33	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.435	—	—	0.067	ug/L	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.478	—	—	0.067	ug/L	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.436	—	—	0.067	ug/L	Y	—	NQ	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.436	—	—	0.067	ug/L	Y	—	J	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.398	—	—	0.067	ug/L	Y	—	NQ	11-2553	CAMO-11-10702	GELC
R-13	958.33	10/31/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.241	0.0361	0.0919	—	pCi/L	Y	—	NQ	2013-258	CAMO-13-24241	GELC
R-13	958.33	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.291	0.034	0.065	—	pCi/L	Y	—	NQ	10-3667	CAMO-10-22848	GELC
R-13	958.33	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.176	0.033	0.08	—	pCi/L	Y	—	NQ	10-1817	CAMO-10-9343	GELC
R-13	958.33	08/06/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.217	0.025	0.068	—	pCi/L	Y	—	NQ	09-2808	CAMO-09-9558	GELC
R-13	958.33	08/14/08	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.377	0.036	0.07	—	pCi/L	Y	—	NQ	08-1683	CAMO-08-14536	GELC
R-13	958.33	08/14/08	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.305	0.032	0.072	—	pCi/L	Y	—	NQ	08-1683	CAMO-08-14532	GELC
R-13	958.33	10/31/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0196	0.012	0.0573	—	pCi/L	Y	U	U	2013-258	CAMO-13-24241	GELC
R-13	958.33	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0125	0.0063	0.039	—	pCi/L	Y	U	U	10-3667	CAMO-10-22848	GELC
R-13	958.33	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0125	0.0089	0.063	—	pCi/L	Y	U	U	10-1817	CAMO-10-9343	GELC
R-13	958.33	08/06/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0022	0.0058	0.033	—	pCi/L	Y	U	U	09-2808	CAMO-09-9558	GELC
R-13	958.33	08/14/08	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0181	0.0078	0.038	—	pCi/L	Y	U	U	08-1683	CAMO-08-14532	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-13	958.33	08/14/08	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00751	0.0056	0.037	—	pCi/L	Y	U	U	08-1683	CAMO-08-14536	GELC
R-13	958.33	10/31/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.139	0.026	0.0624	—	pCi/L	Y	—	NQ	2013-258	CAMO-13-24241	GELC
R-13	958.33	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.106	0.019	0.045	—	pCi/L	Y	—	NQ	10-3667	CAMO-10-22848	GELC
R-13	958.33	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.136	0.029	0.057	—	pCi/L	Y	—	NQ	10-1817	CAMO-10-9343	GELC
R-13	958.33	08/06/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.107	0.016	0.034	—	pCi/L	Y	—	NQ	09-2808	CAMO-09-9558	GELC
R-13	958.33	08/14/08	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.106	0.017	0.038	—	pCi/L	Y	—	NQ	08-1683	CAMO-08-14532	GELC
R-13	958.33	08/14/08	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.148	0.02	0.036	—	pCi/L	Y	—	NQ	08-1683	CAMO-08-14536	GELC
R-13	958.33	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	5.58	—	—	1	ug/L	Y	—	NQ	2013-258	CAMO-13-24258	GELC
R-13	958.33	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	5.19	—	—	1	ug/L	Y	—	NQ	12-1344	CAMO-12-17131	GELC
R-13	958.33	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	4.6	—	—	1	ug/L	Y	J	J	12-421	CAMO-12-1482	GELC
R-13	958.33	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	5.11	—	—	1	ug/L	Y	—	NQ	11-2987	CAMO-11-24634	GELC
R-13	958.33	05/25/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	5.29	—	—	1	ug/L	Y	—	NQ	11-2553	CAMO-11-10702	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.08	—	—	0.01	SU	Y	H	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.75	—	—	0.01	SU	Y	H	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.18	—	—	0.01	SU	Y	H	J-	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.54	—	—	0.01	SU	Y	H	J-	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.81	—	—	0.01	SU	Y	H	J-	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	54.7	—	—	0.725	mg/L	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	53.8	—	—	0.725	mg/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	53.9	—	—	0.73	mg/L	Y	—	NQ	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	56.4	—	—	0.73	mg/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	61.9	—	—	0.73	mg/L	Y	—	NQ	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	28	—	—	1	ug/L	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	28.8	—	—	1	ug/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	29.8	—	—	1	ug/L	Y	—	NQ	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	30.6	—	—	1	ug/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	29.1	—	—	1	ug/L	Y	—	NQ	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.087	—	—	0.067	mg/L	Y	J	J	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	N	0.2	—	—	0.067	mg/L	Y	U	U	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.0817	—	—	0.066	mg/L	Y	J	J	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.0811	—	—	0.066	mg/L	Y	J	J	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.114	—	—	0.066	mg/L	Y	J	J	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	13.6	—	—	0.05	mg/L	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	14.1	—	—	0.05	mg/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	14.5	—	—	0.05	mg/L	Y	—	NQ	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	15	—	—	0.05	mg/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	14.5	—	—	0.05	mg/L	Y	—	NQ	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	4.17	—	—	0.067	mg/L	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	4.19	—	—	0.067	mg/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	4.06	—	—	0.066	mg/L	Y	—	NQ	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	4.13	—	—	0.066	mg/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	4.35	—	—	0.066	mg/L	Y	—	J+	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	10.5	—	—	2	ug/L	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	10.5	—	—	2	ug/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	9.59	—	—	2	ug/L	Y	J	J	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	14.8	—	—	2	ug/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	11.6	—	—	2	ug/L	Y	—	NQ	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.193	—	—	0.033	mg/L	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.193	—	—	0.033	mg/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.189	—	—	0.033	mg/L	Y	—	NQ	12-323	CAMO-12-1483	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-15	958.6	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.172	—	—	0.033	mg/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.198	—	—	0.033	mg/L	Y	—	NQ	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	49.6	—	—	0.453	mg/L	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	51.4	—	—	0.453	mg/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	52.6	—	—	0.45	mg/L	Y	—	NQ	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	53.4	—	—	0.45	mg/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	52	—	—	0.45	mg/L	Y	—	NQ	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.81	—	—	0.11	mg/L	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.96	—	—	0.11	mg/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.97	—	—	0.11	mg/L	Y	—	NQ	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.85	—	—	0.11	mg/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.85	—	—	0.11	mg/L	Y	—	NQ	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.13	—	—	0.165	ug/L	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.885	—	—	0.165	ug/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.998	—	—	0.17	ug/L	Y	—	NQ	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1	—	—	0.17	ug/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.885	—	—	0.17	ug/L	Y	—	NQ	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.88	—	—	0.5	ug/L	Y	J	J	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.655	—	—	0.5	ug/L	Y	J	J	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.8	—	—	0.5	ug/L	Y	J	J	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.24	—	—	0.5	ug/L	Y	J	J	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.848	—	—	0.5	ug/L	Y	J	J	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.02	—	—	0.17	mg/L	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.06	—	—	0.085	mg/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.35	—	—	0.01	mg/L	Y	—	NQ	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.78	—	—	0.1	mg/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.77	—	—	0.05	mg/L	Y	—	NQ	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	7.86	—	—	0.5	ug/L	Y	—	J	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	7.76	—	—	0.5	ug/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	8.14	—	—	1	ug/L	Y	—	NQ	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	7.86	—	—	1	ug/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	7.76	—	—	0.5	ug/L	Y	—	NQ	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.69	—	—	0.05	mg/L	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.79	—	—	0.05	mg/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.66	—	—	0.05	mg/L	Y	—	NQ	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.84	—	—	0.05	mg/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.04	—	—	0.05	mg/L	Y	—	J	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	71.5	—	—	0.053	mg/L	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	75.7	—	—	0.053	mg/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	76.6	—	—	0.053	mg/L	Y	—	NQ	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	73.1	—	—	0.053	mg/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	73.1	—	—	0.053	mg/L	Y	—	NQ	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.4	—	—	0.1	mg/L	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.7	—	—	0.1	mg/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.8	—	—	0.1	mg/L	Y	—	NQ	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.5	—	—	0.1	mg/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.6	—	—	0.1	mg/L	Y	—	NQ	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	153	—	—	1	uS/cm	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	153	—	—	1	uS/cm	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	156	—	—	1	uS/cm	Y	—	NQ	12-323	CAMO-12-1483	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-15	958.6	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	156	—	—	1	uS/cm	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	156	—	—	1	uS/cm	Y	—	NQ	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	59.9	—	—	1	ug/L	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	60.7	—	—	1	ug/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	64.2	—	—	1	ug/L	Y	—	NQ	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	67.2	—	—	1	ug/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	60.6	—	—	1	ug/L	Y	—	NQ	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	6.48	—	—	0.133	mg/L	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	6.56	—	—	0.133	mg/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	6.47	—	—	0.1	mg/L	Y	—	NQ	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	6.17	—	—	0.1	mg/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	6.64	—	—	0.1	mg/L	Y	—	J+	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	150	—	—	3.4	mg/L	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	160	—	—	3.4	mg/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	151	—	—	3.4	mg/L	Y	—	NQ	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	154	—	—	3.4	mg/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	143	—	—	2.4	mg/L	Y	—	NQ	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	15.912	2.532	1.933	—	pCi/L	Y	—	NQ	2013-291	CAMO-13-24242	ARSL
R-15	958.6	11/10/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	29.99	4.64	2.34	—	pCi/L	Y	—	NQ	12-342	CAMO-12-1485	ARSL
R-15	958.6	05/31/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	33.7778	5.2486	2.8336	—	pCi/L	Y	—	J	11-2581	CAMO-11-10715	ARSL
R-15	958.6	11/09/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	34.0998	5.1842	1.8998	—	pCi/L	Y	—	NQ	11-474	CAMO-11-1268	ARSL
R-15	958.6	11/09/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	33.9388	5.1842	1.8032	—	pCi/L	N	—	R	11-474	CAMO-11-1268	ARSL
R-15	958.6	02/11/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	30.59	0.966	0.2898	—	pCi/L	Y	—	NQ	10-1902	CAMO-10-9324	UMTL
R-15	958.6	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.443	—	—	0.067	ug/L	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.38	—	—	0.067	ug/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.361	—	—	0.067	ug/L	Y	—	NQ	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.411	—	—	0.067	ug/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.38	—	—	0.067	ug/L	Y	—	NQ	11-2587	CAMO-11-10714	GELC
R-15	958.6	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	6.86	—	—	1	ug/L	Y	—	NQ	2013-259	CAMO-13-24259	GELC
R-15	958.6	05/29/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	6.97	—	—	1	ug/L	Y	—	NQ	12-1324	CAMO-12-14022	GELC
R-15	958.6	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	6.51	—	—	1	ug/L	Y	—	NQ	12-323	CAMO-12-1483	GELC
R-15	958.6	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	6.42	—	—	1	ug/L	Y	—	NQ	11-3208	CAMO-11-24635	GELC
R-15	958.6	05/31/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.17	—	—	1	ug/L	Y	—	NQ	11-2587	CAMO-11-10714	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.94	—	—	0.01	SU	Y	H	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.77	—	—	0.01	SU	Y	H	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.82	—	—	0.01	SU	Y	H	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.62	—	—	0.01	SU	Y	H	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.79	—	—	0.01	SU	Y	H	J-	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	77.2	—	—	0.725	mg/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	78.3	—	—	0.725	mg/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	77.1	—	—	0.725	mg/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	80	—	—	0.725	mg/L	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	71.2	—	—	0.73	mg/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0047	0.00576	0.0268	—	pCi/L	Y	U	U	2013-258	CAMO-13-24243	GELC
R-28	934.3	08/08/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00612	0.00749	0.0419	—	pCi/L	Y	U	U	12-1481	CAMO-12-21735	GELC
R-28	934.3	07/14/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00282	0.0047	0.039	—	pCi/L	Y	U	U	10-3698	CAMO-10-22860	GELC
R-28	934.3	08/13/09	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.025	0.0084	0.035	—	pCi/L	Y	U	U	09-2878	CAMO-09-9546	GELC
R-28	934.3	08/15/08	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.000528	0.013	0.033	—	pCi/L	Y	U	U	08-1699	CAMO-08-14543	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0573	—	—	0.017	mg/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.144	—	—	0.017	mg/L	Y	—	J	12-1481	CAMO-12-21743	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-28	934.3	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.0262	—	—	0.017	mg/L	Y	J	U	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	66.3	—	—	1	ug/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	70.9	—	—	1	ug/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	70.6	—	—	1	ug/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	70.2	—	—	1	ug/L	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	71.1	—	—	1	ug/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	23.7	—	—	15	ug/L	Y	J	J	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	26.7	—	—	15	ug/L	Y	J	J	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	23.6	—	—	15	ug/L	Y	J	J	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	24.6	—	—	15	ug/L	Y	J	J	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	24.5	—	—	15	ug/L	Y	J	J	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.278	—	—	0.067	mg/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.295	—	—	0.067	mg/L	Y	—	J	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.231	—	—	0.067	mg/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.33	—	—	0.067	mg/L	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.259	—	—	0.066	mg/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	45.2	—	—	0.05	mg/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	46.2	—	—	0.05	mg/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	46.3	—	—	0.05	mg/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	46.3	—	—	0.05	mg/L	Y	—	J+	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	47.4	—	—	0.05	mg/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.00362	1.25	4.61	—	pCi/L	Y	U	U	2013-258	CAMO-13-24243	GELC
R-28	934.3	08/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.434	1.13	3.97	—	pCi/L	Y	U	U	12-1481	CAMO-12-21735	GELC
R-28	934.3	07/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-2.56	2.2	6.2	—	pCi/L	Y	U	U	10-3698	CAMO-10-22860	GELC
R-28	934.3	08/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.7	1.3	4.6	—	pCi/L	Y	U	U	09-2878	CAMO-09-9546	GELC
R-28	934.3	08/15/08	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.981	1.2	3.7	—	pCi/L	Y	U	U	08-1699	CAMO-08-14543	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	35.8	—	—	0.335	mg/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	32.9	—	—	0.67	mg/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	34.1	—	—	0.335	mg/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	28.7	—	—	0.335	mg/L	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	35.3	—	—	0.33	mg/L	Y	—	J+	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	415	—	—	20	ug/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	450	—	—	2	ug/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	351	—	—	2	ug/L	Y	—	J+	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	336	—	—	2	ug/L	Y	E	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	455	—	—	10	ug/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.795	1.32	4.8	—	pCi/L	Y	U	U	2013-258	CAMO-13-24243	GELC
R-28	934.3	08/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.464	1.29	4.99	—	pCi/L	Y	U	U	12-1481	CAMO-12-21735	GELC
R-28	934.3	07/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.55	2	6.5	—	pCi/L	Y	U	U	10-3698	CAMO-10-22860	GELC
R-28	934.3	08/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.21	1.5	4.3	—	pCi/L	Y	U	U	09-2878	CAMO-09-9546	GELC
R-28	934.3	08/15/08	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.28	1.3	4.2	—	pCi/L	Y	U	U	08-1699	CAMO-08-14543	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.308	—	—	0.033	mg/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.271	—	—	0.033	mg/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.328	—	—	0.033	mg/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.287	—	—	0.033	mg/L	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.289	—	—	0.033	mg/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.61	0.89	2.71	—	pCi/L	Y	U	U	2013-258	CAMO-13-24243	GELC
R-28	934.3	08/08/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.93	0.802	1.99	—	pCi/L	Y	U	U	12-1481	CAMO-12-21735	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-28	934.3	07/14/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.55	0.87	2.6	—	pCi/L	Y	U	U	10-3698	CAMO-10-22860	GELC
R-28	934.3	08/13/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	Y	3.18	0.49	0.73	—	pCi/L	Y	—	NQ	09-2878	CAMO-09-9546	GELC
R-28	934.3	08/17/07	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	Y	1.75	0.558	1.22	—	pCi/L	Y	—	J	191952	GU070800G28R01	GELC
R-28	934.3	10/31/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	2.2	0.837	2.52	—	pCi/L	Y	U	U	2013-258	CAMO-13-24243	GELC
R-28	934.3	08/08/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.842	0.883	2.99	—	pCi/L	Y	U	U	12-1481	CAMO-12-21735	GELC
R-28	934.3	07/14/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	2.36	0.88	2.5	—	pCi/L	Y	U	U	10-3698	CAMO-10-22860	GELC
R-28	934.3	08/13/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	2.42	0.75	2	—	pCi/L	Y	—	NQ	09-2878	CAMO-09-9546	GELC
R-28	934.3	08/17/07	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	2.87	0.853	2.56	—	pCi/L	Y	—	J	191952	GU070800G28R01	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	161	—	—	0.453	mg/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	164	—	—	0.453	mg/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	163	—	—	0.453	mg/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	164	—	—	0.453	mg/L	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	167	—	—	0.45	mg/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	11.7	—	—	0.11	mg/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	11.7	—	—	0.11	mg/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	11.6	—	—	0.11	mg/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	11.8	—	—	0.11	mg/L	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	11.8	—	—	0.11	mg/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.822	—	—	0.165	ug/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	N	0.889	—	—	0.165	ug/L	Y	—	U	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.847	—	—	0.165	ug/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.12	—	—	0.165	ug/L	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.734	—	—	0.17	ug/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-0.568	2.5	8.76	—	pCi/L	Y	U	U	2013-258	CAMO-13-24243	GELC
R-28	934.3	08/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-4.36	2.54	8.4	—	pCi/L	Y	U	U	12-1481	CAMO-12-21735	GELC
R-28	934.3	07/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-5.32	2.9	8.9	—	pCi/L	Y	U	U	10-3698	CAMO-10-22860	GELC
R-28	934.3	08/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	27.7	11	31	—	pCi/L	Y	U	U	09-2878	CAMO-09-9546	GELC
R-28	934.3	08/15/08	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-6	5.8	18	—	pCi/L	Y	U	U	08-1699	CAMO-08-14543	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	21.1	—	—	0.5	ug/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	17.8	—	—	0.5	ug/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	14.4	—	—	0.5	ug/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	14.6	—	—	0.5	ug/L	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	22.3	—	—	2.5	ug/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	3.63	—	—	0.085	mg/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	3.74	—	—	0.085	mg/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	3.74	—	—	0.17	mg/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	3.37	—	—	0.1	mg/L	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	3.83	—	—	0.1	mg/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.93	—	—	0.05	ug/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.02	—	—	0.1	ug/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.987	—	—	0.1	ug/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.01	—	—	0.1	ug/L	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.05	—	—	0.1	ug/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00691	0.00691	0.0332	—	pCi/L	Y	U	U	2013-258	CAMO-13-24243	GELC
R-28	934.3	08/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.00359	0.0171	—	pCi/L	Y	U	U	12-1481	CAMO-12-21735	GELC
R-28	934.3	07/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00208	0.0047	0.028	—	pCi/L	Y	U	U	10-3698	CAMO-10-22860	GELC
R-28	934.3	08/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.004	0.0049	0.032	—	pCi/L	Y	U	U	09-2878	CAMO-09-9546	GELC
R-28	934.3	08/15/08	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.0104	0.0051	0.029	—	pCi/L	Y	U	U	08-1699	CAMO-08-14543	GELC
R-28	934.3	10/31/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00691	0.00846	0.0552	—	pCi/L	Y	U	U	2013-258	CAMO-13-24243	GELC
R-28	934.3	08/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0127	0.00672	0.0306	—	pCi/L	Y	U	U	12-1481	CAMO-12-21735	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-28	934.3	07/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00833	0.0042	0.028	—	pCi/L	Y	U	U	10-3698	CAMO-10-22860	GELC
R-28	934.3	08/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.002	0.0072	0.039	—	pCi/L	Y	U	U	09-2878	CAMO-09-9546	GELC
R-28	934.3	08/15/08	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00208	0.0075	0.035	—	pCi/L	Y	U	U	08-1699	CAMO-08-14543	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.7	—	—	0.05	mg/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.9	—	—	0.05	mg/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.81	—	—	0.05	mg/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.83	—	—	0.05	mg/L	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.02	—	—	0.05	mg/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-22.4	14.7	51.6	—	pCi/L	Y	U	U	2013-258	CAMO-13-24243	GELC
R-28	934.3	08/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-17.5	15.1	59.6	—	pCi/L	Y	U	U	12-1481	CAMO-12-21735	GELC
R-28	934.3	07/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-5.49	20	66	—	pCi/L	Y	U	U	10-3698	CAMO-10-22860	GELC
R-28	934.3	08/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-2.5	16	53	—	pCi/L	Y	U	U	09-2878	CAMO-09-9546	GELC
R-28	934.3	08/15/08	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	8.55	14	50	—	pCi/L	Y	U	U	08-1699	CAMO-08-14543	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	74.4	—	—	0.053	mg/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	0.0782	—	—	0.053	mg/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	73.4	—	—	0.053	mg/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	74.6	—	—	0.053	mg/L	Y	—	J+	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	79.3	—	—	0.053	mg/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	15.3	—	—	0.1	mg/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	15.9	—	—	0.1	mg/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	16.2	—	—	0.1	mg/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	15.7	—	—	0.1	mg/L	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	16.4	—	—	0.1	mg/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.24	1.42	5.02	—	pCi/L	Y	U	U	2013-258	CAMO-13-24243	GELC
R-28	934.3	08/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.614	1.21	4.78	—	pCi/L	Y	U	U	12-1481	CAMO-12-21735	GELC
R-28	934.3	07/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-2.47	1.8	4.5	—	pCi/L	Y	U	U	10-3698	CAMO-10-22860	GELC
R-28	934.3	08/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.601	1.1	3.9	—	pCi/L	Y	U	U	09-2878	CAMO-09-9546	GELC
R-28	934.3	08/15/08	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.29	1.1	4	—	pCi/L	Y	U	U	08-1699	CAMO-08-14543	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	415	—	—	1	uS/cm	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	415	—	—	1	uS/cm	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	411	—	—	1	uS/cm	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	442	—	—	1	uS/cm	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	407	—	—	1	uS/cm	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	172	—	—	1	ug/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	181	—	—	1	ug/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	175	—	—	1	ug/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	179	—	—	1	ug/L	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	185	—	—	1	ug/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.207	0.129	0.426	—	pCi/L	Y	U	U	2013-258	CAMO-13-24243	GELC
R-28	934.3	08/08/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.083	0.123	0.486	—	pCi/L	Y	U	U	12-1481	CAMO-12-21735	GELC
R-28	934.3	07/14/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.112	0.14	0.49	—	pCi/L	Y	U	U	10-3698	CAMO-10-22860	GELC
R-28	934.3	08/13/09	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0127	0.14	0.48	—	pCi/L	Y	U	U	09-2878	CAMO-09-9546	GELC
R-28	934.3	08/15/08	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.117	0.099	0.34	—	pCi/L	Y	U	U	08-1699	CAMO-08-14543	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	51.3	—	—	0.665	mg/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	47.3	—	—	1.33	mg/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	47.9	—	—	0.665	mg/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	39.6	—	—	0.665	mg/L	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	49.8	—	—	0.5	mg/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	303	—	—	3.4	mg/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	287	—	—	3.4	mg/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-28	934.3	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	273	—	—	3.4	mg/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	396	—	—	3.4	mg/L	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	326	—	—	3.4	mg/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	Y	178	47.3	150	—	pCi/L	Y	—	NQ	2013-258	CAMO-13-24243	GELC
R-28	934.3	11/15/11	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	N	106	55	170	—	pCi/L	Y	U	U	12-341	CAMO-12-1486	GELC
R-28	934.3	06/01/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	171.626	25.8566	3.0268	—	pCi/L	Y	—	NQ	11-2628	CAMO-11-10705	ARSL
R-28	934.3	11/10/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	220.377	33.1016	1.8032	—	pCi/L	Y	—	NQ	11-474	CAMO-11-1271	ARSL
R-28	934.3	11/10/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	221.729	33.327	1.8032	—	pCi/L	N	—	R	11-474	CAMO-11-1271	ARSL
R-28	934.3	02/03/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	201.25	6.762	0.2898	—	pCi/L	Y	—	NQ	10-1902	CAMO-10-9326	UMTL
R-28	934.3	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.54	—	—	0.067	ug/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.5	—	—	0.067	ug/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.7	—	—	0.067	ug/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.9	—	—	0.067	ug/L	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.27	—	—	0.067	ug/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	1.15	0.0587	0.0654	—	pCi/L	Y	—	NQ	2013-258	CAMO-13-24243	GELC
R-28	934.3	08/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	1.14	0.0486	0.0531	—	pCi/L	Y	—	NQ	12-1481	CAMO-12-21735	GELC
R-28	934.3	07/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.85	0.077	0.068	—	pCi/L	Y	—	NQ	10-3698	CAMO-10-22860	GELC
R-28	934.3	08/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.954	0.083	0.092	—	pCi/L	Y	—	NQ	09-2878	CAMO-09-9546	GELC
R-28	934.3	08/15/08	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.793	0.058	0.057	—	pCi/L	Y	—	NQ	08-1699	CAMO-08-14543	GELC
R-28	934.3	10/31/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0139	0.00986	0.0408	—	pCi/L	Y	U	U	2013-258	CAMO-13-24243	GELC
R-28	934.3	08/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0147	0.00851	0.0343	—	pCi/L	Y	U	U	12-1481	CAMO-12-21735	GELC
R-28	934.3	07/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	Y	0.059	0.015	0.041	—	pCi/L	Y	—	NQ	10-3698	CAMO-10-22860	GELC
R-28	934.3	08/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0417	0.012	0.045	—	pCi/L	Y	U	U	09-2878	CAMO-09-9546	GELC
R-28	934.3	08/15/08	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0326	0.011	0.03	—	pCi/L	Y	—	U	08-1699	CAMO-08-14543	GELC
R-28	934.3	10/31/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.488	0.0373	0.0444	—	pCi/L	Y	—	NQ	2013-258	CAMO-13-24243	GELC
R-28	934.3	08/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.433	0.0297	0.0269	—	pCi/L	Y	—	NQ	12-1481	CAMO-12-21735	GELC
R-28	934.3	07/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.371	0.041	0.047	—	pCi/L	Y	—	NQ	10-3698	CAMO-10-22860	GELC
R-28	934.3	08/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.407	0.043	0.045	—	pCi/L	Y	—	NQ	09-2878	CAMO-09-9546	GELC
R-28	934.3	08/15/08	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.399	0.034	0.03	—	pCi/L	Y	—	NQ	08-1699	CAMO-08-14543	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	5.93	—	—	1	ug/L	Y	—	NQ	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	5.31	—	—	1	ug/L	Y	—	NQ	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	6.3	—	—	1	ug/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	4.56	—	—	1	ug/L	Y	J	J	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	5.28	—	—	1	ug/L	Y	—	NQ	12-341	CAMO-12-1487	GELC
R-28	934.3	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	3.67	—	—	3.3	ug/L	Y	J	J	2013-258	CAMO-13-24260	GELC
R-28	934.3	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	7.55	—	—	3.3	ug/L	Y	J	J	12-1481	CAMO-12-21743	GELC
R-28	934.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	11.2	—	—	3.3	ug/L	Y	—	NQ	12-1321	CAMO-12-14023	GELC
R-28	934.3	03/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	29.4	—	—	3.3	ug/L	Y	—	NQ	12-1091	CAMO-12-12027	GELC
R-28	934.3	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	N	10	—	—	3.3	ug/L	Y	U	U	12-341	CAMO-12-1487	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.19	—	—	0.01	SU	Y	H	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.16	—	—	0.01	SU	Y	H	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.08	—	—	0.01	SU	Y	H	J-	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.07	—	—	0.01	SU	Y	H	J-	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.05	—	—	0.01	SU	Y	H	J-	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	105	—	—	0.725	mg/L	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	106	—	—	0.725	mg/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	102	—	—	0.73	mg/L	Y	—	NQ	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	106	—	—	0.73	mg/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	108	—	—	0.73	mg/L	Y	—	NQ	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00381	0.00762	0.0217	—	pCi/L	Y	U	U	2013-312	CASA-13-24210	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-35a	1013.1	07/07/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00654	0.0036	0.031	—	pCi/L	Y	U	U	10-3610	CASA-10-22660	GELC
R-35a	1013.1	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00828	0.0048	0.036	—	pCi/L	Y	U	U	10-1826	CASA-10-9464	GELC
R-35a	1013.1	11/04/09	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00285	0.0025	0.034	—	pCi/L	Y	U	U	10-376	CASA-10-3827	GELC
R-35a	1013.1	08/03/09	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00021	0.0015	0.026	—	pCi/L	Y	U	U	09-2768	CASA-09-10387	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0497	—	—	0.017	mg/L	Y	J	J	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.017	mg/L	Y	U	U	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	UJ	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	361	—	—	1	ug/L	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	369	—	—	1	ug/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	372	—	—	1	ug/L	Y	—	NQ	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	380	—	—	1	ug/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	352	—	—	1	ug/L	Y	—	NQ	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	39.7	—	—	15	ug/L	Y	J	J	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	41.3	—	—	15	ug/L	Y	J	J	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	42.1	—	—	15	ug/L	Y	J	J	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	43.1	—	—	15	ug/L	Y	J	J	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	43.6	—	—	15	ug/L	Y	J	J	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	22.3	—	—	0.05	mg/L	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	22.3	—	—	0.05	mg/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	23.4	—	—	0.05	mg/L	Y	—	NQ	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	24.5	—	—	0.05	mg/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	23.2	—	—	0.05	mg/L	Y	—	NQ	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.28	1.56	5.25	—	pCi/L	Y	U	U	2013-312	CASA-13-24210	GELC
R-35a	1013.1	07/07/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.371	1.3	4.2	—	pCi/L	Y	U	U	10-3610	CASA-10-22660	GELC
R-35a	1013.1	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.38	1.3	3.9	—	pCi/L	Y	U	U	10-1826	CASA-10-9464	GELC
R-35a	1013.1	11/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-2.14	1.5	4.3	—	pCi/L	Y	U	U	10-376	CASA-10-3827	GELC
R-35a	1013.1	08/03/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.18	1.4	4.4	—	pCi/L	Y	U	U	09-2768	CASA-09-10387	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	6.27	—	—	0.067	mg/L	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	6.37	—	—	0.067	mg/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	5.98	—	—	0.066	mg/L	Y	—	NQ	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	6.25	—	—	0.066	mg/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	6.51	—	—	0.066	mg/L	Y	—	NQ	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	6.25	—	—	2	ug/L	Y	J	J	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	4.07	—	—	2	ug/L	Y	J	J	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.04	—	—	2	ug/L	Y	J	J	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	7.63	—	—	2	ug/L	Y	J	J	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	4.02	—	—	2	ug/L	Y	J	J	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	1.75	1.25	5.3	—	pCi/L	Y	U	U	2013-312	CASA-13-24210	GELC
R-35a	1013.1	07/07/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.969	1.1	3.4	—	pCi/L	Y	U	U	10-3610	CASA-10-22660	GELC
R-35a	1013.1	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.743	1.4	4.8	—	pCi/L	Y	U	U	10-1826	CASA-10-9464	GELC
R-35a	1013.1	11/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.917	1.6	5	—	pCi/L	Y	U	U	10-376	CASA-10-3827	GELC
R-35a	1013.1	08/03/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.508	1.2	3.6	—	pCi/L	Y	U	U	09-2768	CASA-09-10387	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.332	—	—	0.033	mg/L	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.32	—	—	0.033	mg/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.298	—	—	0.033	mg/L	Y	—	NQ	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.326	—	—	0.033	mg/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.333	—	—	0.033	mg/L	Y	—	NQ	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.22	0.69	2.04	—	pCi/L	Y	U	U	2013-312	CASA-13-24210	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-35a	1013.1	07/07/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.798	0.68	2.4	—	pCi/L	Y	U	U	10-3610	CASA-10-22660	GELC
R-35a	1013.1	11/04/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.418	0.57	2.6	—	pCi/L	Y	U	U	10-376	CASA-10-3827	GELC
R-35a	1013.1	08/03/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.41	0.76	2.1	—	pCi/L	Y	U	U	09-2768	CASA-09-10387	GELC
R-35a	1013.1	04/28/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.186	0.41	1.6	—	pCi/L	Y	U	U	09-1644	CASA-09-8305	GELC
R-35a	1013.1	11/13/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	3.02	0.808	2.13	—	pCi/L	Y	—	NQ	2013-312	CASA-13-24210	GELC
R-35a	1013.1	07/07/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.4	0.86	2.8	—	pCi/L	Y	U	U	10-3610	CASA-10-22660	GELC
R-35a	1013.1	11/04/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	5.44	1	2.1	—	pCi/L	Y	—	NQ	10-376	CASA-10-3827	GELC
R-35a	1013.1	08/03/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	4.86	1	2.1	—	pCi/L	Y	—	NQ	09-2768	CASA-09-10387	GELC
R-35a	1013.1	04/28/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	5.2	0.94	2.1	—	pCi/L	Y	—	NQ	09-1644	CASA-09-8305	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	80.6	—	—	0.453	mg/L	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	80.3	—	—	0.453	mg/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	83.3	—	—	0.45	mg/L	Y	—	NQ	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	86.5	—	—	0.45	mg/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	82.3	—	—	0.45	mg/L	Y	—	NQ	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	Y	48.2	—	—	30	ug/L	Y	J	J	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	N	100	—	—	30	ug/L	Y	U	U	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	N	100	—	—	30	ug/L	Y	U	U	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	N	100	—	—	30	ug/L	Y	U	U	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	N	100	—	—	30	ug/L	Y	U	U	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	6.08	—	—	0.11	mg/L	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	5.99	—	—	0.11	mg/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	6.04	—	—	0.11	mg/L	Y	—	NQ	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	6.18	—	—	0.11	mg/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	5.94	—	—	0.11	mg/L	Y	—	NQ	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.36	—	—	0.165	ug/L	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.27	—	—	0.165	ug/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	N	1.23	—	—	0.17	ug/L	Y	—	U	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.07	—	—	0.17	ug/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.14	—	—	0.17	ug/L	Y	—	NQ	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-3.15	2.81	9.64	—	pCi/L	Y	U	U	2013-312	CASA-13-24210	GELC
R-35a	1013.1	07/07/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	0.873	2.2	7.6	—	pCi/L	Y	U	U	10-3610	CASA-10-22660	GELC
R-35a	1013.1	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-12.3	9.7	31	—	pCi/L	Y	U	U	10-1826	CASA-10-9464	GELC
R-35a	1013.1	11/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	6.59	12	39	—	pCi/L	Y	U	U	10-376	CASA-10-3827	GELC
R-35a	1013.1	08/03/09	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	5.82	11	35	—	pCi/L	Y	U	U	09-2768	CASA-09-10387	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	14.9	—	—	0.5	ug/L	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	8.09	—	—	0.5	ug/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	9.13	—	—	0.5	ug/L	Y	—	NQ	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	11	—	—	0.5	ug/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	13.2	—	—	0.5	ug/L	Y	—	NQ	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.451	—	—	0.017	mg/L	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.423	—	—	0.085	mg/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.114	—	—	0.01	mg/L	Y	—	NQ	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.206	—	—	0.01	mg/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.605	—	—	0.05	mg/L	Y	—	NQ	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.42	—	—	0.05	ug/L	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.435	—	—	0.05	ug/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.406	—	—	0.05	ug/L	Y	—	NQ	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.443	—	—	0.05	ug/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.403	—	—	0.05	ug/L	Y	—	NQ	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00916	0.00857	0.022	—	pCi/L	Y	U	U	2013-312	CASA-13-24210	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-35a	1013.1	07/07/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00168	0.0024	0.022	—	pCi/L	Y	U	U	10-3610	CASA-10-22660	GELC
R-35a	1013.1	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00329	0.012	0.045	—	pCi/L	Y	U	U	10-1826	CASA-10-9464	GELC
R-35a	1013.1	11/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00669	0.0041	0.027	—	pCi/L	Y	U	U	10-376	CASA-10-3827	GELC
R-35a	1013.1	08/03/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00925	0.014	0.035	—	pCi/L	Y	U	U	09-2768	CASA-09-10387	GELC
R-35a	1013.1	11/13/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00687	0.00606	0.0366	—	pCi/L	Y	U	U	2013-312	CASA-13-24210	GELC
R-35a	1013.1	07/07/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0	0.0024	0.023	—	pCi/L	Y	U	U	10-3610	CASA-10-22660	GELC
R-35a	1013.1	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00121	0.0039	0.031	—	pCi/L	Y	U	U	10-1826	CASA-10-9464	GELC
R-35a	1013.1	11/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00334	0.0033	0.027	—	pCi/L	Y	U	U	10-376	CASA-10-3827	GELC
R-35a	1013.1	08/03/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.0162	0.0065	0.042	—	pCi/L	Y	U	U	09-2768	CASA-09-10387	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	4.03	—	—	0.05	mg/L	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	4.06	—	—	0.05	mg/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	4.02	—	—	0.05	mg/L	Y	—	J	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	4.17	—	—	0.05	mg/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	4.09	—	—	0.05	mg/L	Y	—	J	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-15.7	19.5	71.3	—	pCi/L	Y	U	U	2013-312	CASA-13-24210	GELC
R-35a	1013.1	07/07/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	2.05	15	47	—	pCi/L	Y	U	U	10-3610	CASA-10-22660	GELC
R-35a	1013.1	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-10.2	17	61	—	pCi/L	Y	U	U	10-1826	CASA-10-9464	GELC
R-35a	1013.1	11/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-0.535	20	71	—	pCi/L	Y	U	U	10-376	CASA-10-3827	GELC
R-35a	1013.1	08/03/09	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-3.3	16	58	—	pCi/L	Y	U	U	09-2768	CASA-09-10387	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	81.9	—	—	0.053	mg/L	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	84.1	—	—	0.053	mg/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	88.6	—	—	0.053	mg/L	Y	—	NQ	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	87.1	—	—	0.053	mg/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	81.1	—	—	0.053	mg/L	Y	—	NQ	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	18.8	—	—	0.1	mg/L	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	16.9	—	—	0.1	mg/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	17.4	—	—	0.1	mg/L	Y	—	NQ	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	18.4	—	—	0.1	mg/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	17.5	—	—	0.1	mg/L	Y	—	NQ	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.18	1.5	5.13	—	pCi/L	Y	U	U	2013-312	CASA-13-24210	GELC
R-35a	1013.1	07/07/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.08	1.1	3.9	—	pCi/L	Y	U	U	10-3610	CASA-10-22660	GELC
R-35a	1013.1	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.26	1	3.9	—	pCi/L	Y	U	U	10-1826	CASA-10-9464	GELC
R-35a	1013.1	11/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.26	1.5	4.6	—	pCi/L	Y	U	U	10-376	CASA-10-3827	GELC
R-35a	1013.1	08/03/09	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.0647	1.3	4.1	—	pCi/L	Y	U	U	09-2768	CASA-09-10387	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	244	—	—	1	uS/cm	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	236	—	—	1	uS/cm	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	241	—	—	1	uS/cm	Y	—	NQ	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	241	—	—	1	uS/cm	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	241	—	—	1	uS/cm	Y	—	NQ	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	181	—	—	1	ug/L	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	176	—	—	1	ug/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	181	—	—	1	ug/L	Y	—	NQ	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	186	—	—	1	ug/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	173	—	—	1	ug/L	Y	—	NQ	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.458	0.154	0.482	—	pCi/L	Y	U	U	2013-312	CASA-13-24210	GELC
R-35a	1013.1	07/07/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.233	0.12	0.46	—	pCi/L	Y	U	U	10-3610	CASA-10-22660	GELC
R-35a	1013.1	02/11/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0849	0.094	0.32	—	pCi/L	Y	U	U	10-1826	CASA-10-9464	GELC
R-35a	1013.1	11/04/09	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.318	0.11	0.41	—	pCi/L	Y	U	U	10-376	CASA-10-3827	GELC
R-35a	1013.1	08/03/09	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.423	0.14	0.43	—	pCi/L	Y	U	U	09-2768	CASA-09-10387	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	5.52	—	—	0.133	mg/L	Y	—	NQ	2013-312	CASA-13-24218	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-35a	1013.1	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	5.53	—	—	0.133	mg/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	5.29	—	—	0.1	mg/L	Y	—	NQ	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	5.47	—	—	0.1	mg/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	5.82	—	—	0.1	mg/L	Y	—	J+	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	204	—	—	3.4	mg/L	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	201	—	—	3.4	mg/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	196	—	—	3.4	mg/L	Y	—	NQ	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	216	—	—	3.4	mg/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	193	—	—	2.4	mg/L	Y	—	NQ	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	1.02	—	—	0.33	mg/L	Y	—	NQ	2013-312	CASA-13-24210	GELC
R-35a	1013.1	06/05/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	1.31	—	—	0.33	mg/L	Y	—	NQ	12-1345	CASA-12-17133	GELC
R-35a	1013.1	11/17/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	N	0.369	—	—	0.33	mg/L	Y	J	U	12-374	CASA-12-1383	GELC
R-35a	1013.1	08/17/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	N	1	—	—	0.33	mg/L	Y	U	U	11-3246	CASA-11-24781	GELC
R-35a	1013.1	05/23/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.358	—	—	0.33	mg/L	Y	J	J	11-2498	CASA-11-10813	GELC
R-35a	1013.1	11/13/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.723	0.667	2.296	—	pCi/L	Y	U	U	2013-315	CASA-13-24210	ARSL
R-35a	1013.1	11/17/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.52	0.68	2.34	—	pCi/L	Y	U	U	12-437	CASA-12-1383	ARSL
R-35a	1013.1	05/23/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-1.127	0.7728	2.6082	—	pCi/L	Y	U	U	11-2519	CASA-11-10813	ARSL
R-35a	1013.1	11/11/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.0644	0.7084	2.415	—	pCi/L	Y	U	U	11-556	CASA-11-1373	ARSL
R-35a	1013.1	11/11/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	24.4076	3.7996	2.415	—	pCi/L	N	—	R	11-556	CASA-11-1373	ARSL
R-35a	1013.1	05/14/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.161	0.4508	1.5778	—	pCi/L	Y	U	U	10-3221	CASA-10-16779	ARSL
R-35a	1013.1	11/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.693	—	—	0.067	ug/L	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.701	—	—	0.067	ug/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.626	—	—	0.067	ug/L	Y	—	NQ	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.658	—	—	0.067	ug/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.697	—	—	0.067	ug/L	Y	—	NQ	11-2498	CASA-11-10812	GELC
R-35a	1013.1	11/13/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.413	0.0351	0.0615	—	pCi/L	Y	—	NQ	2013-312	CASA-13-24210	GELC
R-35a	1013.1	07/07/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.476	0.05	0.068	—	pCi/L	Y	—	NQ	10-3610	CASA-10-22660	GELC
R-35a	1013.1	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.504	0.063	0.076	—	pCi/L	Y	—	NQ	10-1826	CASA-10-9464	GELC
R-35a	1013.1	11/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.475	0.043	0.058	—	pCi/L	Y	—	NQ	10-376	CASA-10-3827	GELC
R-35a	1013.1	08/03/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.435	0.041	0.067	—	pCi/L	Y	—	J-	09-2768	CASA-09-10387	GELC
R-35a	1013.1	11/13/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00983	0.00867	0.0384	—	pCi/L	Y	U	U	2013-312	CASA-13-24210	GELC
R-35a	1013.1	07/07/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00651	0.0065	0.041	—	pCi/L	Y	U	U	10-3610	CASA-10-22660	GELC
R-35a	1013.1	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0297	0.013	0.06	—	pCi/L	Y	U	U	10-1826	CASA-10-9464	GELC
R-35a	1013.1	11/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0219	0.0083	0.029	—	pCi/L	Y	U	U	10-376	CASA-10-3827	GELC
R-35a	1013.1	08/03/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00435	0.0044	0.033	—	pCi/L	Y	U	UJ	09-2768	CASA-09-10387	GELC
R-35a	1013.1	11/13/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.202	0.0237	0.0418	—	pCi/L	Y	—	NQ	2013-312	CASA-13-24210	GELC
R-35a	1013.1	07/07/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.176	0.025	0.047	—	pCi/L	Y	—	NQ	10-3610	CASA-10-22660	GELC
R-35a	1013.1	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.168	0.031	0.054	—	pCi/L	Y	—	NQ	10-1826	CASA-10-9464	GELC
R-35a	1013.1	11/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.203	0.023	0.036	—	pCi/L	Y	—	NQ	10-376	CASA-10-3827	GELC
R-35a	1013.1	08/03/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.159	0.021	0.033	—	pCi/L	Y	—	J-	09-2768	CASA-09-10387	GELC
R-35a	1013.1	11/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	17.5	—	—	1	ug/L	Y	—	NQ	2013-312	CASA-13-24218	GELC
R-35a	1013.1	06/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	17.1	—	—	1	ug/L	Y	—	NQ	12-1345	CASA-12-17136	GELC
R-35a	1013.1	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	17.6	—	—	1	ug/L	Y	—	J	12-374	CASA-12-1384	GELC
R-35a	1013.1	08/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	17.5	—	—	1	ug/L	Y	—	NQ	11-3246	CASA-11-24780	GELC
R-35a	1013.1	05/23/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	18.7	—	—	1	ug/L	Y	—	NQ	11-2498	CASA-11-10812	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.85	—	—	0.01	SU	Y	H	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.85	—	—	0.01	SU	Y	H	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.77	—	—	0.01	SU	Y	H	J-	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.85	—	—	0.01	SU	Y	H	J-	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.79	—	—	0.01	SU	Y	H	J-	11-2596	CASA-11-10814	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-35b	825.4	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	73.1	—	—	0.725	mg/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	72.6	—	—	0.725	mg/L	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	72.6	—	—	0.73	mg/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	81.2	—	—	0.73	mg/L	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	74.6	—	—	0.73	mg/L	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0027	0.00603	0.0307	—	pCi/L	Y	U	U	2013-321	CASA-13-24211	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	FD	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00826	0.0044	0.031	—	pCi/L	Y	U	U	10-3679	CASA-10-22690	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00377	0.0036	0.034	—	pCi/L	Y	U	U	10-3679	CASA-10-22663	GELC
R-35b	825.4	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00484	0.0074	0.033	—	pCi/L	Y	U	U	10-1826	CASA-10-9469	GELC
R-35b	825.4	11/03/09	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00454	0.0024	0.032	—	pCi/L	Y	U	U	10-335	CASA-10-3830	GELC
R-35b	825.4	08/04/09	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.000568	0.0026	0.029	—	pCi/L	Y	U	U	09-2779	CASA-09-10392	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	37.7	—	—	1	ug/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	38.2	—	—	1	ug/L	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	41.3	—	—	1	ug/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	40.1	—	—	1	ug/L	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	39.4	—	—	1	ug/L	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	22	—	—	15	ug/L	Y	J	J	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	25.5	—	—	15	ug/L	Y	J	J	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	25.7	—	—	15	ug/L	Y	J	J	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	25.6	—	—	15	ug/L	Y	J	J	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	25.5	—	—	15	ug/L	Y	J	J	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.0894	—	—	0.067	mg/L	Y	J	J	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	N	0.2	—	—	0.067	mg/L	Y	U	U	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	N	0.2	—	—	0.066	mg/L	Y	U	U	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.0804	—	—	0.066	mg/L	Y	J	J	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.0792	—	—	0.066	mg/L	Y	J	J	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	15.2	—	—	0.05	mg/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	15.3	—	—	0.05	mg/L	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	16.8	—	—	0.05	mg/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	16.2	—	—	0.05	mg/L	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	16.4	—	—	0.05	mg/L	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.738	1.56	5.66	—	pCi/L	Y	U	U	2013-321	CASA-13-24211	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	FD	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.49	1.5	4.6	—	pCi/L	Y	U	U	10-3679	CASA-10-22690	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.54	1.3	4.9	—	pCi/L	Y	U	U	10-3679	CASA-10-22663	GELC
R-35b	825.4	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.623	1.3	4	—	pCi/L	Y	U	U	10-1826	CASA-10-9469	GELC
R-35b	825.4	11/03/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.71	1.5	5.2	—	pCi/L	Y	U	U	10-335	CASA-10-3830	GELC
R-35b	825.4	08/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.232	1.4	4.7	—	pCi/L	Y	U	U	09-2779	CASA-09-10392	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.84	—	—	0.067	mg/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.88	—	—	0.067	mg/L	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.69	—	—	0.066	mg/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.81	—	—	0.066	mg/L	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.93	—	—	0.066	mg/L	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5	—	—	2	ug/L	Y	J	J	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	4.34	—	—	2	ug/L	Y	J	J	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	6.4	—	—	2	ug/L	Y	J	J	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	6.42	—	—	2	ug/L	Y	J	J	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	3.67	—	—	2	ug/L	Y	J	J	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.83	1.26	5.41	—	pCi/L	Y	U	U	2013-321	CASA-13-24211	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	FD	RAD	EPA:901.1	Cobalt-60	Co-60	N	2.34	1.5	5.7	—	pCi/L	Y	U	U	10-3679	CASA-10-22690	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.602	1.4	5	—	pCi/L	Y	U	U	10-3679	CASA-10-22663	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-35b	825.4	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.92	1.3	3.3	—	pCi/L	Y	U	U	10-1826	CASA-10-9469	GELC
R-35b	825.4	11/03/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.47	1.9	6.3	—	pCi/L	Y	U	U	10-335	CASA-10-3830	GELC
R-35b	825.4	08/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.143	1.3	4.4	—	pCi/L	Y	U	U	09-2779	CASA-09-10392	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.498	—	—	0.033	mg/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.501	—	—	0.033	mg/L	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.473	—	—	0.033	mg/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.464	—	—	0.033	mg/L	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.5	—	—	0.033	mg/L	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.603	0.59	2.13	—	pCi/L	Y	U	U	2013-321	CASA-13-24211	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	2.89	1.1	2.6	—	pCi/L	Y	—	U	10-3679	CASA-10-22663	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	1.61	0.96	3	—	pCi/L	Y	U	U	10-3679	CASA-10-22690	GELC
R-35b	825.4	11/03/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.146	0.62	2.7	—	pCi/L	Y	U	U	10-335	CASA-10-3830	GELC
R-35b	825.4	08/04/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.44	0.71	2.8	—	pCi/L	Y	U	U	09-2779	CASA-09-10392	GELC
R-35b	825.4	04/27/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.213	0.31	1.2	—	pCi/L	Y	U	U	09-1625	CASA-09-8309	GELC
R-35b	825.4	04/27/09	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	0.539	0.35	1.1	—	pCi/L	Y	U	U	09-1625	CASA-09-8424	GELC
R-35b	825.4	11/14/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.06	0.724	2.41	—	pCi/L	Y	U	U	2013-321	CASA-13-24211	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	2.52	0.94	2.8	—	pCi/L	Y	U	U	10-3679	CASA-10-22663	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	N	1.76	0.86	2.7	—	pCi/L	Y	U	U	10-3679	CASA-10-22690	GELC
R-35b	825.4	11/03/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	5.23	1.1	2.9	—	pCi/L	Y	—	NQ	10-335	CASA-10-3830	GELC
R-35b	825.4	08/04/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.09	0.63	2	—	pCi/L	Y	U	U	09-2779	CASA-09-10392	GELC
R-35b	825.4	04/27/09	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	Y	3.35	0.83	2.4	—	pCi/L	Y	—	NQ	09-1625	CASA-09-8424	GELC
R-35b	825.4	04/27/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	2.03	0.69	2.1	—	pCi/L	Y	U	U	09-1625	CASA-09-8309	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	59.1	—	—	0.453	mg/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	59.2	—	—	0.453	mg/L	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	63.5	—	—	0.45	mg/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	61	—	—	0.45	mg/L	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	62.1	—	—	0.45	mg/L	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	5.13	—	—	0.11	mg/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	5.08	—	—	0.11	mg/L	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	5.26	—	—	0.11	mg/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.98	—	—	0.11	mg/L	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	5.15	—	—	0.11	mg/L	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.21	—	—	0.165	ug/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.39	—	—	0.165	ug/L	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.33	—	—	0.17	ug/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.3	—	—	0.17	ug/L	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.13	—	—	0.17	ug/L	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.49	3.02	10.4	—	pCi/L	Y	U	U	2013-321	CASA-13-24211	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	1.49	3.5	12	—	pCi/L	Y	U	U	10-3679	CASA-10-22663	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	FD	RAD	EPA:901.1	Neptunium-237	Np-237	N	1.86	3	10	—	pCi/L	Y	U	U	10-3679	CASA-10-22690	GELC
R-35b	825.4	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-13.4	9.2	26	—	pCi/L	Y	U	U	10-1826	CASA-10-9469	GELC
R-35b	825.4	11/03/09	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-7.83	13	35	—	pCi/L	Y	U	U	10-335	CASA-10-3830	GELC
R-35b	825.4	08/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	4.06	13	43	—	pCi/L	Y	U	U	09-2779	CASA-09-10392	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.77	—	—	0.5	ug/L	Y	J	J	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.74	—	—	0.5	ug/L	Y	J	J	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.56	—	—	0.5	ug/L	Y	J	J	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.05	—	—	0.5	ug/L	Y	J	J	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.965	—	—	0.5	ug/L	Y	J	J	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.17	—	—	0.085	mg/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.2	—	—	0.085	mg/L	Y	—	NQ	12-1347	CASA-12-17137	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-35b	825.4	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.21	—	—	0.05	mg/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.18	—	—	0.1	mg/L	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.18	—	—	0.05	mg/L	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.591	—	—	0.05	ug/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.622	—	—	0.05	ug/L	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.581	—	—	0.05	ug/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.545	—	—	0.05	ug/L	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.616	—	—	0.05	ug/L	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00574	0.00574	0.0276	—	pCi/L	Y	U	U	2013-321	CASA-13-24211	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.0052	0.0037	0.035	—	pCi/L	Y	U	U	10-3679	CASA-10-22663	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.0033	0.031	—	pCi/L	Y	U	U	10-3679	CASA-10-22690	GELC
R-35b	825.4	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00213	0.0036	0.048	—	pCi/L	Y	U	U	10-1826	CASA-10-9469	GELC
R-35b	825.4	11/03/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00474	0.0035	0.026	—	pCi/L	Y	U	U	10-335	CASA-10-3830	GELC
R-35b	825.4	08/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00173	0.0067	0.026	—	pCi/L	Y	U	U	09-2779	CASA-09-10392	GELC
R-35b	825.4	11/14/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0115	0.00703	0.0458	—	pCi/L	Y	U	U	2013-321	CASA-13-24211	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0	0.0026	0.035	—	pCi/L	Y	U	U	10-3679	CASA-10-22663	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00469	0.0047	0.032	—	pCi/L	Y	U	U	10-3679	CASA-10-22690	GELC
R-35b	825.4	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.000826	0.0036	0.034	—	pCi/L	Y	U	U	10-1826	CASA-10-9469	GELC
R-35b	825.4	11/03/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.0111	0.0052	0.026	—	pCi/L	Y	U	U	10-335	CASA-10-3830	GELC
R-35b	825.4	08/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.0156	0.0057	0.032	—	pCi/L	Y	U	U	09-2779	CASA-09-10392	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.98	—	—	0.05	mg/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.02	—	—	0.05	mg/L	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.25	—	—	0.05	mg/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.06	—	—	0.05	mg/L	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.09	—	—	0.05	mg/L	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-23.1	17.2	65.3	—	pCi/L	Y	U	U	2013-321	CASA-13-24211	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	FD	RAD	EPA:901.1	Potassium-40	K-40	N	8.02	20	72	—	pCi/L	Y	U	U	10-3679	CASA-10-22690	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-11.2	19	64	—	pCi/L	Y	U	U	10-3679	CASA-10-22663	GELC
R-35b	825.4	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-28	16	46	—	pCi/L	Y	U	U	10-1826	CASA-10-9469	GELC
R-35b	825.4	11/03/09	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	35.2	19	74	—	pCi/L	Y	U	U	10-335	CASA-10-3830	GELC
R-35b	825.4	08/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-13.4	19	60	—	pCi/L	Y	U	U	09-2779	CASA-09-10392	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	75.6	—	—	0.053	mg/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	76.8	—	—	0.053	mg/L	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	83.2	—	—	0.053	mg/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	77.9	—	—	0.053	mg/L	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	78.2	—	—	0.053	mg/L	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	11.9	—	—	0.1	mg/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.7	—	—	0.1	mg/L	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	11.9	—	—	0.1	mg/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	11.2	—	—	0.1	mg/L	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	11.3	—	—	0.1	mg/L	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.177	1.73	6.46	—	pCi/L	Y	U	U	2013-321	CASA-13-24211	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	FD	RAD	EPA:901.1	Sodium-22	Na-22	N	1.25	1.3	4.7	—	pCi/L	Y	U	U	10-3679	CASA-10-22690	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	2.17	1.8	6.6	—	pCi/L	Y	U	U	10-3679	CASA-10-22663	GELC
R-35b	825.4	02/11/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.42	1.3	4.7	—	pCi/L	Y	U	U	10-1826	CASA-10-9469	GELC
R-35b	825.4	11/03/09	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	2.23	1.5	5.5	—	pCi/L	Y	U	U	10-335	CASA-10-3830	GELC
R-35b	825.4	08/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.51	1.5	5.3	—	pCi/L	Y	U	U	09-2779	CASA-09-10392	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	171	—	—	1	uS/cm	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	168	—	—	1	uS/cm	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	168	—	—	1	uS/cm	Y	—	NQ	12-317	CASA-12-1386	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-35b	825.4	08/12/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	165	—	—	1	uS/cm	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	171	—	—	1	uS/cm	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	67	—	—	1	ug/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	64	—	—	1	ug/L	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	72.7	—	—	1	ug/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	67.1	—	—	1	ug/L	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	65.5	—	—	1	ug/L	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.174	0.113	0.497	—	pCi/L	Y	U	U	2013-321	CASA-13-24211	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	FD	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.00708	0.13	0.52	—	pCi/L	Y	U	U	10-3679	CASA-10-22690	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.186	0.13	0.45	—	pCi/L	Y	U	U	10-3679	CASA-10-22663	GELC
R-35b	825.4	02/11/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0108	0.091	0.32	—	pCi/L	Y	U	U	10-1826	CASA-10-9469	GELC
R-35b	825.4	11/03/09	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.129	0.12	0.4	—	pCi/L	Y	U	U	10-335	CASA-10-3830	GELC
R-35b	825.4	08/04/09	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0119	0.14	0.46	—	pCi/L	Y	U	U	09-2779	CASA-09-10392	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.63	—	—	0.133	mg/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.64	—	—	0.133	mg/L	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.49	—	—	0.1	mg/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.43	—	—	0.1	mg/L	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.75	—	—	0.1	mg/L	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	149	—	—	3.4	mg/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	140	—	—	3.4	mg/L	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	119	—	—	3.4	mg/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	146	—	—	3.4	mg/L	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	156	—	—	2.4	mg/L	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.0863	—	—	0.033	mg/L	Y	J	J	2013-321	CASA-13-24211	GELC
R-35b	825.4	06/06/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	U	12-1347	CASA-12-17134	GELC
R-35b	825.4	11/09/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	U	12-317	CASA-12-1387	GELC
R-35b	825.4	08/12/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	1	—	—	0.35	mg/L	Y	U	U	11-3193	CASA-11-24783	GELC
R-35b	825.4	06/01/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.16	—	—	0.035	mg/L	Y	—	NQ	11-2596	CASA-11-10815	GELC
R-35b	825.4	11/14/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.311	0.847	2.906	—	pCi/L	Y	U	U	2013-320	CASA-13-24211	ARSL
R-35b	825.4	11/09/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.72	0.69	2.37	—	pCi/L	Y	U	U	12-306	CASA-12-1387	ARSL
R-35b	825.4	06/01/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.0322	0.8372	2.8014	—	pCi/L	Y	U	U	11-2593	CASA-11-10815	ARSL
R-35b	825.4	11/11/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	27.2734	4.2504	2.7048	—	pCi/L	N	—	R	11-556	CASA-11-1374	ARSL
R-35b	825.4	11/11/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.322	0.805	2.7048	—	pCi/L	Y	U	U	11-556	CASA-11-1374	ARSL
R-35b	825.4	05/12/10	WG	UF	INIT	FD	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.161	0.5152	1.6744	—	pCi/L	Y	U	U	10-3221	CASA-10-16790	ARSL
R-35b	825.4	05/12/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.3542	0.5152	1.6422	—	pCi/L	Y	U	U	10-3221	CASA-10-16783	ARSL
R-35b	825.4	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.301	—	—	0.067	ug/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.328	—	—	0.067	ug/L	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.316	—	—	0.067	ug/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.185	—	—	0.067	ug/L	Y	J	J	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	N	0.293	—	—	0.067	ug/L	Y	—	U	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.186	0.0279	0.0693	—	pCi/L	Y	—	NQ	2013-321	CASA-13-24211	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.21	0.028	0.066	—	pCi/L	Y	—	NQ	10-3679	CASA-10-22663	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.236	0.03	0.066	—	pCi/L	Y	—	NQ	10-3679	CASA-10-22690	GELC
R-35b	825.4	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.329	0.049	0.082	—	pCi/L	Y	—	NQ	10-1826	CASA-10-9469	GELC
R-35b	825.4	11/03/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.222	0.032	0.094	—	pCi/L	Y	—	NQ	10-335	CASA-10-3830	GELC
R-35b	825.4	08/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.215	0.026	0.07	—	pCi/L	Y	—	NQ	09-2779	CASA-09-10392	GELC
R-35b	825.4	11/14/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0148	0.0104	0.0433	—	pCi/L	Y	U	U	2013-321	CASA-13-24211	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0	0.0045	0.04	—	pCi/L	Y	U	U	10-3679	CASA-10-22690	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00955	0.0072	0.04	—	pCi/L	Y	U	U	10-3679	CASA-10-22663	GELC
R-35b	825.4	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0352	0.016	0.065	—	pCi/L	Y	U	U	10-1826	CASA-10-9469	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-35b	825.4	11/03/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0	0.0046	0.048	—	pCi/L	Y	U	U	10-335	CASA-10-3830	GELC
R-35b	825.4	08/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	-0.00226	0.006	0.034	—	pCi/L	Y	U	U	09-2779	CASA-09-10392	GELC
R-35b	825.4	11/14/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.128	0.0205	0.0471	—	pCi/L	Y	—	NQ	2013-321	CASA-13-24211	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.121	0.02	0.046	—	pCi/L	Y	—	NQ	10-3679	CASA-10-22690	GELC
R-35b	825.4	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.0824	0.017	0.046	—	pCi/L	Y	—	NQ	10-3679	CASA-10-22663	GELC
R-35b	825.4	02/11/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.119	0.027	0.058	—	pCi/L	Y	—	NQ	10-1826	CASA-10-9469	GELC
R-35b	825.4	11/03/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.089	0.02	0.058	—	pCi/L	Y	—	NQ	10-335	CASA-10-3830	GELC
R-35b	825.4	08/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.0733	0.013	0.035	—	pCi/L	Y	—	NQ	09-2779	CASA-09-10392	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	14.4	—	—	1	ug/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	13.9	—	—	1	ug/L	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	14.7	—	—	1	ug/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	13.6	—	—	1	ug/L	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	14.4	—	—	1	ug/L	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-35b	825.4	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	30	—	—	3.3	ug/L	Y	—	NQ	2013-321	CASA-13-24219	GELC
R-35b	825.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	29.2	—	—	3.3	ug/L	Y	—	NQ	12-1347	CASA-12-17137	GELC
R-35b	825.4	11/09/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	25.2	—	—	3.3	ug/L	Y	—	NQ	12-317	CASA-12-1386	GELC
R-35b	825.4	08/12/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	26.5	—	—	3.3	ug/L	Y	—	NQ	11-3193	CASA-11-24782	GELC
R-35b	825.4	06/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	28.2	—	—	3.3	ug/L	Y	—	NQ	11-2596	CASA-11-10814	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.49	—	—	0.01	SU	Y	H	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.52	—	—	0.01	SU	Y	H	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.65	—	—	0.01	SU	Y	H	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.44	—	—	0.01	SU	Y	H	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.03	—	—	0.01	SU	Y	H	J-	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.39	—	—	0.01	SU	Y	H	J-	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	68.5	—	—	0.725	mg/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	70	—	—	0.725	mg/L	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	69.4	—	—	0.725	mg/L	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	75.4	—	—	0.725	mg/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	69.7	—	—	0.73	mg/L	Y	—	NQ	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	68.6	—	—	0.73	mg/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00241	0.0054	0.0275	—	pCi/L	Y	U	U	2013-322	CASA-13-24212	GELC
R-36	766.9	11/14/12	WG	UF	INIT	FD	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.009	0.00712	0.0256	—	pCi/L	Y	U	U	2013-322	CASA-13-24206	GELC
R-36	766.9	07/12/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0233	0.007	0.039	—	pCi/L	Y	U	U	10-3651	CASA-10-22702	GELC
R-36	766.9	05/12/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00834	0.0041	0.027	—	pCi/L	Y	U	U	10-3152	CASA-10-16793	GELC
R-36	766.9	02/04/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0204	0.0075	0.031	—	pCi/L	Y	U	U	10-1644	CASA-10-9493	GELC
R-36	766.9	11/04/09	WG	UF	INIT	FD	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00683	0.0033	0.031	—	pCi/L	Y	U	U	10-376	CASA-10-3854	GELC
R-36	766.9	11/04/09	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00621	0.0038	0.032	—	pCi/L	Y	U	U	10-376	CASA-10-3834	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0371	—	—	0.017	mg/L	Y	J	J	2013-322	CASA-13-24207	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.017	mg/L	Y	U	U	2013-322	CASA-13-24220	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.017	mg/L	Y	U	U	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.0375	—	—	0.016	mg/L	Y	J	U	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0608	—	—	0.016	mg/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	33.9	—	—	1	ug/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Barium	Ba	Y	33.1	—	—	1	ug/L	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	35.3	—	—	1	ug/L	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	31.2	—	—	1	ug/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	35.3	—	—	1	ug/L	Y	—	J	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	36.4	—	—	1	ug/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	UF	INIT	REG	SVOC	SW-846:8270C	Benzoic Acid	65-85-0	Y	9.3	—	—	6.25	ug/L	Y	J	J	2013-322	CASA-13-24212	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-36	766.9	11/14/12	WG	UF	INIT	FD	SVOC	SW-846:8270C	Benzoic Acid	65-85-0	N	21.3	—	—	6.38	ug/L	Y	U	U	2013-322	CASA-13-24206	GELC
R-36	766.9	11/16/11	WG	UF	INIT	REG	SVOC	SW-846:8270C	Benzoic Acid	65-85-0	N	21.7	—	—	6.5	ug/L	Y	U	U	12-365	CASA-12-1388	GELC
R-36	766.9	07/12/10	WG	UF	INIT	REG	SVOC	SW-846:8270C	Benzoic Acid	65-85-0	N	22.2	—	—	6.7	ug/L	Y	U	U	10-3649	CASA-10-22702	GELC
R-36	766.9	02/04/10	WG	UF	INIT	REG	SVOC	SW-846:8270C	Benzoic Acid	65-85-0	N	20.8	—	—	6.3	ug/L	Y	U	U	10-1643	CASA-10-9493	GELC
R-36	766.9	11/04/09	WG	UF	INIT	FD	SVOC	SW-846:8270C	Benzoic Acid	65-85-0	N	22	—	—	6.6	ug/L	Y	U	U	10-374	CASA-10-3854	GELC
R-36	766.9	11/04/09	WG	UF	INIT	REG	SVOC	SW-846:8270C	Benzoic Acid	65-85-0	N	23	—	—	6.9	ug/L	Y	U	U	10-374	CASA-10-3834	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Boron	B	Y	21.7	—	—	15	ug/L	Y	J	J	2013-322	CASA-13-24207	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	22.2	—	—	15	ug/L	Y	J	J	2013-322	CASA-13-24220	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	24.1	—	—	15	ug/L	Y	J	J	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	26.1	—	—	15	ug/L	Y	J	J	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	25.2	—	—	15	ug/L	Y	J	J	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	27.2	—	—	15	ug/L	Y	J	J	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.105	—	—	0.067	mg/L	Y	J	J	2013-322	CASA-13-24220	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.0977	—	—	0.067	mg/L	Y	J	J	2013-322	CASA-13-24207	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.0723	—	—	0.067	mg/L	Y	J	J	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.0752	—	—	0.066	mg/L	Y	J	J	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.101	—	—	0.066	mg/L	Y	J	J	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.107	—	—	0.066	mg/L	Y	J	J	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Calcium	Ca	Y	17.7	—	—	0.05	mg/L	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	17.9	—	—	0.05	mg/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	18.7	—	—	0.05	mg/L	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	17.4	—	—	0.05	mg/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	18.7	—	—	0.05	mg/L	Y	—	NQ	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	19.3	—	—	0.05	mg/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.667	1.26	5.07	—	pCi/L	Y	U	U	2013-322	CASA-13-24212	GELC
R-36	766.9	11/14/12	WG	UF	INIT	FD	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.04	1.42	5.54	—	pCi/L	Y	U	U	2013-322	CASA-13-24206	GELC
R-36	766.9	07/12/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	4.48	2.5	4.1	—	pCi/L	Y	UI	R	10-3651	CASA-10-22702	GELC
R-36	766.9	05/12/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.228	1.4	4.7	—	pCi/L	Y	U	U	10-3152	CASA-10-16793	GELC
R-36	766.9	02/04/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.19	1.1	3.8	—	pCi/L	Y	U	U	10-1644	CASA-10-9493	GELC
R-36	766.9	11/04/09	WG	UF	INIT	FD	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.0645	1.2	3.8	—	pCi/L	Y	U	U	10-376	CASA-10-3854	GELC
R-36	766.9	11/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.744	1.1	3.3	—	pCi/L	Y	U	U	10-376	CASA-10-3834	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	5.79	—	—	0.067	mg/L	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	5.78	—	—	0.067	mg/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	5.89	—	—	0.067	mg/L	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	5.75	—	—	0.066	mg/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	4.05	—	—	0.066	mg/L	Y	—	NQ	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	5.85	—	—	0.066	mg/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.78	—	—	2	ug/L	Y	J	J	2013-322	CASA-13-24207	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.63	—	—	2	ug/L	Y	J	J	2013-322	CASA-13-24220	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.55	—	—	2	ug/L	Y	J	J	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	4.74	—	—	2	ug/L	Y	J	J	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	6.35	—	—	2	ug/L	Y	J	J	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	8.48	—	—	2	ug/L	Y	J	J	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	UF	INIT	FD	RAD	EPA:901.1	Cobalt-60	Co-60	N	-3.89	1.59	4.74	—	pCi/L	Y	U	U	2013-322	CASA-13-24206	GELC
R-36	766.9	11/14/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.571	1.09	4.32	—	pCi/L	Y	U	U	2013-322	CASA-13-24212	GELC
R-36	766.9	07/12/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.706	1.7	5.7	—	pCi/L	Y	U	U	10-3651	CASA-10-22702	GELC
R-36	766.9	05/12/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	2.74	1.6	6.1	—	pCi/L	Y	U	U	10-3152	CASA-10-16793	GELC
R-36	766.9	02/04/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.19	1.4	4	—	pCi/L	Y	U	U	10-1644	CASA-10-9493	GELC
R-36	766.9	11/04/09	WG	UF	INIT	FD	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.125	1.1	3.5	—	pCi/L	Y	U	U	10-376	CASA-10-3854	GELC
R-36	766.9	11/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.566	1.1	3.5	—	pCi/L	Y	U	U	10-376	CASA-10-3834	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-36	766.9	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.533	—	—	0.033	mg/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.545	—	—	0.033	mg/L	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.537	—	—	0.033	mg/L	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.542	—	—	0.033	mg/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.402	—	—	0.033	mg/L	Y	—	NQ	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.496	—	—	0.033	mg/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.123	0.474	2.22	—	pCi/L	Y	U	U	2013-322	CASA-13-24212	GELC
R-36	766.9	11/14/12	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	0.302	0.484	2.09	—	pCi/L	Y	U	U	2013-322	CASA-13-24206	GELC
R-36	766.9	07/12/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.264	0.5	2.7	—	pCi/L	Y	U	U	10-3651	CASA-10-22702	GELC
R-36	766.9	05/12/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.46	0.8	2.3	—	pCi/L	Y	U	U	10-3152	CASA-10-16793	GELC
R-36	766.9	02/04/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.29	0.7	2	—	pCi/L	Y	U	U	10-1644	CASA-10-9493	GELC
R-36	766.9	11/04/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.2	0.59	2.6	—	pCi/L	Y	U	U	10-376	CASA-10-3834	GELC
R-36	766.9	11/04/09	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	0.542	0.42	1.4	—	pCi/L	Y	U	U	10-376	CASA-10-3854	GELC
R-36	766.9	11/14/12	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	N	1.97	0.767	2.32	—	pCi/L	Y	U	U	2013-322	CASA-13-24206	GELC
R-36	766.9	11/14/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.13	0.772	2.59	—	pCi/L	Y	U	U	2013-322	CASA-13-24212	GELC
R-36	766.9	07/12/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	8.59	1.4	3	—	pCi/L	Y	—	NQ	10-3651	CASA-10-22702	GELC
R-36	766.9	05/12/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	2.16	0.8	2.3	—	pCi/L	Y	U	U	10-3152	CASA-10-16793	GELC
R-36	766.9	02/04/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.22	0.75	2.5	—	pCi/L	Y	U	U	10-1644	CASA-10-9493	GELC
R-36	766.9	11/04/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	3.49	0.94	2.4	—	pCi/L	Y	—	NQ	10-376	CASA-10-3834	GELC
R-36	766.9	11/04/09	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	Y	7.27	1.4	3.2	—	pCi/L	Y	—	NQ	10-376	CASA-10-3854	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	62.9	—	—	0.453	mg/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	62.1	—	—	0.453	mg/L	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	65.2	—	—	0.453	mg/L	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	60.8	—	—	0.453	mg/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	64.8	—	—	0.45	mg/L	Y	—	NQ	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	66.3	—	—	0.45	mg/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.4	—	—	0.11	mg/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.35	—	—	0.11	mg/L	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.48	—	—	0.11	mg/L	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.2	—	—	0.11	mg/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.39	—	—	0.11	mg/L	Y	—	NQ	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.38	—	—	0.11	mg/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Manganese	Mn	Y	2.07	—	—	2	ug/L	Y	J	J	2013-322	CASA-13-24207	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	2.36	—	—	2	ug/L	Y	J	J	2013-322	CASA-13-24220	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	2.06	—	—	2	ug/L	Y	J	J	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	2.55	—	—	2	ug/L	Y	J	J	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	2.05	—	—	2	ug/L	Y	J	J	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	N	10	—	—	2	ug/L	Y	U	U	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.78	—	—	0.165	ug/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.78	—	—	0.165	ug/L	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.75	—	—	0.165	ug/L	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.91	—	—	0.165	ug/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.82	—	—	0.17	ug/L	Y	—	J	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	2.23	—	—	0.17	ug/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-0.694	3.03	10.9	—	pCi/L	Y	U	U	2013-322	CASA-13-24212	GELC
R-36	766.9	11/14/12	WG	UF	INIT	FD	RAD	EPA:901.1	Neptunium-237	Np-237	N	0.626	2.86	10.5	—	pCi/L	Y	U	U	2013-322	CASA-13-24206	GELC
R-36	766.9	07/12/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-0.768	2.6	8.5	—	pCi/L	Y	U	U	10-3651	CASA-10-22702	GELC
R-36	766.9	05/12/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	0.311	3	9.6	—	pCi/L	Y	U	U	10-3152	CASA-10-16793	GELC
R-36	766.9	02/04/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-4.95	9.3	30	—	pCi/L	Y	U	U	10-1644	CASA-10-9493	GELC
R-36	766.9	11/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-6.28	9.9	28	—	pCi/L	Y	U	U	10-376	CASA-10-3834	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-36	766.9	11/04/09	WG	UF	INIT	FD	RAD	EPA:901.1	Neptunium-237	Np-237	N	7.1	9.7	31	—	pCi/L	Y	U	U	10-376	CASA-10-3854	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.62	—	—	0.5	ug/L	Y	J	J	2013-322	CASA-13-24220	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.59	—	—	0.5	ug/L	Y	J	J	2013-322	CASA-13-24207	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.13	—	—	0.5	ug/L	Y	J	J	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.19	—	—	0.5	ug/L	Y	J	J	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.601	—	—	0.5	ug/L	Y	J	J	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.71	—	—	0.5	ug/L	Y	J	J	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.3	—	—	0.085	mg/L	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.26	—	—	0.085	mg/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.25	—	—	0.085	mg/L	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.25	—	—	0.05	mg/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	5.14	—	—	0.1	mg/L	N	—	R	12-366	CASA-12-1390	GELC
R-36	766.9	11/16/11	WG	F	RE	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.29	—	—	0.085	mg/L	Y	H	NQ	12-366-1	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.26	—	—	0.1	mg/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.63	—	—	0.1	ug/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.59	—	—	0.1	ug/L	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.7	—	—	0.1	ug/L	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.58	—	—	0.2	ug/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.845	—	—	0.05	ug/L	Y	—	NQ	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.55	—	—	0.25	ug/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00277	0.0048	0.0266	—	pCi/L	Y	U	U	2013-322	CASA-13-24212	GELC
R-36	766.9	11/14/12	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.00382	0.026	—	pCi/L	Y	U	U	2013-322	CASA-13-24206	GELC
R-36	766.9	07/12/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.0111	0.0056	0.037	—	pCi/L	Y	U	U	10-3651	CASA-10-22702	GELC
R-36	766.9	05/12/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.002	0.031	—	pCi/L	Y	U	U	10-3152	CASA-10-16793	GELC
R-36	766.9	02/04/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.002	0.033	—	pCi/L	Y	U	U	10-1644	CASA-10-9493	GELC
R-36	766.9	11/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00438	0.0098	0.036	—	pCi/L	Y	U	U	10-376	CASA-10-3834	GELC
R-36	766.9	11/04/09	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.011	0.011	0.036	—	pCi/L	Y	U	U	10-376	CASA-10-3854	GELC
R-36	766.9	11/14/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00277	0.00619	0.0442	—	pCi/L	Y	U	U	2013-322	CASA-13-24212	GELC
R-36	766.9	11/14/12	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0	0.0054	0.0431	—	pCi/L	Y	U	U	2013-322	CASA-13-24206	GELC
R-36	766.9	07/12/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00556	0.0056	0.038	—	pCi/L	Y	U	U	10-3651	CASA-10-22702	GELC
R-36	766.9	05/12/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00197	0.0044	0.029	—	pCi/L	Y	U	U	10-3152	CASA-10-16793	GELC
R-36	766.9	02/04/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00195	0.0034	0.023	—	pCi/L	Y	U	U	10-1644	CASA-10-9493	GELC
R-36	766.9	11/04/09	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00441	0.007	0.036	—	pCi/L	Y	U	U	10-376	CASA-10-3854	GELC
R-36	766.9	11/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00657	0.0066	0.036	—	pCi/L	Y	U	U	10-376	CASA-10-3834	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Potassium	K	Y	1.98	—	—	0.05	mg/L	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.96	—	—	0.05	mg/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.05	—	—	0.05	mg/L	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.01	—	—	0.05	mg/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.03	—	—	0.05	mg/L	Y	—	J	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.03	—	—	0.05	mg/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-17.2	19.7	70.5	—	pCi/L	Y	U	U	2013-322	CASA-13-24212	GELC
R-36	766.9	11/14/12	WG	UF	INIT	FD	RAD	EPA:901.1	Potassium-40	K-40	N	-2.12	17.1	66.9	—	pCi/L	Y	U	U	2013-322	CASA-13-24206	GELC
R-36	766.9	07/12/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	6.5	20	71	—	pCi/L	Y	U	U	10-3651	CASA-10-22702	GELC
R-36	766.9	05/12/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	6.52	21	73	—	pCi/L	Y	U	U	10-3152	CASA-10-16793	GELC
R-36	766.9	02/04/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	16.7	15	55	—	pCi/L	Y	U	U	10-1644	CASA-10-9493	GELC
R-36	766.9	11/04/09	WG	UF	INIT	FD	RAD	EPA:901.1	Potassium-40	K-40	N	24.1	17	35	—	pCi/L	Y	U	U	10-376	CASA-10-3854	GELC
R-36	766.9	11/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-26.2	16	51	—	pCi/L	Y	U	U	10-376	CASA-10-3834	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	71.8	—	—	0.053	mg/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	70.5	—	—	0.053	mg/L	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	75.5	—	—	0.053	mg/L	Y	—	NQ	12-1325	CASA-12-17138	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-36	766.9	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	70.6	—	—	0.053	mg/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	75.4	—	—	0.053	mg/L	Y	—	NQ	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	75	—	—	0.053	mg/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	15	—	—	0.1	mg/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Sodium	Na	Y	14.9	—	—	0.1	mg/L	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	14.2	—	—	0.1	mg/L	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	14.6	—	—	0.1	mg/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	13.9	—	—	0.1	mg/L	Y	—	NQ	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	14.3	—	—	0.1	mg/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	UF	INIT	FD	RAD	EPA:901.1	Sodium-22	Na-22	N	-3.16	1.3	3.8	—	pCi/L	Y	U	U	2013-322	CASA-13-24206	GELC
R-36	766.9	11/14/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.918	1.26	5.55	—	pCi/L	Y	U	U	2013-322	CASA-13-24212	GELC
R-36	766.9	07/12/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.04	1.3	4.6	—	pCi/L	Y	U	U	10-3651	CASA-10-22702	GELC
R-36	766.9	05/12/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-2.26	1.4	3.9	—	pCi/L	Y	U	U	10-3152	CASA-10-16793	GELC
R-36	766.9	02/04/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	2.86	1.1	4.6	—	pCi/L	Y	U	U	10-1644	CASA-10-9493	GELC
R-36	766.9	11/04/09	WG	UF	INIT	FD	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.78	1.2	3.5	—	pCi/L	Y	U	U	10-376	CASA-10-3854	GELC
R-36	766.9	11/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.873	1.2	4.2	—	pCi/L	Y	U	U	10-376	CASA-10-3834	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	192	—	—	1	uS/cm	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	192	—	—	1	uS/cm	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	192	—	—	1	uS/cm	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	191	—	—	1	uS/cm	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	222	—	—	1	uS/cm	Y	—	NQ	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	196	—	—	1	uS/cm	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Strontium	Sr	Y	70.2	—	—	1	ug/L	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	70.9	—	—	1	ug/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	71.1	—	—	1	ug/L	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	70	—	—	1	ug/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	71.7	—	—	1	ug/L	Y	—	NQ	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	72.4	—	—	1	ug/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0473	0.127	0.475	—	pCi/L	Y	U	U	2013-322	CASA-13-24212	GELC
R-36	766.9	11/14/12	WG	UF	INIT	FD	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0566	0.12	0.481	—	pCi/L	Y	U	U	2013-322	CASA-13-24206	GELC
R-36	766.9	07/12/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.185	0.086	0.41	—	pCi/L	Y	U	U	10-3651	CASA-10-22702	GELC
R-36	766.9	05/12/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.327	0.15	0.47	—	pCi/L	Y	U	U	10-3152	CASA-10-16793	GELC
R-36	766.9	02/04/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0752	0.12	0.41	—	pCi/L	Y	U	U	10-1644	CASA-10-9493	GELC
R-36	766.9	11/04/09	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.181	0.13	0.49	—	pCi/L	Y	U	U	10-376	CASA-10-3834	GELC
R-36	766.9	11/04/09	WG	UF	INIT	FD	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.14	0.13	0.48	—	pCi/L	Y	U	U	10-376	CASA-10-3854	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	7	—	—	0.133	mg/L	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	6.94	—	—	0.133	mg/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	6.9	—	—	0.133	mg/L	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	6.76	—	—	0.1	mg/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	9.82	—	—	0.1	mg/L	Y	—	NQ	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	6.65	—	—	0.1	mg/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	126	—	—	3.4	mg/L	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	143	—	—	3.4	mg/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	159	—	—	3.4	mg/L	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	167	—	—	3.4	mg/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	193	—	—	3.4	mg/L	Y	—	NQ	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	171	—	—	3.4	mg/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.0863	—	—	0.033	mg/L	Y	J	J	2013-322	CASA-13-24212	GELC
R-36	766.9	11/14/12	WG	UF	INIT	FD	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.0339	—	—	0.033	mg/L	Y	J	J	2013-322	CASA-13-24206	GELC
R-36	766.9	05/30/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	U	12-1325	CASA-12-17135	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-36	766.9	03/08/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	U	12-1064	CASA-12-12037	GELC
R-36	766.9	11/16/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	UJ	12-365	CASA-12-1388	GELC
R-36	766.9	08/15/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	U	11-3206	CASA-11-24789	GELC
R-36	766.9	11/14/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.547	—	—	0.33	mg/L	Y	J	J	2013-322	CASA-13-24212	GELC
R-36	766.9	11/14/12	WG	UF	INIT	FD	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.584	—	—	0.33	mg/L	Y	J	J	2013-322	CASA-13-24206	GELC
R-36	766.9	05/30/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.698	—	—	0.33	mg/L	Y	J	J	12-1325	CASA-12-17135	GELC
R-36	766.9	03/08/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.675	—	—	0.33	mg/L	Y	J	J	12-1064	CASA-12-12037	GELC
R-36	766.9	11/16/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	N	1	—	—	0.33	mg/L	Y	U	U	12-365	CASA-12-1388	GELC
R-36	766.9	08/15/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.63	—	—	0.33	mg/L	Y	J	J	11-3206	CASA-11-24789	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0213	—	—	0.017	mg/L	Y	J	J	2013-322	CASA-13-24220	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.05	—	—	0.017	mg/L	Y	U	U	2013-322	CASA-13-24207	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0297	—	—	0.017	mg/L	Y	J	J	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0189	—	—	0.015	mg/L	Y	J	J	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.05	—	—	0.015	mg/L	Y	U	U	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.157	—	—	0.015	mg/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	12.281	2.075	2.547	—	pCi/L	Y	—	NQ	2013-362	CASA-13-24212	ARSL
R-36	766.9	11/14/12	WG	UF	INIT	FD	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	15.346	2.521	2.643	—	pCi/L	Y	—	NQ	2013-362	CASA-13-24206	ARSL
R-36	766.9	11/16/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	12.08	2.02	2.31	—	pCi/L	Y	—	NQ	12-414	CASA-12-1388	ARSL
R-36	766.9	06/02/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	16.0678	2.6404	2.8658	—	pCi/L	Y	—	J	11-2626	CASA-11-10816	ARSL
R-36	766.9	11/11/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	21.3808	3.3488	2.3184	—	pCi/L	Y	—	NQ	11-556	CASA-11-1376	ARSL
R-36	766.9	11/11/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	93.7986	14.1358	2.3184	—	pCi/L	N	—	R	11-556	CASA-11-1376	ARSL
R-36	766.9	05/12/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	13.0732	2.093	1.8032	—	pCi/L	Y	—	NQ	10-3221	CASA-10-16793	ARSL
R-36	766.9	11/14/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Uranium	U	Y	0.301	—	—	0.067	ug/L	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.298	—	—	0.067	ug/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.289	—	—	0.067	ug/L	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.318	—	—	0.067	ug/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.315	—	—	0.067	ug/L	Y	—	NQ	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.322	—	—	0.067	ug/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.195	0.0277	0.0628	—	pCi/L	Y	—	NQ	2013-322	CASA-13-24212	GELC
R-36	766.9	11/14/12	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.241	0.0291	0.0635	—	pCi/L	Y	—	NQ	2013-322	CASA-13-24206	GELC
R-36	766.9	07/12/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.268	0.041	0.14	—	pCi/L	Y	—	NQ	10-3651	CASA-10-22702	GELC
R-36	766.9	05/12/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.261	0.03	0.034	—	pCi/L	Y	—	NQ	10-3152	CASA-10-16793	GELC
R-36	766.9	02/04/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.239	0.031	0.079	—	pCi/L	Y	—	NQ	10-1644	CASA-10-9493	GELC
R-36	766.9	11/04/09	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.268	0.031	0.074	—	pCi/L	Y	—	NQ	10-376	CASA-10-3854	GELC
R-36	766.9	11/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.25	0.027	0.064	—	pCi/L	Y	—	NQ	10-376	CASA-10-3834	GELC
R-36	766.9	11/14/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00669	0.00669	0.0392	—	pCi/L	Y	U	U	2013-322	CASA-13-24212	GELC
R-36	766.9	11/14/12	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0102	0.00896	0.0397	—	pCi/L	Y	U	U	2013-322	CASA-13-24206	GELC
R-36	766.9	07/12/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0	0.0059	0.065	—	pCi/L	Y	U	U	10-3651	CASA-10-22702	GELC
R-36	766.9	05/12/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0127	0.0068	0.031	—	pCi/L	Y	U	U	10-3152	CASA-10-16793	GELC
R-36	766.9	02/04/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0	0.0035	0.045	—	pCi/L	Y	U	U	10-1644	CASA-10-9493	GELC
R-36	766.9	11/04/09	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0128	0.0085	0.038	—	pCi/L	Y	U	U	10-376	CASA-10-3854	GELC
R-36	766.9	11/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.011	0.0059	0.032	—	pCi/L	Y	U	U	10-376	CASA-10-3834	GELC
R-36	766.9	11/14/12	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.0986	0.0178	0.0431	—	pCi/L	Y	—	NQ	2013-322	CASA-13-24206	GELC
R-36	766.9	11/14/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.0975	0.0171	0.0426	—	pCi/L	Y	—	NQ	2013-322	CASA-13-24212	GELC
R-36	766.9	07/12/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.119	0.025	0.083	—	pCi/L	Y	—	NQ	10-3651	CASA-10-22702	GELC
R-36	766.9	05/12/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.105	0.017	0.031	—	pCi/L	Y	—	NQ	10-3152	CASA-10-16793	GELC
R-36	766.9	02/04/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.113	0.02	0.051	—	pCi/L	Y	—	NQ	10-1644	CASA-10-9493	GELC
R-36	766.9	11/04/09	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.0786	0.017	0.046	—	pCi/L	Y	—	NQ	10-376	CASA-10-3854	GELC
R-36	766.9	11/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.116	0.017	0.039	—	pCi/L	Y	—	NQ	10-376	CASA-10-3834	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Vanadium	V	Y	14.3	—	—	1	ug/L	Y	—	NQ	2013-322	CASA-13-24207	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-36	766.9	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	15.1	—	—	1	ug/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	15.2	—	—	1	ug/L	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	15	—	—	1	ug/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	14.7	—	—	1	ug/L	Y	—	J	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	14.5	—	—	1	ug/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-36	766.9	11/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	53.5	—	—	3.3	ug/L	Y	—	NQ	2013-322	CASA-13-24220	GELC
R-36	766.9	11/14/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Zinc	Zn	Y	50.8	—	—	3.3	ug/L	Y	—	NQ	2013-322	CASA-13-24207	GELC
R-36	766.9	05/30/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	49.1	—	—	3.3	ug/L	Y	—	NQ	12-1325	CASA-12-17138	GELC
R-36	766.9	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	50.6	—	—	3.3	ug/L	Y	—	NQ	12-1064	CASA-12-12038	GELC
R-36	766.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	50.7	—	—	3.3	ug/L	Y	—	NQ	12-366	CASA-12-1390	GELC
R-36	766.9	08/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	56.5	—	—	3.3	ug/L	Y	—	NQ	11-3206	CASA-11-24788	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.84	—	—	0.01	SU	Y	H	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.74	—	—	0.01	SU	Y	H	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.91	—	—	0.01	SU	Y	H	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.75	—	—	0.01	SU	Y	H	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.55	—	—	0.01	SU	Y	H	J-	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00286	0.00756	0.0325	—	pCi/L	Y	U	U	2013-259	CAMO-13-24244	GELC
R-42	931.8	08/08/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0	0.00568	0.0389	—	pCi/L	Y	U	U	12-1481	CAMO-12-21736	GELC
R-42	931.8	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00446	0.003	0.037	—	pCi/L	Y	U	U	10-3667	CAMO-10-22891	GELC
R-42	931.8	05/13/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.0033	0.0074	0.029	—	pCi/L	Y	U	U	10-3176	CAMO-10-16822	GELC
R-42	931.8	02/10/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0167	0.0081	0.04	—	pCi/L	Y	U	U	10-1807	CAMO-10-9357	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Antimony	Sb	Y	1.26	—	—	1	ug/L	Y	J	J	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Antimony	Sb	N	3	—	—	1	ug/L	Y	U	U	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Antimony	Sb	Y	1.04	—	—	1	ug/L	Y	J	J	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Antimony	Sb	N	3	—	—	1	ug/L	Y	U	U	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Antimony	Sb	N	3	—	—	1	ug/L	Y	U	U	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	93.3	—	—	1	ug/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	87.8	—	—	1	ug/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	95.1	—	—	1	ug/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	95.5	—	—	1	ug/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	95.4	—	—	1	ug/L	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	16.2	—	—	15	ug/L	Y	J	J	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	19	—	—	15	ug/L	Y	J	J	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	18.9	—	—	15	ug/L	Y	J	J	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	19.6	—	—	15	ug/L	Y	J	J	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	18.9	—	—	15	ug/L	Y	J	J	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.257	—	—	0.067	mg/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.215	—	—	0.067	mg/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.244	—	—	0.067	mg/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.217	—	—	0.066	mg/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.221	—	—	0.066	mg/L	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	51.3	—	—	0.05	mg/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	48.8	—	—	0.05	mg/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	52.1	—	—	0.05	mg/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	52.5	—	—	0.05	mg/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	54.3	—	—	0.05	mg/L	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.508	1.71	6.24	—	pCi/L	Y	U	U	2013-259	CAMO-13-24244	GELC
R-42	931.8	08/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.31	1.37	5.5	—	pCi/L	Y	U	U	12-1481	CAMO-12-21736	GELC
R-42	931.8	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.699	1.4	4.5	—	pCi/L	Y	U	U	10-3667	CAMO-10-22891	GELC
R-42	931.8	05/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-2.16	1.5	4.5	—	pCi/L	Y	U	U	10-3176	CAMO-10-16822	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-42	931.8	02/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.22	1.5	5.1	—	pCi/L	Y	U	U	10-1807	CAMO-10-9357	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	41.9	—	—	0.335	mg/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	37.8	—	—	0.67	mg/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	38.7	—	—	0.67	mg/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	39.1	—	—	0.33	mg/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	40.3	—	—	0.33	mg/L	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	1010	—	—	40	ug/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	1070	—	—	40	ug/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	894	—	—	2	ug/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	969	—	—	2	ug/L	Y	—	J+	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	935	—	—	2	ug/L	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.544	1.58	5.82	—	pCi/L	Y	U	U	2013-259	CAMO-13-24244	GELC
R-42	931.8	08/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.257	1.4	5.68	—	pCi/L	Y	U	U	12-1481	CAMO-12-21736	GELC
R-42	931.8	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.559	1.2	4.1	—	pCi/L	Y	U	U	10-3667	CAMO-10-22891	GELC
R-42	931.8	05/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.76	1.8	5.4	—	pCi/L	Y	U	U	10-3176	CAMO-10-16822	GELC
R-42	931.8	02/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	1.58	1.4	5	—	pCi/L	Y	U	U	10-1807	CAMO-10-9357	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.283	—	—	0.033	mg/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.268	—	—	0.033	mg/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.271	—	—	0.033	mg/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.277	—	—	0.033	mg/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.265	—	—	0.033	mg/L	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.526	0.703	2.64	—	pCi/L	Y	U	U	2013-259	CAMO-13-24244	GELC
R-42	931.8	08/08/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.106	0.385	2.17	—	pCi/L	Y	U	U	12-1481	CAMO-12-21736	GELC
R-42	931.8	07/13/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.54	0.93	2.6	—	pCi/L	Y	U	U	10-3667	CAMO-10-22891	GELC
R-42	931.8	05/13/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.23	0.79	2.5	—	pCi/L	Y	U	U	10-3176	CAMO-10-16822	GELC
R-42	931.8	02/10/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.736	0.65	2.3	—	pCi/L	Y	U	U	10-1807	CAMO-10-9357	GELC
R-42	931.8	10/31/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.769	0.7	2.44	—	pCi/L	Y	U	U	2013-259	CAMO-13-24244	GELC
R-42	931.8	08/08/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.37	0.619	1.95	—	pCi/L	Y	U	U	12-1481	CAMO-12-21736	GELC
R-42	931.8	07/13/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	22.2	2.5	2.9	—	pCi/L	Y	—	NQ	10-3667	CAMO-10-22891	GELC
R-42	931.8	05/13/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.55	0.72	2.2	—	pCi/L	Y	U	U	10-3176	CAMO-10-16822	GELC
R-42	931.8	02/10/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	2.55	0.93	2.7	—	pCi/L	Y	U	U	10-1807	CAMO-10-9357	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	187	—	—	0.453	mg/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	179	—	—	0.453	mg/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	190	—	—	0.453	mg/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	193	—	—	0.453	mg/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	198	—	—	0.45	mg/L	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	14.4	—	—	0.11	mg/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	13.8	—	—	0.11	mg/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	14.5	—	—	0.11	mg/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	15	—	—	0.11	mg/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	15	—	—	0.11	mg/L	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.619	—	—	0.165	ug/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	N	0.523	—	—	0.165	ug/L	Y	—	U	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.493	—	—	0.165	ug/L	Y	J	J	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.554	—	—	0.165	ug/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.497	—	—	0.17	ug/L	Y	J	J	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	1.57	3.24	11.4	—	pCi/L	Y	U	U	2013-259	CAMO-13-24244	GELC
R-42	931.8	08/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-1.32	2.96	10.4	—	pCi/L	Y	U	U	12-1481	CAMO-12-21736	GELC
R-42	931.8	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-4.49	3.2	9.7	—	pCi/L	Y	U	U	10-3667	CAMO-10-22891	GELC
R-42	931.8	05/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.14	3.3	11	—	pCi/L	Y	U	U	10-3176	CAMO-10-16822	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-42	931.8	02/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	19.9	10	35	—	pCi/L	Y	U	U	10-1807	CAMO-10-9357	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	23.4	—	—	0.5	ug/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	24.4	—	—	0.5	ug/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	25.6	—	—	0.5	ug/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	25.9	—	—	0.5	ug/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	20.8	—	—	0.5	ug/L	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	5.61	—	—	0.17	mg/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	5.55	—	—	0.085	mg/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	6.08	—	—	0.17	mg/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	5.75	—	—	0.1	mg/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	6.56	—	—	0.1	mg/L	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.19	—	—	0.1	ug/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.34	—	—	0.1	ug/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.4	—	—	0.1	ug/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.31	—	—	0.1	ug/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.22	—	—	0.1	ug/L	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00723	0.00723	0.0347	—	pCi/L	Y	U	U	2013-259	CAMO-13-24244	GELC
R-42	931.8	08/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00259	0.00448	0.0174	—	pCi/L	Y	U	U	12-1481	CAMO-12-21736	GELC
R-42	931.8	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.0024	0.032	—	pCi/L	Y	U	U	10-3667	CAMO-10-22891	GELC
R-42	931.8	05/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00456	0.0056	0.036	—	pCi/L	Y	U	U	10-3176	CAMO-10-16822	GELC
R-42	931.8	02/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00234	0.0023	0.041	—	pCi/L	Y	U	U	10-1807	CAMO-10-9357	GELC
R-42	931.8	10/31/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0	0.00511	0.0577	—	pCi/L	Y	U	U	2013-259	CAMO-13-24244	GELC
R-42	931.8	08/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00258	0.00578	0.0311	—	pCi/L	Y	U	U	12-1481	CAMO-12-21736	GELC
R-42	931.8	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00238	0.0041	0.032	—	pCi/L	Y	U	U	10-3667	CAMO-10-22891	GELC
R-42	931.8	05/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00912	0.0051	0.034	—	pCi/L	Y	U	U	10-3176	CAMO-10-16822	GELC
R-42	931.8	02/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00468	0.0047	0.028	—	pCi/L	Y	U	U	10-1807	CAMO-10-9357	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.28	—	—	0.05	mg/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.3	—	—	0.05	mg/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.45	—	—	0.05	mg/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.53	—	—	0.05	mg/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.68	—	—	0.05	mg/L	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-34.6	16	53	—	pCi/L	Y	U	U	2013-259	CAMO-13-24244	GELC
R-42	931.8	08/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	6.9	17.1	71.1	—	pCi/L	Y	U	U	12-1481	CAMO-12-21736	GELC
R-42	931.8	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	35.6	19	71	—	pCi/L	Y	U	U	10-3667	CAMO-10-22891	GELC
R-42	931.8	05/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	6.54	20	69	—	pCi/L	Y	U	U	10-3176	CAMO-10-16822	GELC
R-42	931.8	02/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-10.1	18	61	—	pCi/L	Y	U	U	10-1807	CAMO-10-9357	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	74.8	—	—	0.053	mg/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	0.0725	—	—	0.053	mg/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	73.2	—	—	0.053	mg/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	78.5	—	—	0.053	mg/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	78.6	—	—	0.053	mg/L	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	16.6	—	—	0.1	mg/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	15.8	—	—	0.1	mg/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	17.2	—	—	0.1	mg/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	17.5	—	—	0.1	mg/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	17.7	—	—	0.1	mg/L	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.711	1.44	5.3	—	pCi/L	Y	U	U	2013-259	CAMO-13-24244	GELC
R-42	931.8	08/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.61	1.61	6.54	—	pCi/L	Y	U	U	12-1481	CAMO-12-21736	GELC
R-42	931.8	07/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.14	1.7	5	—	pCi/L	Y	U	U	10-3667	CAMO-10-22891	GELC
R-42	931.8	05/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	3.68	1.8	7	—	pCi/L	Y	U	U	10-3176	CAMO-10-16822	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-42	931.8	02/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.192	1.5	5	—	pCi/L	Y	U	U	10-1807	CAMO-10-9357	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	488	—	—	1	uS/cm	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	478	—	—	1	uS/cm	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	480	—	—	1	uS/cm	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	465	—	—	1	uS/cm	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	473	—	—	1	uS/cm	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	195	—	—	1	ug/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	188	—	—	1	ug/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	200	—	—	1	ug/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	203	—	—	1	ug/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	208	—	—	1	ug/L	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.235	0.145	0.481	—	pCi/L	Y	U	U	2013-259	CAMO-13-24244	GELC
R-42	931.8	08/08/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0216	0.137	0.479	—	pCi/L	Y	U	U	12-1481	CAMO-12-21736	GELC
R-42	931.8	07/13/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.343	0.15	0.47	—	pCi/L	Y	U	U	10-3667	CAMO-10-22891	GELC
R-42	931.8	05/13/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0939	0.13	0.47	—	pCi/L	Y	U	U	10-3176	CAMO-10-16822	GELC
R-42	931.8	02/10/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0315	0.087	0.32	—	pCi/L	Y	U	U	10-1807	CAMO-10-9357	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	77.7	—	—	0.665	mg/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	71.6	—	—	1.33	mg/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	73.4	—	—	1.33	mg/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	73.9	—	—	0.5	mg/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	75.4	—	—	0.5	mg/L	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	347	—	—	3.4	mg/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	321	—	—	3.4	mg/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	346	—	—	3.4	mg/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	350	—	—	3.4	mg/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	351	—	—	3.4	mg/L	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	4.03	—	—	0.085	mg/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.071	—	—	0.017	mg/L	Y	—	U	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.019	—	—	0.017	mg/L	Y	J	J	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0268	—	—	0.015	mg/L	Y	J	J	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.05	—	—	0.015	mg/L	Y	U	U	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	Y	317	52	157	—	pCi/L	Y	—	NQ	2013-259	CAMO-13-24244	GELC
R-42	931.8	11/10/11	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	Y	315	71	170	—	pCi/L	Y	—	NQ	12-323	CAMO-12-1491	GELC
R-42	931.8	05/31/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	208.559	31.395	2.9302	—	pCi/L	Y	—	NQ	11-2581	CAMO-11-10717	ARSL
R-42	931.8	11/10/10	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	Y	329.752	75.3901	234.227	—	pCi/L	N	—	R	11-474	CAMO-11-1273	ARSL
R-42	931.8	11/10/10	WG	UF	RE	REG	RAD	EPA:906.0	Tritium	H-3	Y	329.752	75.3901	234.227	—	pCi/L	Y	—	NQ	11-474	CAMO-11-1273	ARSL
R-42	931.8	05/13/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	148.435	80.1402	261.649	—	pCi/L	Y	U	U	10-3219	CAMO-10-16822	ARSL
R-42	931.8	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.812	—	—	0.067	ug/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.798	—	—	0.067	ug/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.825	—	—	0.067	ug/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.822	—	—	0.067	ug/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.702	—	—	0.067	ug/L	Y	—	NQ	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.59	0.0449	0.0704	—	pCi/L	Y	—	NQ	2013-259	CAMO-13-24244	GELC
R-42	931.8	08/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.591	0.0387	0.0609	—	pCi/L	Y	—	NQ	12-1481	CAMO-12-21736	GELC
R-42	931.8	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.544	0.053	0.062	—	pCi/L	Y	—	NQ	10-3667	CAMO-10-22891	GELC
R-42	931.8	05/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.46	0.046	0.037	—	pCi/L	Y	—	NQ	10-3176	CAMO-10-16822	GELC
R-42	931.8	02/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.56	0.067	0.075	—	pCi/L	Y	—	NQ	10-1807	CAMO-10-9357	GELC
R-42	931.8	10/31/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0	0.00919	0.044	—	pCi/L	Y	U	U	2013-259	CAMO-13-24244	GELC
R-42	931.8	08/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0197	0.00845	0.0393	—	pCi/L	Y	U	U	12-1481	CAMO-12-21736	GELC
R-42	931.8	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00899	0.0052	0.038	—	pCi/L	Y	U	U	10-3667	CAMO-10-22891	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-42	931.8	05/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0168	0.008	0.034	—	pCi/L	Y	U	U	10-3176	CAMO-10-16822	GELC
R-42	931.8	02/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0234	0.012	0.059	—	pCi/L	Y	U	U	10-1807	CAMO-10-9357	GELC
R-42	931.8	10/31/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.222	0.0273	0.0478	—	pCi/L	Y	—	NQ	2013-259	CAMO-13-24244	GELC
R-42	931.8	08/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.251	0.0241	0.0309	—	pCi/L	Y	—	NQ	12-1481	CAMO-12-21736	GELC
R-42	931.8	07/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.177	0.024	0.043	—	pCi/L	Y	—	NQ	10-3667	CAMO-10-22891	GELC
R-42	931.8	05/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.175	0.025	0.034	—	pCi/L	Y	—	NQ	10-3176	CAMO-10-16822	GELC
R-42	931.8	02/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.217	0.036	0.053	—	pCi/L	Y	—	NQ	10-1807	CAMO-10-9357	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	5.37	—	—	1	ug/L	Y	—	NQ	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	5.06	—	—	1	ug/L	Y	—	NQ	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	5.74	—	—	1	ug/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	5.68	—	—	1	ug/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	4.92	—	—	1	ug/L	Y	J	J	12-323	CAMO-12-1490	GELC
R-42	931.8	10/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	4.78	—	—	3.3	ug/L	Y	J	J	2013-259	CAMO-13-24261	GELC
R-42	931.8	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	8.64	—	—	3.3	ug/L	Y	J	J	12-1481	CAMO-12-21744	GELC
R-42	931.8	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	10.9	—	—	3.3	ug/L	Y	—	NQ	12-1319	CAMO-12-14024	GELC
R-42	931.8	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	10.6	—	—	3.3	ug/L	Y	—	NQ	12-1066	CAMO-12-12029	GELC
R-42	931.8	11/10/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	9.72	—	—	3.3	ug/L	Y	J	J	12-323	CAMO-12-1490	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.26	—	—	0.01	SU	Y	H	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.09	—	—	0.01	SU	Y	H	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.96	—	—	0.01	SU	Y	H	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.18	—	—	0.01	SU	Y	H	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.16	—	—	0.01	SU	Y	H	J-	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	41.8	—	—	0.725	mg/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	42.3	—	—	0.725	mg/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	41.9	—	—	0.725	mg/L	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	50.3	—	—	0.725	mg/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	41.2	—	—	0.73	mg/L	Y	—	NQ	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0062	0.00677	0.0254	—	pCi/L	Y	U	U	2013-286	CASA-13-24213	GELC
R-43 S1	903.9	08/14/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0128	0.00904	0.0438	—	pCi/L	Y	U	U	12-1496	CASA-12-21644	GELC
R-43 S1	903.9	07/15/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00121	0.003	0.04	—	pCi/L	Y	U	U	10-3718	CASA-10-22705	GELC
R-43 S1	903.9	05/10/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00736	0.0034	0.021	—	pCi/L	Y	U	U	10-3107	CASA-10-16795	GELC
R-43 S1	903.9	02/02/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00131	0.0034	0.033	—	pCi/L	Y	U	U	10-1598	CASA-10-9484	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0329	—	—	0.017	mg/L	Y	J	J	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.101	—	—	0.017	mg/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.0673	—	—	0.017	mg/L	Y	—	U	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.102	—	—	0.016	mg/L	Y	—	U	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0177	—	—	0.016	mg/L	Y	J	J	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	23	—	—	1	ug/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	23.1	—	—	1	ug/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	21.3	—	—	1	ug/L	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	24.3	—	—	1	ug/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	16.7	—	—	1	ug/L	Y	—	NQ	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.0975	—	—	0.067	mg/L	Y	J	J	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	N	0.2	—	—	0.067	mg/L	Y	U	U	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.0793	—	—	0.067	mg/L	Y	J	J	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.08	—	—	0.066	mg/L	Y	J	J	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.127	—	—	0.066	mg/L	Y	J	J	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	18.1	—	—	0.05	mg/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	18.4	—	—	0.05	mg/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	17	—	—	0.05	mg/L	Y	—	NQ	12-1315	CASA-12-14063	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	17.7	—	—	0.05	mg/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	17	—	—	0.05	mg/L	Y	—	NQ	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.677	1.4	5.02	—	pCi/L	Y	U	U	2013-286	CASA-13-24213	GELC
R-43 S1	903.9	08/14/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.871	1.26	4.49	—	pCi/L	Y	U	U	12-1496	CASA-12-21644	GELC
R-43 S1	903.9	07/15/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.736	1.5	4.8	—	pCi/L	Y	U	U	10-3718	CASA-10-22705	GELC
R-43 S1	903.9	05/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.94	1.5	5.1	—	pCi/L	Y	U	U	10-3107	CASA-10-16795	GELC
R-43 S1	903.9	02/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-2.03	1.6	5	—	pCi/L	Y	U	U	10-1598	CASA-10-9484	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	6.26	—	—	0.067	mg/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	6.11	—	—	0.067	mg/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	6.16	—	—	0.067	mg/L	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	5.88	—	—	0.066	mg/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	5.56	—	—	0.066	mg/L	Y	—	J+	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	49.6	—	—	2	ug/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	42.2	—	—	2	ug/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	34.5	—	—	2	ug/L	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	37.4	—	—	2	ug/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	37	—	—	10	ug/L	N	J	R	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/15/11	WG	F	RE	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	32.4	—	—	2	ug/L	Y	—	NQ	12-346-1	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	2.33	1.29	5.62	—	pCi/L	Y	U	U	2013-286	CASA-13-24213	GELC
R-43 S1	903.9	08/14/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	3.42	1.19	5.6	—	pCi/L	Y	U	U	12-1496	CASA-12-21644	GELC
R-43 S1	903.9	07/15/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.614	1.5	5.1	—	pCi/L	Y	U	U	10-3718	CASA-10-22705	GELC
R-43 S1	903.9	05/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-2.46	1.5	4.2	—	pCi/L	Y	U	U	10-3107	CASA-10-16795	GELC
R-43 S1	903.9	02/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.59	1.7	5.1	—	pCi/L	Y	U	U	10-1598	CASA-10-9484	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.406	—	—	0.033	mg/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.338	—	—	0.033	mg/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.398	—	—	0.033	mg/L	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.388	—	—	0.033	mg/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.377	—	—	0.033	mg/L	Y	—	NQ	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.307	0.743	2.87	—	pCi/L	Y	U	U	2013-286	CASA-13-24213	GELC
R-43 S1	903.9	08/14/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.248	0.295	2.08	—	pCi/L	Y	U	U	12-1496	CASA-12-21644	GELC
R-43 S1	903.9	07/15/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	Y	6.9	1.6	2.7	—	pCi/L	Y	—	NQ	10-3718	CASA-10-22705	GELC
R-43 S1	903.9	05/10/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.31	0.39	2.3	—	pCi/L	Y	U	U	10-3107	CASA-10-16795	GELC
R-43 S1	903.9	02/02/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	2.54	1	2.5	—	pCi/L	Y	—	U	10-1598	CASA-10-9484	GELC
R-43 S1	903.9	11/07/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.317	0.738	2.68	—	pCi/L	Y	U	U	2013-286	CASA-13-24213	GELC
R-43 S1	903.9	08/14/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.19	0.717	2.37	—	pCi/L	Y	U	U	12-1496	CASA-12-21644	GELC
R-43 S1	903.9	07/15/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.34	0.87	2.9	—	pCi/L	Y	U	U	10-3718	CASA-10-22705	GELC
R-43 S1	903.9	05/10/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	1.12	0.75	2.5	—	pCi/L	Y	—	NQ	10-3107	CASA-10-16795	GELC
R-43 S1	903.9	02/02/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.721	0.81	2.7	—	pCi/L	Y	U	U	10-1598	CASA-10-9484	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	62.1	—	—	0.453	mg/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	62.9	—	—	0.453	mg/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	58.2	—	—	0.453	mg/L	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	60.8	—	—	0.453	mg/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	61.5	—	—	0.45	mg/L	Y	—	NQ	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	Y	57.5	—	—	30	ug/L	Y	J	J	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	N	100	—	—	30	ug/L	Y	U	U	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	N	100	—	—	30	ug/L	Y	U	U	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	N	100	—	—	30	ug/L	Y	U	U	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	N	100	—	—	30	ug/L	Y	U	U	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.07	—	—	0.11	mg/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.11	—	—	0.11	mg/L	Y	—	NQ	12-1496	CASA-12-21648	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.85	—	—	0.11	mg/L	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4	—	—	0.11	mg/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.64	—	—	0.11	mg/L	Y	—	NQ	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	2.53	—	—	2	ug/L	Y	J	J	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	3.33	—	—	2	ug/L	Y	J	J	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	N	10	—	—	2	ug/L	Y	U	U	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	N	10	—	—	2	ug/L	Y	U	U	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	N	10	—	—	2	ug/L	Y	U	U	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.31	—	—	0.165	ug/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.27	—	—	0.165	ug/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.17	—	—	0.165	ug/L	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.2	—	—	0.165	ug/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.15	—	—	0.17	ug/L	Y	—	NQ	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-5.83	2.78	8.94	—	pCi/L	Y	U	U	2013-286	CASA-13-24213	GELC
R-43 S1	903.9	08/14/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-0.0705	2.61	9.25	—	pCi/L	Y	U	U	12-1496	CASA-12-21644	GELC
R-43 S1	903.9	07/15/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-0.38	2.8	9.3	—	pCi/L	Y	U	U	10-3718	CASA-10-22705	GELC
R-43 S1	903.9	05/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	1.47	3	9.9	—	pCi/L	Y	U	U	10-3107	CASA-10-16795	GELC
R-43 S1	903.9	02/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	8.78	16	52	—	pCi/L	Y	U	U	10-1598	CASA-10-9484	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	5.21	—	—	0.5	ug/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	8.24	—	—	0.5	ug/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	2.7	—	—	0.5	ug/L	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.68	—	—	0.5	ug/L	Y	J	J	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	N	10	—	—	2.5	ug/L	Y	U	U	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	5.35	—	—	0.085	mg/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	5.92	—	—	0.17	mg/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	5.14	—	—	0.17	mg/L	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	5.56	—	—	0.1	mg/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	5.14	—	—	0.1	mg/L	Y	—	NQ	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.905	—	—	0.1	ug/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.99	—	—	0.1	ug/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.988	—	—	0.1	ug/L	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.966	—	—	0.05	ug/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.94	—	—	0.1	ug/L	Y	—	NQ	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.0038	0.0276	—	pCi/L	Y	U	U	2013-286	CASA-13-24213	GELC
R-43 S1	903.9	08/14/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.00486	0.0134	—	pCi/L	Y	U	U	12-1496	CASA-12-21644	GELC
R-43 S1	903.9	07/15/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.0114	0.0094	0.03	—	pCi/L	Y	U	U	10-3718	CASA-10-22705	GELC
R-43 S1	903.9	05/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00477	0.0034	0.038	—	pCi/L	Y	U	U	10-3107	CASA-10-16795	GELC
R-43 S1	903.9	02/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.0174	0.007	0.033	—	pCi/L	Y	U	U	10-1598	CASA-10-9484	GELC
R-43 S1	903.9	11/07/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00467	0.00504	0.0456	—	pCi/L	Y	U	U	2013-286	CASA-13-24213	GELC
R-43 S1	903.9	08/14/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00198	0.00525	0.0239	—	pCi/L	Y	U	U	12-1496	CASA-12-21644	GELC
R-43 S1	903.9	07/15/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00227	0.0068	0.031	—	pCi/L	Y	U	U	10-3718	CASA-10-22705	GELC
R-43 S1	903.9	05/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00477	0.0058	0.035	—	pCi/L	Y	U	U	10-3107	CASA-10-16795	GELC
R-43 S1	903.9	02/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00194	0.0043	0.022	—	pCi/L	Y	U	U	10-1598	CASA-10-9484	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.57	—	—	0.05	mg/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.47	—	—	0.05	mg/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.37	—	—	0.05	mg/L	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.34	—	—	0.05	mg/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.68	—	—	0.05	mg/L	Y	—	NQ	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-8.92	17.2	63.5	—	pCi/L	Y	U	U	2013-286	CASA-13-24213	GELC
R-43 S1	903.9	08/14/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	22	15.3	64.1	—	pCi/L	Y	U	U	12-1496	CASA-12-21644	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-43 S1	903.9	07/15/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-0.876	17	57	—	pCi/L	Y	U	U	10-3718	CASA-10-22705	GELC
R-43 S1	903.9	05/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-55	19	52	—	pCi/L	Y	U	U	10-3107	CASA-10-16795	GELC
R-43 S1	903.9	02/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-11.8	24	83	—	pCi/L	Y	U	U	10-1598	CASA-10-9484	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Selenium	Se	Y	2.07	—	—	1.5	ug/L	Y	J	J	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Selenium	Se	Y	2.05	—	—	1.5	ug/L	Y	J	J	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Selenium	Se	Y	2.25	—	—	1.5	ug/L	Y	J	J	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Selenium	Se	Y	2.04	—	—	1.5	ug/L	Y	J	J	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Selenium	Se	N	5	—	—	1.5	ug/L	Y	U	U	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	79.6	—	—	0.053	mg/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	79.5	—	—	0.053	mg/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	75.1	—	—	0.053	mg/L	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	79.2	—	—	0.053	mg/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	70.9	—	—	0.053	mg/L	Y	—	NQ	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	11.4	—	—	0.1	mg/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.9	—	—	0.1	mg/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.5	—	—	0.1	mg/L	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.9	—	—	0.1	mg/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	17.9	—	—	0.1	mg/L	Y	—	NQ	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.44	0.927	3.12	—	pCi/L	Y	U	U	2013-286	CASA-13-24213	GELC
R-43 S1	903.9	08/14/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-2.34	1.29	4.23	—	pCi/L	Y	U	U	12-1496	CASA-12-21644	GELC
R-43 S1	903.9	07/15/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.421	1.6	5.3	—	pCi/L	Y	U	U	10-3718	CASA-10-22705	GELC
R-43 S1	903.9	05/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.659	1.4	4.8	—	pCi/L	Y	U	U	10-3107	CASA-10-16795	GELC
R-43 S1	903.9	02/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.101	1.8	6.1	—	pCi/L	Y	U	U	10-1598	CASA-10-9484	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	180	—	—	1	uS/cm	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	177	—	—	1	uS/cm	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	178	—	—	1	uS/cm	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	182	—	—	1	uS/cm	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	175	—	—	1	uS/cm	Y	—	NQ	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	69.9	—	—	1	ug/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	70.6	—	—	1	ug/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	66.4	—	—	1	ug/L	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	68.7	—	—	1	ug/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	102	—	—	1	ug/L	Y	—	NQ	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0196	0.115	0.442	—	pCi/L	Y	U	U	2013-286	CASA-13-24213	GELC
R-43 S1	903.9	08/14/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0796	0.146	0.494	—	pCi/L	Y	U	U	12-1496	CASA-12-21644	GELC
R-43 S1	903.9	07/15/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.111	0.13	0.48	—	pCi/L	Y	U	U	10-3718	CASA-10-22705	GELC
R-43 S1	903.9	05/10/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.00616	0.13	0.48	—	pCi/L	Y	U	U	10-3107	CASA-10-16795	GELC
R-43 S1	903.9	02/02/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.119	0.13	0.45	—	pCi/L	Y	U	U	10-1598	CASA-10-9484	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	12.3	—	—	0.133	mg/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	11.8	—	—	0.133	mg/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	11.7	—	—	0.133	mg/L	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	11.2	—	—	0.1	mg/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	10.8	—	—	0.1	mg/L	Y	—	NQ	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	161	—	—	3.4	mg/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	151	—	—	3.4	mg/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	169	—	—	3.4	mg/L	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	190	—	—	3.4	mg/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	186	—	—	3.4	mg/L	Y	—	NQ	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.506	—	—	0.33	mg/L	Y	J	J	2013-286	CASA-13-24213	GELC
R-43 S1	903.9	08/14/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.782	—	—	0.33	mg/L	Y	J	J	12-1496	CASA-12-21644	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-43 S1	903.9	05/22/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	N	1	—	—	0.33	mg/L	Y	U	U	12-1315	CASA-12-14058	GELC
R-43 S1	903.9	03/09/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.773	—	—	0.33	mg/L	Y	J	J	12-1075	CASA-12-11710	GELC
R-43 S1	903.9	11/15/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.61	—	—	0.33	mg/L	Y	J	J	12-345	CASA-12-1391	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.052	—	—	0.017	mg/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0459	—	—	0.017	mg/L	Y	J	J	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0326	—	—	0.017	mg/L	Y	J	J	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.104	—	—	0.015	mg/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0216	—	—	0.015	mg/L	Y	J	J	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.793	1.005	3.46	—	pCi/L	Y	U	U	2013-293	CASA-13-24213	ARSL
R-43 S1	903.9	11/15/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.27	0.66	2.25	—	pCi/L	Y	U	U	12-347	CASA-12-1391	ARSL
R-43 S1	903.9	05/18/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.2576	0.7406	2.4472	—	pCi/L	Y	U	U	11-2519	CASA-11-10818	ARSL
R-43 S1	903.9	11/16/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	25.2448	3.9284	2.5116	—	pCi/L	N	—	R	11-556	CASA-11-1379	ARSL
R-43 S1	903.9	11/16/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.2898	0.7406	2.5116	—	pCi/L	Y	U	U	11-556	CASA-11-1379	ARSL
R-43 S1	903.9	05/10/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	1.449	0.5474	1.6422	—	pCi/L	N	U	R	10-3122	CASA-10-16795	ARSL
R-43 S1	903.9	05/10/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.97	0.48	1.64	—	pCi/L	Y	U	U	10-3122	CASA-10-16795	ARSL
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.123	—	—	0.067	ug/L	Y	J	J	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	N	0.095	—	—	0.067	ug/L	Y	J	U	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.116	—	—	0.067	ug/L	Y	J	J	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.104	—	—	0.067	ug/L	Y	J	J	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.076	—	—	0.067	ug/L	Y	J	J	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.0741	0.0167	0.0669	—	pCi/L	Y	—	J	2013-286	CASA-13-24213	GELC
R-43 S1	903.9	08/14/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.0962	0.0227	0.0902	—	pCi/L	Y	—	NQ	12-1496	CASA-12-21644	GELC
R-43 S1	903.9	07/15/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.0578	0.011	0.043	—	pCi/L	Y	—	NQ	10-3718	CASA-10-22705	GELC
R-43 S1	903.9	05/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.0921	0.017	0.042	—	pCi/L	Y	—	NQ	10-3107	CASA-10-16795	GELC
R-43 S1	903.9	02/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.106	0.018	0.076	—	pCi/L	Y	—	NQ	10-1598	CASA-10-9484	GELC
R-43 S1	903.9	11/07/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0	0.00476	0.042	—	pCi/L	Y	U	U	2013-286	CASA-13-24213	GELC
R-43 S1	903.9	08/14/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0125	0.00933	0.0582	—	pCi/L	Y	U	U	12-1496	CASA-12-21644	GELC
R-43 S1	903.9	07/15/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0102	0.0055	0.026	—	pCi/L	Y	U	U	10-3718	CASA-10-22705	GELC
R-43 S1	903.9	05/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00316	0.0032	0.038	—	pCi/L	Y	U	U	10-3107	CASA-10-16795	GELC
R-43 S1	903.9	02/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00334	0.0034	0.043	—	pCi/L	Y	U	U	10-1598	CASA-10-9484	GELC
R-43 S1	903.9	11/07/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	N	0.034	0.0114	0.0455	—	pCi/L	Y	U	U	2013-286	CASA-13-24213	GELC
R-43 S1	903.9	08/14/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	N	0.054	0.0151	0.0458	—	pCi/L	Y	—	U	12-1496	CASA-12-21644	GELC
R-43 S1	903.9	07/15/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.0398	0.0095	0.03	—	pCi/L	Y	—	NQ	10-3718	CASA-10-22705	GELC
R-43 S1	903.9	05/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	N	0.0332	0.01	0.038	—	pCi/L	Y	U	U	10-3107	CASA-10-16795	GELC
R-43 S1	903.9	02/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	N	0.0433	0.012	0.049	—	pCi/L	Y	U	U	10-1598	CASA-10-9484	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.04	—	—	1	ug/L	Y	—	NQ	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.45	—	—	1	ug/L	Y	—	NQ	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.07	—	—	1	ug/L	Y	—	NQ	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.35	—	—	1	ug/L	Y	—	NQ	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.72	—	—	1	ug/L	Y	—	NQ	12-346	CASA-12-1393	GELC
R-43 S1	903.9	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	3.89	—	—	3.3	ug/L	Y	J	J	2013-286	CASA-13-24221	GELC
R-43 S1	903.9	08/14/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	4.86	—	—	3.3	ug/L	Y	J	J	12-1496	CASA-12-21648	GELC
R-43 S1	903.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	N	5.68	—	—	3.3	ug/L	Y	J	U	12-1315	CASA-12-14063	GELC
R-43 S1	903.9	03/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	4.36	—	—	3.3	ug/L	Y	J	J	12-1075	CASA-12-11714	GELC
R-43 S1	903.9	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	N	10	—	—	3.3	ug/L	Y	U	U	12-346	CASA-12-1393	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.83	—	—	0.01	SU	Y	H	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.71	—	—	0.01	SU	Y	H	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.49	—	—	0.01	SU	Y	H	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.63	—	—	0.01	SU	Y	H	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.64	—	—	0.01	SU	Y	H	J-	12-346	CASA-12-1395	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.63	—	—	0.01	SU	Y	H	J-	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3	ALK-CO3	Y	6.44	—	—	0.725	mg/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3	ALK-CO3	Y	10.6	—	—	0.725	mg/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3	ALK-CO3	Y	7.25	—	—	0.725	mg/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3	ALK-CO3	Y	7.18	—	—	0.725	mg/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3	ALK-CO3	Y	9.15	—	—	0.73	mg/L	Y	—	NQ	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3	ALK-CO3	Y	9.15	—	—	0.73	mg/L	Y	—	NQ	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	82.6	—	—	0.725	mg/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	83.6	—	—	0.725	mg/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	82.3	—	—	0.725	mg/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	81.6	—	—	0.725	mg/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	80.9	—	—	0.73	mg/L	Y	—	NQ	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	81.9	—	—	0.73	mg/L	Y	—	NQ	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/07/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00757	0.00719	0.0254	—	pCi/L	Y	U	U	2013-286	CASA-13-24214	GELC
R-43 S2	969.1	08/13/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00384	0.00719	0.0263	—	pCi/L	Y	U	U	12-1495	CASA-12-21645	GELC
R-43 S2	969.1	07/15/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00526	0.0072	0.037	—	pCi/L	Y	U	U	10-3718	CASA-10-22709	GELC
R-43 S2	969.1	05/10/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0029	0.0021	0.022	—	pCi/L	Y	U	U	10-3107	CASA-10-16799	GELC
R-43 S2	969.1	02/02/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00867	0.0065	0.046	—	pCi/L	Y	U	U	10-1598	CASA-10-9486	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0298	—	—	0.017	mg/L	Y	J	J	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0294	—	—	0.017	mg/L	Y	J	J	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.0536	—	—	0.017	mg/L	Y	—	U	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.0924	—	—	0.016	mg/L	Y	—	U	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0174	—	—	0.016	mg/L	Y	J	J	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	18.6	—	—	1	ug/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	18.1	—	—	1	ug/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	16	—	—	1	ug/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	15.4	—	—	1	ug/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Barium	Ba	N	5	—	—	1	ug/L	Y	U	U	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	16.3	—	—	1	ug/L	Y	—	NQ	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	37.2	—	—	15	ug/L	Y	J	J	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	38.6	—	—	15	ug/L	Y	J	J	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	35.2	—	—	15	ug/L	Y	J	J	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	35.9	—	—	15	ug/L	Y	J	J	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Boron	B	Y	23.7	—	—	15	ug/L	Y	J	J	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	36.8	—	—	15	ug/L	Y	J	J	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.074	—	—	0.067	mg/L	Y	J	J	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	N	0.2	—	—	0.067	mg/L	Y	U	U	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	N	0.2	—	—	0.067	mg/L	Y	U	U	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	N	0.2	—	—	0.066	mg/L	Y	U	U	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.0701	—	—	0.066	mg/L	Y	J	J	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.0779	—	—	0.066	mg/L	Y	J	J	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	17.1	—	—	0.05	mg/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	16.6	—	—	0.05	mg/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	15.7	—	—	0.05	mg/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	15.8	—	—	0.05	mg/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Calcium	Ca	N	0.2	—	—	0.05	mg/L	Y	U	U	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	16.4	—	—	0.05	mg/L	Y	—	NQ	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/07/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.62	1.35	4.71	—	pCi/L	Y	U	U	2013-286	CASA-13-24214	GELC
R-43 S2	969.1	08/13/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.416	1.23	4.47	—	pCi/L	Y	U	U	12-1495	CASA-12-21645	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-43 S2	969.1	07/15/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.702	1.4	4.4	—	pCi/L	Y	U	U	10-3718	CASA-10-22709	GELC
R-43 S2	969.1	05/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.767	1.4	4.5	—	pCi/L	Y	U	U	10-3107	CASA-10-16799	GELC
R-43 S2	969.1	02/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.0096	1.6	5.2	—	pCi/L	Y	U	U	10-1598	CASA-10-9486	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.87	—	—	0.067	mg/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.72	—	—	0.067	mg/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.7	—	—	0.067	mg/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.51	—	—	0.066	mg/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.39	—	—	0.066	mg/L	Y	—	J+	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.37	—	—	0.066	mg/L	Y	—	J+	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	3.45	—	—	2	ug/L	Y	J	J	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	2.85	—	—	2	ug/L	Y	J	J	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	3.45	—	—	2	ug/L	Y	J	J	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	3.64	—	—	2	ug/L	Y	J	J	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	RE	FD	INORGANIC	SW-846:6020	Chromium	Cr	Y	2.43	—	—	2	ug/L	Y	J	J	12-346-1	CASA-12-1398	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	50	—	—	10	ug/L	N	U	R	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/15/11	WG	F	RE	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	3.3	—	—	2	ug/L	Y	J	J	12-346-1	CASA-12-1395	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	INORGANIC	SW-846:6020	Chromium	Cr	Y	50	—	—	10	ug/L	N	U	R	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/07/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.326	1.53	5.52	—	pCi/L	Y	U	U	2013-286	CASA-13-24214	GELC
R-43 S2	969.1	08/13/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.423	1.19	4.5	—	pCi/L	Y	U	U	12-1495	CASA-12-21645	GELC
R-43 S2	969.1	07/15/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.614	1.4	4.3	—	pCi/L	Y	U	U	10-3718	CASA-10-22709	GELC
R-43 S2	969.1	05/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	1.3	1.3	4.6	—	pCi/L	Y	U	U	10-3107	CASA-10-16799	GELC
R-43 S2	969.1	02/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.431	1.6	5.4	—	pCi/L	Y	U	U	10-1598	CASA-10-9486	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.347	—	—	0.033	mg/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.285	—	—	0.033	mg/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.337	—	—	0.033	mg/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.345	—	—	0.033	mg/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.33	—	—	0.033	mg/L	Y	—	NQ	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.334	—	—	0.033	mg/L	Y	—	NQ	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/07/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	2	0.977	2.96	—	pCi/L	Y	U	U	2013-286	CASA-13-24214	GELC
R-43 S2	969.1	08/13/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.69	0.617	2.26	—	pCi/L	Y	U	U	12-1495	CASA-12-21645	GELC
R-43 S2	969.1	07/15/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.663	0.71	2.7	—	pCi/L	Y	U	U	10-3718	CASA-10-22709	GELC
R-43 S2	969.1	05/10/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	3.05	1.1	2.3	—	pCi/L	Y	—	U	10-3107	CASA-10-16799	GELC
R-43 S2	969.1	02/02/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.05	0.75	2.5	—	pCi/L	Y	U	U	10-1598	CASA-10-9486	GELC
R-43 S2	969.1	11/07/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	2.13	0.785	2.36	—	pCi/L	Y	U	U	2013-286	CASA-13-24214	GELC
R-43 S2	969.1	08/13/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.81	0.738	2.34	—	pCi/L	Y	U	U	12-1495	CASA-12-21645	GELC
R-43 S2	969.1	07/15/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.84	0.91	2.9	—	pCi/L	Y	U	U	10-3718	CASA-10-22709	GELC
R-43 S2	969.1	05/10/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	1.07	0.76	2.5	—	pCi/L	Y	—	NQ	10-3107	CASA-10-16799	GELC
R-43 S2	969.1	02/02/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	2.49	0.86	2.6	—	pCi/L	Y	U	U	10-1598	CASA-10-9486	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	63	—	—	0.453	mg/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	60.8	—	—	0.453	mg/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	57.4	—	—	0.453	mg/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	57.6	—	—	0.453	mg/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	59.1	—	—	0.45	mg/L	Y	—	NQ	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	INORGANIC	SM:A2340B	Hardness	HARDNESS	N	1.24	—	—	0.45	mg/L	Y	U	U	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.92	—	—	0.11	mg/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.68	—	—	0.11	mg/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.43	—	—	0.11	mg/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.42	—	—	0.11	mg/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Magnesium	Mg	N	0.3	—	—	0.11	mg/L	Y	U	U	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.39	—	—	0.11	mg/L	Y	—	NQ	12-346	CASA-12-1395	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.54	—	—	0.165	ug/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.57	—	—	0.165	ug/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.41	—	—	0.165	ug/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.55	—	—	0.165	ug/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.76	—	—	0.17	ug/L	Y	—	NQ	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.68	—	—	0.17	ug/L	Y	—	NQ	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/07/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	0.692	2.52	9.14	—	pCi/L	Y	U	U	2013-286	CASA-13-24214	GELC
R-43 S2	969.1	08/13/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	2.84	2.27	8.48	—	pCi/L	Y	U	U	12-1495	CASA-12-21645	GELC
R-43 S2	969.1	07/15/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	0.182	2.8	8.9	—	pCi/L	Y	U	U	10-3718	CASA-10-22709	GELC
R-43 S2	969.1	05/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.64	2.7	8.6	—	pCi/L	Y	U	U	10-3107	CASA-10-16799	GELC
R-43 S2	969.1	02/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-5.53	13	41	—	pCi/L	Y	U	U	10-1598	CASA-10-9486	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.745	—	—	0.5	ug/L	Y	J	J	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.695	—	—	0.5	ug/L	Y	J	J	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.638	—	—	0.5	ug/L	Y	J	J	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.695	—	—	0.5	ug/L	Y	J	J	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	INORGANIC	SW-846:6020	Nickel	Ni	N	10	—	—	2.5	ug/L	Y	U	U	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	N	10	—	—	2.5	ug/L	Y	U	U	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.08	—	—	0.017	mg/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.33	—	—	0.085	mg/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.17	—	—	0.085	mg/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.04	—	—	0.05	mg/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.6	—	—	0.05	mg/L	Y	—	NQ	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.63	—	—	0.05	mg/L	Y	—	NQ	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.472	—	—	0.05	ug/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.497	—	—	0.05	ug/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.422	—	—	0.05	ug/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.438	—	—	0.05	ug/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.454	—	—	0.05	ug/L	Y	—	NQ	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.421	—	—	0.05	ug/L	Y	—	NQ	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/07/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00337	0.0053	0.0232	—	pCi/L	Y	U	U	2013-286	CASA-13-24214	GELC
R-43 S2	969.1	08/13/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.00653	0.0179	—	pCi/L	Y	U	U	12-1495	CASA-12-21645	GELC
R-43 S2	969.1	07/15/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00187	0.0032	0.025	—	pCi/L	Y	U	U	10-3718	CASA-10-22709	GELC
R-43 S2	969.1	05/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00194	0.0019	0.031	—	pCi/L	Y	U	U	10-3107	CASA-10-16799	GELC
R-43 S2	969.1	02/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00214	0.003	0.036	—	pCi/L	Y	U	U	10-1598	CASA-10-9486	GELC
R-43 S2	969.1	11/07/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00669	0.0073	0.0383	—	pCi/L	Y	U	U	2013-286	CASA-13-24214	GELC
R-43 S2	969.1	08/13/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00799	0.00596	0.0321	—	pCi/L	Y	U	U	12-1495	CASA-12-21645	GELC
R-43 S2	969.1	07/15/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0131	0.0062	0.025	—	pCi/L	Y	U	U	10-3718	CASA-10-22709	GELC
R-43 S2	969.1	05/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00776	0.0048	0.029	—	pCi/L	Y	U	U	10-3107	CASA-10-16799	GELC
R-43 S2	969.1	02/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00642	0.0048	0.025	—	pCi/L	Y	U	U	10-1598	CASA-10-9486	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.66	—	—	0.05	mg/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.51	—	—	0.05	mg/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.46	—	—	0.05	mg/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.44	—	—	0.05	mg/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.64	—	—	0.05	mg/L	Y	—	NQ	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Potassium	K	N	0.15	—	—	0.05	mg/L	Y	U	U	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/07/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-23.7	15.8	47.1	—	pCi/L	Y	U	U	2013-286	CASA-13-24214	GELC
R-43 S2	969.1	08/13/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	35.6	13.7	46.7	—	pCi/L	Y	U	U	12-1495	CASA-12-21645	GELC
R-43 S2	969.1	07/15/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	0.0522	19	67	—	pCi/L	Y	U	U	10-3718	CASA-10-22709	GELC
R-43 S2	969.1	05/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	36.2	16	60	—	pCi/L	Y	U	U	10-3107	CASA-10-16799	GELC
R-43 S2	969.1	02/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	25	25	88	—	pCi/L	Y	U	U	10-1598	CASA-10-9486	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	72.9	—	—	0.053	mg/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	69.6	—	—	0.053	mg/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	65.2	—	—	0.053	mg/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	67.6	—	—	0.053	mg/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	69	—	—	0.053	mg/L	Y	—	NQ	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	2.45	—	—	0.053	mg/L	Y	—	NQ	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	17.2	—	—	0.1	mg/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	16.6	—	—	0.1	mg/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	16	—	—	0.1	mg/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	16.6	—	—	0.1	mg/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Sodium	Na	Y	0.267	—	—	0.1	mg/L	Y	J	J	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	17.5	—	—	0.1	mg/L	Y	—	NQ	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/07/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.54	1.11	4.8	—	pCi/L	Y	U	U	2013-286	CASA-13-24214	GELC
R-43 S2	969.1	08/13/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.0861	1.15	4.53	—	pCi/L	Y	U	U	12-1495	CASA-12-21645	GELC
R-43 S2	969.1	07/15/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.112	1.1	3.7	—	pCi/L	Y	U	U	10-3718	CASA-10-22709	GELC
R-43 S2	969.1	05/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.957	1.2	4.1	—	pCi/L	Y	U	U	10-3107	CASA-10-16799	GELC
R-43 S2	969.1	02/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.921	1.5	5.1	—	pCi/L	Y	U	U	10-1598	CASA-10-9486	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	190	—	—	1	uS/cm	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	186	—	—	1	uS/cm	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	185	—	—	1	uS/cm	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	191	—	—	1	uS/cm	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	187	—	—	1	uS/cm	Y	—	NQ	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	187	—	—	1	uS/cm	Y	—	NQ	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	107	—	—	1	ug/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	103	—	—	1	ug/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	95.3	—	—	1	ug/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	94.9	—	—	1	ug/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	98.3	—	—	1	ug/L	Y	—	NQ	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Strontium	Sr	N	5	—	—	1	ug/L	Y	U	U	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/07/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0515	0.123	0.463	—	pCi/L	Y	U	U	2013-286	CASA-13-24214	GELC
R-43 S2	969.1	08/13/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.27	0.131	0.495	—	pCi/L	Y	U	U	12-1495	CASA-12-21645	GELC
R-43 S2	969.1	07/15/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.186	0.14	0.48	—	pCi/L	Y	U	U	10-3718	CASA-10-22709	GELC
R-43 S2	969.1	05/10/10	WG	UF	RE	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.187	0.12	0.5	—	pCi/L	Y	U	U	10-3107	CASA-10-16799	GELC
R-43 S2	969.1	05/10/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	Y	0.889	0.19	0.43	—	pCi/L	N	—	R	10-3107	CASA-10-16799	GELC
R-43 S2	969.1	02/02/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0611	0.12	0.44	—	pCi/L	Y	U	U	10-1598	CASA-10-9486	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	4.59	—	—	0.133	mg/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	4.15	—	—	0.133	mg/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	4.15	—	—	0.133	mg/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.96	—	—	0.1	mg/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	4.01	—	—	0.1	mg/L	Y	—	NQ	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.98	—	—	0.1	mg/L	Y	—	NQ	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	139	—	—	3.4	mg/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	154	—	—	3.4	mg/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	149	—	—	3.4	mg/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	183	—	—	3.4	mg/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	171	—	—	3.4	mg/L	Y	—	NQ	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	159	—	—	3.4	mg/L	Y	—	NQ	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0243	—	—	0.017	mg/L	Y	J	J	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0197	—	—	0.017	mg/L	Y	J	J	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.042	—	—	0.017	mg/L	Y	J	J	12-1315	CASA-12-14064	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0984	—	—	0.015	mg/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0192	—	—	0.015	mg/L	Y	J	J	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.05	—	—	0.015	mg/L	Y	U	U	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/07/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	1.108	0.678	2.159	—	pCi/L	Y	U	U	2013-293	CASA-13-24214	ARSL
R-43 S2	969.1	11/15/11	WG	UF	INIT	FD	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.69	0.68	2.34	—	pCi/L	Y	U	U	12-347	CASA-12-1397	ARSL
R-43 S2	969.1	11/15/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.47	0.7	2.32	—	pCi/L	Y	U	U	12-347	CASA-12-1396	ARSL
R-43 S2	969.1	05/18/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.5474	0.7406	2.5438	—	pCi/L	Y	U	U	11-2519	CASA-11-10820	ARSL
R-43 S2	969.1	11/16/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	26.9514	4.186	2.6726	—	pCi/L	N	—	R	11-556	CASA-11-1380	ARSL
R-43 S2	969.1	11/16/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.483	0.805	2.6726	—	pCi/L	Y	U	U	11-556	CASA-11-1380	ARSL
R-43 S2	969.1	05/10/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	1.22	0.58	1.74	—	pCi/L	Y	—	U	10-3122	CASA-10-16799	ARSL
R-43 S2	969.1	05/10/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	3.7996	0.8694	2.093	—	pCi/L	N	—	R	10-3122	CASA-10-16799	ARSL
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.11	—	—	0.067	ug/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.02	—	—	0.067	ug/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.02	—	—	0.067	ug/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.998	—	—	0.067	ug/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.05	—	—	0.067	ug/L	Y	—	NQ	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	INORGANIC	SW-846:6020	Uranium	U	Y	1.04	—	—	0.067	ug/L	Y	—	NQ	12-346	CASA-12-1398	GELC
R-43 S2	969.1	11/07/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.824	0.0513	0.0702	—	pCi/L	Y	—	NQ	2013-286	CASA-13-24214	GELC
R-43 S2	969.1	08/13/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.803	0.0537	0.0889	—	pCi/L	Y	—	NQ	12-1495	CASA-12-21645	GELC
R-43 S2	969.1	07/15/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	1.12	0.089	0.045	—	pCi/L	Y	—	NQ	10-3718	CASA-10-22709	GELC
R-43 S2	969.1	05/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	1.08	0.098	0.05	—	pCi/L	Y	—	NQ	10-3107	CASA-10-16799	GELC
R-43 S2	969.1	02/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	1.17	0.1	0.072	—	pCi/L	Y	—	NQ	10-1598	CASA-10-9486	GELC
R-43 S2	969.1	11/07/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.015	0.00917	0.0439	—	pCi/L	Y	U	U	2013-286	CASA-13-24214	GELC
R-43 S2	969.1	08/13/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0123	0.0136	0.0574	—	pCi/L	Y	U	U	12-1495	CASA-12-21645	GELC
R-43 S2	969.1	07/15/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	Y	0.0756	0.014	0.027	—	pCi/L	Y	—	NQ	10-3718	CASA-10-22709	GELC
R-43 S2	969.1	05/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0191	0.01	0.046	—	pCi/L	Y	U	U	10-3107	CASA-10-16799	GELC
R-43 S2	969.1	02/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0319	0.01	0.041	—	pCi/L	Y	U	U	10-1598	CASA-10-9486	GELC
R-43 S2	969.1	11/07/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.318	0.033	0.0477	—	pCi/L	Y	—	NQ	2013-286	CASA-13-24214	GELC
R-43 S2	969.1	08/13/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.309	0.0328	0.0451	—	pCi/L	Y	—	NQ	12-1495	CASA-12-21645	GELC
R-43 S2	969.1	07/15/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.446	0.042	0.031	—	pCi/L	Y	—	NQ	10-3718	CASA-10-22709	GELC
R-43 S2	969.1	05/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.423	0.048	0.046	—	pCi/L	Y	—	NQ	10-3107	CASA-10-16799	GELC
R-43 S2	969.1	02/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.426	0.045	0.047	—	pCi/L	Y	—	NQ	10-1598	CASA-10-9486	GELC
R-43 S2	969.1	11/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.95	—	—	1	ug/L	Y	—	NQ	2013-286	CASA-13-24222	GELC
R-43 S2	969.1	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	8.09	—	—	1	ug/L	Y	—	NQ	12-1495	CASA-12-21649	GELC
R-43 S2	969.1	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.12	—	—	1	ug/L	Y	—	NQ	12-1315	CASA-12-14064	GELC
R-43 S2	969.1	03/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.04	—	—	1	ug/L	Y	—	NQ	12-1076	CASA-12-11715	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.68	—	—	1	ug/L	Y	—	NQ	12-346	CASA-12-1395	GELC
R-43 S2	969.1	11/15/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Vanadium	V	N	5	—	—	1	ug/L	Y	U	U	12-346	CASA-12-1398	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.88	—	—	0.01	SU	Y	H	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.85	—	—	0.01	SU	Y	H	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.87	—	—	0.01	SU	Y	H	J-	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.86	—	—	0.01	SU	Y	H	J-	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.81	—	—	0.01	SU	Y	H	J-	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	58.5	—	—	0.725	mg/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	55.4	—	—	0.725	mg/L	Y	—	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	60	—	—	0.73	mg/L	Y	—	NQ	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	57	—	—	0.73	mg/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	65.1	—	—	0.73	mg/L	Y	—	NQ	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00252	0.00564	0.0287	—	pCi/L	Y	U	U	2013-307	CAMO-13-24245	GELC
R-44 S1	895	07/14/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00224	0.005	0.035	—	pCi/L	Y	U	U	10-3703	CAMO-10-22866	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-44 S1	895	05/04/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.000264	0.0021	0.021	—	pCi/L	Y	U	U	10-3025	CAMO-10-16840	GELC
R-44 S1	895	02/10/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.0136	0.008	0.039	—	pCi/L	Y	U	U	10-1802	CAMO-10-9370	GELC
R-44 S1	895	11/13/09	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00124	0.0023	0.031	—	pCi/L	Y	U	U	10-515	CAMO-10-3225	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.053	—	—	0.017	mg/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.1	—	—	0.017	mg/L	Y	—	U	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	UJ	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.0438	—	—	0.016	mg/L	Y	J	U	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	21.3	—	—	1	ug/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	20.5	—	—	1	ug/L	Y	—	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	25.2	—	—	1	ug/L	Y	—	J	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	20.6	—	—	1	ug/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	21.2	—	—	1	ug/L	Y	—	NQ	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	15.5	—	—	15	ug/L	Y	J	J	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	N	50	—	—	15	ug/L	Y	U	U	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	N	50	—	—	15	ug/L	Y	U	U	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	15.9	—	—	15	ug/L	Y	J	J	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	15.6	—	—	15	ug/L	Y	J	J	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	13.6	—	—	0.05	mg/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	12.5	—	—	0.05	mg/L	Y	—	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	14.1	—	—	0.05	mg/L	Y	—	NQ	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	12.6	—	—	0.05	mg/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	12.9	—	—	0.05	mg/L	Y	—	NQ	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.293	1.42	5.13	—	pCi/L	Y	U	U	2013-307	CAMO-13-24245	GELC
R-44 S1	895	07/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.39	1.6	5.6	—	pCi/L	Y	U	U	10-3703	CAMO-10-22866	GELC
R-44 S1	895	05/04/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.737	1.6	5.4	—	pCi/L	Y	U	U	10-3025	CAMO-10-16840	GELC
R-44 S1	895	02/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.5	1.8	6.1	—	pCi/L	Y	U	U	10-1802	CAMO-10-9370	GELC
R-44 S1	895	11/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-2.26	1.5	4.4	—	pCi/L	Y	U	U	10-515	CAMO-10-3225	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.32	—	—	0.067	mg/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.29	—	—	0.067	mg/L	Y	—	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.15	—	—	0.066	mg/L	Y	—	NQ	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.17	—	—	0.066	mg/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.16	—	—	0.066	mg/L	Y	—	NQ	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	14.5	—	—	2	ug/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	17.5	—	—	2	ug/L	Y	—	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	14.9	—	—	2	ug/L	Y	—	NQ	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	12.6	—	—	2	ug/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	14.2	—	—	2	ug/L	Y	—	NQ	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.671	1.13	4.26	—	pCi/L	Y	U	U	2013-307	CAMO-13-24245	GELC
R-44 S1	895	07/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.239	1.4	4.7	—	pCi/L	Y	U	U	10-3703	CAMO-10-22866	GELC
R-44 S1	895	05/04/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.584	1.3	4	—	pCi/L	Y	U	U	10-3025	CAMO-10-16840	GELC
R-44 S1	895	02/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.516	1.5	5.1	—	pCi/L	Y	U	U	10-1802	CAMO-10-9370	GELC
R-44 S1	895	11/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.789	1.4	4.8	—	pCi/L	Y	U	U	10-515	CAMO-10-3225	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.32	—	—	0.033	mg/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.325	—	—	0.033	mg/L	Y	—	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.28	—	—	0.033	mg/L	Y	—	NQ	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.293	—	—	0.033	mg/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.282	—	—	0.033	mg/L	Y	—	NQ	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1	0.706	2.36	—	pCi/L	Y	U	U	2013-307	CAMO-13-24245	GELC
R-44 S1	895	07/14/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.227	0.54	2.2	—	pCi/L	Y	U	U	10-3703	CAMO-10-22866	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-44 S1	895	05/04/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.836	0.7	2.5	—	pCi/L	Y	U	U	10-3025	CAMO-10-16840	GELC
R-44 S1	895	02/10/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.0278	0.63	2.7	—	pCi/L	Y	U	U	10-1802	CAMO-10-9370	GELC
R-44 S1	895	11/13/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.595	0.64	2.4	—	pCi/L	Y	U	U	10-515	CAMO-10-3225	GELC
R-44 S1	895	11/12/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	2.56	0.933	2.82	—	pCi/L	Y	U	U	2013-307	CAMO-13-24245	GELC
R-44 S1	895	07/14/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	-0.404	0.64	2.6	—	pCi/L	Y	U	U	10-3703	CAMO-10-22866	GELC
R-44 S1	895	05/04/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.112	0.66	2.5	—	pCi/L	Y	U	U	10-3025	CAMO-10-16840	GELC
R-44 S1	895	02/10/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	-0.578	0.56	2.4	—	pCi/L	Y	U	U	10-1802	CAMO-10-9370	GELC
R-44 S1	895	11/13/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.463	0.79	2.8	—	pCi/L	Y	U	U	10-515	CAMO-10-3225	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	49.9	—	—	0.453	mg/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	45.5	—	—	0.453	mg/L	Y	—	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	52.5	—	—	0.45	mg/L	Y	—	NQ	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	45.6	—	—	0.45	mg/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	47	—	—	0.45	mg/L	Y	—	NQ	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.91	—	—	0.11	mg/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.49	—	—	0.11	mg/L	Y	—	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.18	—	—	0.11	mg/L	Y	—	NQ	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.44	—	—	0.11	mg/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.59	—	—	0.11	mg/L	Y	—	NQ	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.879	—	—	0.165	ug/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.856	—	—	0.165	ug/L	Y	—	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.903	—	—	0.17	ug/L	Y	—	J	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.79	—	—	0.17	ug/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.87	—	—	0.17	ug/L	Y	—	J	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.82	2.95	10.2	—	pCi/L	Y	U	U	2013-307	CAMO-13-24245	GELC
R-44 S1	895	07/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	4.53	3.2	11	—	pCi/L	Y	U	U	10-3703	CAMO-10-22866	GELC
R-44 S1	895	05/04/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-0.0477	2.5	8.2	—	pCi/L	Y	U	U	10-3025	CAMO-10-16840	GELC
R-44 S1	895	02/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-6.67	11	36	—	pCi/L	Y	U	U	10-1802	CAMO-10-9370	GELC
R-44 S1	895	11/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.02	10	35	—	pCi/L	Y	U	U	10-515	CAMO-10-3225	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.864	—	—	0.5	ug/L	Y	J	J	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	N	2	—	—	0.5	ug/L	Y	U	U	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	N	2	—	—	0.5	ug/L	Y	U	U	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	2.03	—	—	0.5	ug/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.73	—	—	0.5	ug/L	Y	J	J	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.1	—	—	0.085	mg/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	N	0.307	—	—	0.085	mg/L	Y	—	U	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.298	—	—	0.01	mg/L	Y	—	NQ	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.12	—	—	0.05	mg/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.35	—	—	0.05	mg/L	Y	—	NQ	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.395	—	—	0.05	ug/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.41	—	—	0.05	ug/L	Y	—	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.403	—	—	0.05	ug/L	Y	—	NQ	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.409	—	—	0.05	ug/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.41	—	—	0.05	ug/L	Y	—	NQ	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.0066	0.00808	0.0317	—	pCi/L	Y	U	U	2013-307	CAMO-13-24245	GELC
R-44 S1	895	07/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00217	0.0031	0.029	—	pCi/L	Y	U	U	10-3703	CAMO-10-22866	GELC
R-44 S1	895	05/04/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00209	0.0021	0.033	—	pCi/L	Y	U	U	10-3025	CAMO-10-16840	GELC
R-44 S1	895	02/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00825	0.0048	0.048	—	pCi/L	Y	U	U	10-1802	CAMO-10-9370	GELC
R-44 S1	895	11/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.0076	0.033	—	pCi/L	Y	U	U	10-515	CAMO-10-3225	GELC
R-44 S1	895	11/12/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0462	0.0148	0.0527	—	pCi/L	Y	U	U	2013-307	CAMO-13-24245	GELC
R-44 S1	895	07/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00217	0.0038	0.029	—	pCi/L	Y	U	U	10-3703	CAMO-10-22866	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-44 S1	895	05/04/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00209	0.0036	0.031	—	pCi/L	Y	U	U	10-3025	CAMO-10-16840	GELC
R-44 S1	895	02/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0055	0.0039	0.033	—	pCi/L	Y	U	U	10-1802	CAMO-10-9370	GELC
R-44 S1	895	11/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.0122	0.0081	0.033	—	pCi/L	Y	U	U	10-515	CAMO-10-3225	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.2	—	—	0.05	mg/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.16	—	—	0.05	mg/L	Y	—	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.34	—	—	0.05	mg/L	Y	—	J	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.3	—	—	0.05	mg/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.32	—	—	0.05	mg/L	Y	—	J	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-3.32	18.4	74.5	—	pCi/L	Y	U	U	2013-307	CAMO-13-24245	GELC
R-44 S1	895	07/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	25.3	18	46	—	pCi/L	Y	U	U	10-3703	CAMO-10-22866	GELC
R-44 S1	895	05/04/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	21.7	12	47	—	pCi/L	Y	U	U	10-3025	CAMO-10-16840	GELC
R-44 S1	895	02/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	7.36	19	67	—	pCi/L	Y	U	U	10-1802	CAMO-10-9370	GELC
R-44 S1	895	11/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-23.7	19	66	—	pCi/L	Y	U	U	10-515	CAMO-10-3225	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	76.3	—	—	0.053	mg/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	67.1	—	—	0.053	mg/L	Y	—	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	79.6	—	—	0.053	mg/L	Y	—	NQ	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	68	—	—	0.053	mg/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	69.9	—	—	0.053	mg/L	Y	—	NQ	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	9.96	—	—	0.1	mg/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	9.25	—	—	0.1	mg/L	Y	—	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	11	—	—	0.1	mg/L	Y	—	NQ	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	9.37	—	—	0.1	mg/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	9.61	—	—	0.1	mg/L	Y	—	NQ	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.628	1.66	6.16	—	pCi/L	Y	U	U	2013-307	CAMO-13-24245	GELC
R-44 S1	895	07/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.0444	1.6	5.5	—	pCi/L	Y	U	U	10-3703	CAMO-10-22866	GELC
R-44 S1	895	05/04/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.838	1.2	4.2	—	pCi/L	Y	U	U	10-3025	CAMO-10-16840	GELC
R-44 S1	895	02/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.331	1.5	5	—	pCi/L	Y	U	U	10-1802	CAMO-10-9370	GELC
R-44 S1	895	11/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.655	1.5	4.5	—	pCi/L	Y	U	U	10-515	CAMO-10-3225	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	134	—	—	1	uS/cm	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	133	—	—	1	uS/cm	Y	—	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	133	—	—	1	uS/cm	Y	—	NQ	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	133	—	—	1	uS/cm	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	134	—	—	1	uS/cm	Y	—	NQ	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	59.5	—	—	1	ug/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	54.1	—	—	1	ug/L	Y	—	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	64	—	—	1	ug/L	Y	—	NQ	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	54	—	—	1	ug/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	54.6	—	—	1	ug/L	Y	—	NQ	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.229	0.129	0.493	—	pCi/L	Y	U	U	2013-307	CAMO-13-24245	GELC
R-44 S1	895	07/14/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.246	0.14	0.47	—	pCi/L	Y	U	U	10-3703	CAMO-10-22866	GELC
R-44 S1	895	05/04/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.417	0.16	0.49	—	pCi/L	Y	U	U	10-3025	CAMO-10-16840	GELC
R-44 S1	895	02/10/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.11	0.084	0.32	—	pCi/L	Y	U	U	10-1802	CAMO-10-9370	GELC
R-44 S1	895	11/13/09	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.409	0.15	0.48	—	pCi/L	Y	U	U	10-515	CAMO-10-3225	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.33	—	—	0.133	mg/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.29	—	—	0.133	mg/L	Y	—	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.06	—	—	0.1	mg/L	Y	—	NQ	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.95	—	—	0.1	mg/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.13	—	—	0.1	mg/L	Y	—	NQ	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	131	—	—	3.4	mg/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	114	—	—	3.4	mg/L	Y	—	NQ	12-1321	CAMO-12-14025	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-44 S1	895	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	140	—	—	3.4	mg/L	Y	—	NQ	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	119	—	—	3.4	mg/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	129	—	—	2.4	mg/L	Y	—	NQ	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.172	—	—	0.035	mg/L	Y	—	NQ	2013-307	CAMO-13-24245	GELC
R-44 S1	895	05/24/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	UJ	12-1321	CAMO-12-14010	GELC
R-44 S1	895	11/17/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	UJ	12-377	CAMO-12-1500	GELC
R-44 S1	895	08/05/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	U	11-3066	CAMO-11-24645	GELC
R-44 S1	895	05/19/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.0695	—	—	0.035	mg/L	Y	J	U	11-2471	CAMO-11-10706	GELC
R-44 S1	895	11/12/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.707	—	—	0.33	mg/L	Y	J	J	2013-307	CAMO-13-24245	GELC
R-44 S1	895	05/24/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	N	1	—	—	0.33	mg/L	Y	U	U	12-1321	CAMO-12-14010	GELC
R-44 S1	895	11/17/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	N	0.383	—	—	0.33	mg/L	Y	J	U	12-377	CAMO-12-1500	GELC
R-44 S1	895	08/05/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.431	—	—	0.33	mg/L	Y	J	J	11-3066	CAMO-11-24645	GELC
R-44 S1	895	05/19/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.667	—	—	0.33	mg/L	Y	J	J	11-2471	CAMO-11-10706	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0507	—	—	0.017	mg/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0184	—	—	0.017	mg/L	Y	J	J	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0974	—	—	0.015	mg/L	Y	—	NQ	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.111	—	—	0.015	mg/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.0619	—	—	0.015	mg/L	Y	—	U	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.469	0.847	2.843	—	pCi/L	Y	U	U	2013-313	CAMO-13-24245	ARSL
R-44 S1	895	11/17/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.62	0.73	2.4	—	pCi/L	Y	U	U	12-436	CAMO-12-1500	ARSL
R-44 S1	895	05/19/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.8372	0.7728	2.5438	—	pCi/L	Y	U	U	11-2528	CAMO-11-10706	ARSL
R-44 S1	895	11/18/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	3.4132	1.127	2.3184	—	pCi/L	N	—	R	11-748	CAMO-11-1276	ARSL
R-44 S1	895	11/18/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	1.9642	0.7728	2.3184	—	pCi/L	Y	U	U	11-748	CAMO-11-1276	ARSL
R-44 S1	895	05/04/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.6762	0.644	2.1252	—	pCi/L	Y	U	U	10-3020	CAMO-10-16840	ARSL
R-44 S1	895	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.461	—	—	0.067	ug/L	Y	—	NQ	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.475	—	—	0.067	ug/L	Y	—	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.453	—	—	0.067	ug/L	Y	—	NQ	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.405	—	—	0.067	ug/L	Y	—	NQ	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.393	—	—	0.067	ug/L	Y	—	NQ	11-2471	CAMO-11-10707	GELC
R-44 S1	895	11/12/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.213	0.0306	0.0778	—	pCi/L	Y	—	J	2013-307	CAMO-13-24245	GELC
R-44 S1	895	07/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.251	0.032	0.068	—	pCi/L	Y	—	NQ	10-3703	CAMO-10-22866	GELC
R-44 S1	895	05/04/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.302	0.038	0.051	—	pCi/L	Y	—	NQ	10-3025	CAMO-10-16840	GELC
R-44 S1	895	02/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.386	0.052	0.075	—	pCi/L	Y	—	NQ	10-1802	CAMO-10-9370	GELC
R-44 S1	895	11/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.34	0.037	0.081	—	pCi/L	Y	—	NQ	10-515	CAMO-10-3225	GELC
R-44 S1	895	11/12/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0	0.0102	0.0486	—	pCi/L	Y	U	U	2013-307	CAMO-13-24245	GELC
R-44 S1	895	07/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0098	0.0057	0.041	—	pCi/L	Y	U	U	10-3703	CAMO-10-22866	GELC
R-44 S1	895	05/04/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00768	0.0055	0.046	—	pCi/L	Y	U	U	10-3025	CAMO-10-16840	GELC
R-44 S1	895	02/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00586	0.0059	0.059	—	pCi/L	Y	U	U	10-1802	CAMO-10-9370	GELC
R-44 S1	895	11/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00277	0.0083	0.041	—	pCi/L	Y	U	U	10-515	CAMO-10-3225	GELC
R-44 S1	895	11/12/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.121	0.0207	0.0528	—	pCi/L	Y	—	J	2013-307	CAMO-13-24245	GELC
R-44 S1	895	07/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.137	0.021	0.047	—	pCi/L	Y	—	NQ	10-3703	CAMO-10-22866	GELC
R-44 S1	895	05/04/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.103	0.02	0.047	—	pCi/L	Y	—	NQ	10-3025	CAMO-10-16840	GELC
R-44 S1	895	02/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.197	0.034	0.053	—	pCi/L	Y	—	NQ	10-1802	CAMO-10-9370	GELC
R-44 S1	895	11/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.195	0.025	0.049	—	pCi/L	Y	—	NQ	10-515	CAMO-10-3225	GELC
R-44 S1	895	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	4.95	—	—	1	ug/L	Y	J	J	2013-307	CAMO-13-24262	GELC
R-44 S1	895	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	5.45	—	—	1	ug/L	Y	—	NQ	12-1321	CAMO-12-14025	GELC
R-44 S1	895	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	N	6.35	—	—	1	ug/L	Y	—	U	12-378	CAMO-12-1498	GELC
R-44 S1	895	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	4.17	—	—	1	ug/L	Y	J	J	11-3066	CAMO-11-24646	GELC
R-44 S1	895	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	4.95	—	—	1	ug/L	Y	J	J	11-2471	CAMO-11-10707	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.97	—	—	0.01	SU	Y	H	NQ	2013-307	CAMO-13-24263	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.95	—	—	0.01	SU	Y	H	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.94	—	—	0.01	SU	Y	H	J-	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.92	—	—	0.01	SU	Y	H	J-	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.87	—	—	0.01	SU	Y	H	J-	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	66	—	—	0.725	mg/L	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	63.7	—	—	0.725	mg/L	Y	—	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	63.1	—	—	0.73	mg/L	Y	—	NQ	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	64.9	—	—	0.73	mg/L	Y	—	NQ	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	64.5	—	—	0.73	mg/L	Y	—	NQ	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00204	0.00456	0.0369	—	pCi/L	Y	U	U	2013-307	CAMO-13-24246	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	FD	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.0135	0.0051	0.032	—	pCi/L	Y	U	U	10-3703	CAMO-10-22871	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00664	0.0033	0.032	—	pCi/L	Y	U	U	10-3703	CAMO-10-22868	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	FD	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00575	0.003	0.021	—	pCi/L	Y	U	U	10-3025	CAMO-10-16847	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00682	0.0032	0.02	—	pCi/L	Y	U	U	10-3025	CAMO-10-16843	GELC
R-44 S2	985.3	02/10/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00722	0.0052	0.035	—	pCi/L	Y	U	U	10-1802	CAMO-10-9373	GELC
R-44 S2	985.3	11/13/09	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0026	0.0022	0.035	—	pCi/L	Y	U	U	10-515	CAMO-10-3228	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	22.7	—	—	1	ug/L	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	23.9	—	—	1	ug/L	Y	—	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	21.8	—	—	1	ug/L	Y	—	J	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	24.4	—	—	1	ug/L	Y	—	NQ	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	23.9	—	—	1	ug/L	Y	—	NQ	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	15.2	—	—	15	ug/L	Y	J	J	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	N	50	—	—	15	ug/L	Y	U	U	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	N	50	—	—	15	ug/L	Y	U	U	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	18.5	—	—	15	ug/L	Y	J	J	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	18.4	—	—	15	ug/L	Y	J	J	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	13.7	—	—	0.05	mg/L	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	13.9	—	—	0.05	mg/L	Y	—	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	13.1	—	—	0.05	mg/L	Y	—	NQ	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	13.8	—	—	0.05	mg/L	Y	—	NQ	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	13.7	—	—	0.05	mg/L	Y	—	NQ	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.26	1.48	5.25	—	pCi/L	Y	U	U	2013-307	CAMO-13-24246	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	FD	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.511	1.8	5.8	—	pCi/L	Y	U	U	10-3703	CAMO-10-22871	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.59	1.5	4.4	—	pCi/L	Y	U	U	10-3703	CAMO-10-22868	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.09	1.4	4.4	—	pCi/L	Y	U	U	10-3025	CAMO-10-16843	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	FD	RAD	EPA:901.1	Cesium-137	Cs-137	N	-2.02	1.4	4	—	pCi/L	Y	U	U	10-3025	CAMO-10-16847	GELC
R-44 S2	985.3	02/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.23	1.5	5.2	—	pCi/L	Y	U	U	10-1802	CAMO-10-9373	GELC
R-44 S2	985.3	11/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.374	1.5	4.8	—	pCi/L	Y	U	U	10-515	CAMO-10-3228	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.26	—	—	0.067	mg/L	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.33	—	—	0.067	mg/L	Y	—	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.17	—	—	0.066	mg/L	Y	—	NQ	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.28	—	—	0.066	mg/L	Y	—	NQ	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.25	—	—	0.066	mg/L	Y	—	NQ	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	4.74	—	—	2	ug/L	Y	J	J	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	6.01	—	—	2	ug/L	Y	J	J	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.39	—	—	2	ug/L	Y	J	J	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	6.1	—	—	2	ug/L	Y	J	J	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.85	—	—	2	ug/L	Y	J	J	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.955	1.47	5.86	—	pCi/L	Y	U	U	2013-307	CAMO-13-24246	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	FD	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.56	1.9	5.7	—	pCi/L	Y	U	U	10-3703	CAMO-10-22871	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-44 S2	985.3	07/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.61	1.6	4.9	—	pCi/L	Y	U	U	10-3703	CAMO-10-22868	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	1.03	1.2	4.4	—	pCi/L	Y	U	U	10-3025	CAMO-10-16843	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	FD	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.544	1	3.7	—	pCi/L	Y	U	U	10-3025	CAMO-10-16847	GELC
R-44 S2	985.3	02/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.00197	1.6	5.2	—	pCi/L	Y	U	U	10-1802	CAMO-10-9373	GELC
R-44 S2	985.3	11/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.0264	1.7	5.7	—	pCi/L	Y	U	U	10-515	CAMO-10-3228	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.367	—	—	0.033	mg/L	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.374	—	—	0.033	mg/L	Y	—	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.346	—	—	0.033	mg/L	Y	—	NQ	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.34	—	—	0.033	mg/L	Y	—	NQ	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.342	—	—	0.033	mg/L	Y	—	NQ	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.689	0.661	2.37	—	pCi/L	Y	U	U	2013-307	CAMO-13-24246	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	0.186	0.64	2.6	—	pCi/L	Y	U	U	10-3703	CAMO-10-22871	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.59	0.87	2.6	—	pCi/L	Y	U	U	10-3703	CAMO-10-22868	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.0164	0.65	2.8	—	pCi/L	Y	U	U	10-3025	CAMO-10-16843	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	0.686	0.63	2.3	—	pCi/L	Y	U	U	10-3025	CAMO-10-16847	GELC
R-44 S2	985.3	02/10/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.209	0.44	2.3	—	pCi/L	Y	U	U	10-1802	CAMO-10-9373	GELC
R-44 S2	985.3	11/13/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.136	0.45	2.1	—	pCi/L	Y	U	U	10-515	CAMO-10-3228	GELC
R-44 S2	985.3	11/12/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.18	0.82	2.75	—	pCi/L	Y	U	U	2013-307	CAMO-13-24246	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	Y	26.5	2.9	3	—	pCi/L	Y	—	NQ	10-3703	CAMO-10-22871	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.53	0.91	3	—	pCi/L	Y	U	U	10-3703	CAMO-10-22868	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.702	0.79	2.8	—	pCi/L	Y	U	U	10-3025	CAMO-10-16843	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	N	1.62	0.77	2.4	—	pCi/L	Y	U	U	10-3025	CAMO-10-16847	GELC
R-44 S2	985.3	02/10/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.499	0.62	2.2	—	pCi/L	Y	U	U	10-1802	CAMO-10-9373	GELC
R-44 S2	985.3	11/13/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.634	0.85	2.9	—	pCi/L	Y	U	U	10-515	CAMO-10-3228	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	52	—	—	0.453	mg/L	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	51.8	—	—	0.453	mg/L	Y	—	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	47.6	—	—	0.45	mg/L	Y	—	NQ	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	51.5	—	—	0.45	mg/L	Y	—	NQ	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	50.6	—	—	0.45	mg/L	Y	—	NQ	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.31	—	—	0.11	mg/L	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.18	—	—	0.11	mg/L	Y	—	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.61	—	—	0.11	mg/L	Y	—	NQ	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.13	—	—	0.11	mg/L	Y	—	NQ	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.01	—	—	0.11	mg/L	Y	—	NQ	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	2.77	—	—	2	ug/L	Y	J	J	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	2.36	—	—	2	ug/L	Y	J	J	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	N	10	—	—	2	ug/L	Y	U	U	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	4.38	—	—	2	ug/L	Y	J	J	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	4.03	—	—	2	ug/L	Y	J	J	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.84	—	—	0.165	ug/L	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.835	—	—	0.165	ug/L	Y	—	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	N	0.809	—	—	0.17	ug/L	Y	—	U	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.717	—	—	0.17	ug/L	Y	—	NQ	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	N	0.754	—	—	0.17	ug/L	Y	—	U	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-3.76	3.29	11.1	—	pCi/L	Y	U	U	2013-307	CAMO-13-24246	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	FD	RAD	EPA:901.1	Neptunium-237	Np-237	N	1.38	3.7	12	—	pCi/L	Y	U	U	10-3703	CAMO-10-22871	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-1.3	2.9	9.5	—	pCi/L	Y	U	U	10-3703	CAMO-10-22868	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-1.1	2.7	8.6	—	pCi/L	Y	U	U	10-3025	CAMO-10-16843	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	FD	RAD	EPA:901.1	Neptunium-237	Np-237	N	-1.04	2.5	8.2	—	pCi/L	Y	U	U	10-3025	CAMO-10-16847	GELC
R-44 S2	985.3	02/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-5.6	9.1	29	—	pCi/L	Y	U	U	10-1802	CAMO-10-9373	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-44 S2	985.3	11/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	3.3	13	41	—	pCi/L	Y	U	U	10-515	CAMO-10-3228	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.927	—	—	0.5	ug/L	Y	J	J	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	N	2	—	—	0.5	ug/L	Y	U	U	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	N	2	—	—	0.5	ug/L	Y	U	U	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.523	—	—	0.5	ug/L	Y	J	J	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.594	—	—	0.5	ug/L	Y	J	J	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.626	—	—	0.017	mg/L	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.735	—	—	0.085	mg/L	Y	—	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.163	—	—	0.01	mg/L	Y	—	NQ	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.665	—	—	0.05	mg/L	Y	—	J	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.795	—	—	0.05	mg/L	Y	—	NQ	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.343	—	—	0.05	ug/L	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.324	—	—	0.05	ug/L	Y	—	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.34	—	—	0.05	ug/L	Y	—	NQ	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.353	—	—	0.05	ug/L	Y	—	NQ	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.334	—	—	0.05	ug/L	Y	—	NQ	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00907	0.00641	0.0218	—	pCi/L	Y	U	U	2013-307	CAMO-13-24246	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.0022	0.03	—	pCi/L	Y	U	U	10-3703	CAMO-10-22871	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00217	0.0022	0.029	—	pCi/L	Y	U	U	10-3703	CAMO-10-22868	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00881	0.0054	0.035	—	pCi/L	Y	U	U	10-3025	CAMO-10-16847	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-5.32E-10	0.0045	0.035	—	pCi/L	Y	U	U	10-3025	CAMO-10-16843	GELC
R-44 S2	985.3	02/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00171	0.0053	0.05	—	pCi/L	Y	U	U	10-1802	CAMO-10-9373	GELC
R-44 S2	985.3	11/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00411	0.0087	0.034	—	pCi/L	Y	U	U	10-515	CAMO-10-3228	GELC
R-44 S2	985.3	11/12/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00453	0.00555	0.0362	—	pCi/L	Y	U	U	2013-307	CAMO-13-24246	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0112	0.005	0.03	—	pCi/L	Y	U	U	10-3703	CAMO-10-22871	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00217	0.0031	0.029	—	pCi/L	Y	U	U	10-3703	CAMO-10-22868	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00669	0.0086	0.033	—	pCi/L	Y	U	U	10-3025	CAMO-10-16843	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00881	0.0049	0.033	—	pCi/L	Y	U	U	10-3025	CAMO-10-16847	GELC
R-44 S2	985.3	02/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0039	0.0048	0.035	—	pCi/L	Y	U	U	10-1802	CAMO-10-9373	GELC
R-44 S2	985.3	11/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00411	0.0065	0.034	—	pCi/L	Y	U	U	10-515	CAMO-10-3228	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.34	—	—	0.05	mg/L	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.39	—	—	0.05	mg/L	Y	—	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.15	—	—	0.05	mg/L	Y	—	J	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.5	—	—	0.05	mg/L	Y	—	NQ	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.51	—	—	0.05	mg/L	Y	—	J	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-7.81	16.6	64.6	—	pCi/L	Y	U	U	2013-307	CAMO-13-24246	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	FD	RAD	EPA:901.1	Potassium-40	K-40	N	-26.2	24	74	—	pCi/L	Y	U	U	10-3703	CAMO-10-22871	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-4.06	16	60	—	pCi/L	Y	U	U	10-3703	CAMO-10-22868	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-1.72	24	67	—	pCi/L	Y	U	U	10-3025	CAMO-10-16843	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	FD	RAD	EPA:901.1	Potassium-40	K-40	N	65.2	18	71	—	pCi/L	Y	U	U	10-3025	CAMO-10-16847	GELC
R-44 S2	985.3	02/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	16.2	20	71	—	pCi/L	Y	U	U	10-1802	CAMO-10-9373	GELC
R-44 S2	985.3	11/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-14.3	22	71	—	pCi/L	Y	U	U	10-515	CAMO-10-3228	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	77	—	—	0.053	mg/L	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	74.6	—	—	0.053	mg/L	Y	—	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	74.9	—	—	0.053	mg/L	Y	—	NQ	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	74.1	—	—	0.053	mg/L	Y	—	NQ	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	72.2	—	—	0.053	mg/L	Y	—	NQ	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.8	—	—	0.1	mg/L	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	11	—	—	0.1	mg/L	Y	—	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	9.51	—	—	0.1	mg/L	Y	—	NQ	12-378	CAMO-12-1501	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	11.1	—	—	0.1	mg/L	Y	—	NQ	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.8	—	—	0.1	mg/L	Y	—	NQ	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.145	1.39	5.32	—	pCi/L	Y	U	U	2013-307	CAMO-13-24246	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.33	1.6	5	—	pCi/L	Y	U	U	10-3703	CAMO-10-22868	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	FD	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.478	1.7	5.5	—	pCi/L	Y	U	U	10-3703	CAMO-10-22871	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.747	1.4	4.9	—	pCi/L	Y	U	U	10-3025	CAMO-10-16843	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	FD	RAD	EPA:901.1	Sodium-22	Na-22	N	0.784	1.2	4.2	—	pCi/L	Y	U	U	10-3025	CAMO-10-16847	GELC
R-44 S2	985.3	02/10/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.0661	1.5	4.9	—	pCi/L	Y	U	U	10-1802	CAMO-10-9373	GELC
R-44 S2	985.3	11/13/09	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.102	1.5	4.9	—	pCi/L	Y	U	U	10-515	CAMO-10-3228	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	145	—	—	1	uS/cm	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	144	—	—	1	uS/cm	Y	—	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	145	—	—	1	uS/cm	Y	—	NQ	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	147	—	—	1	uS/cm	Y	—	NQ	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	147	—	—	1	uS/cm	Y	—	NQ	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	60.6	—	—	1	ug/L	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	62.1	—	—	1	ug/L	Y	—	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	57.3	—	—	1	ug/L	Y	—	NQ	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	63.3	—	—	1	ug/L	Y	—	NQ	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	61.8	—	—	1	ug/L	Y	—	NQ	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.00695	0.132	0.49	—	pCi/L	Y	U	U	2013-307	CAMO-13-24246	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	FD	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.208	0.14	0.47	—	pCi/L	Y	U	U	10-3703	CAMO-10-22871	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.045	0.12	0.47	—	pCi/L	Y	U	U	10-3703	CAMO-10-22868	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	FD	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.192	0.14	0.45	—	pCi/L	Y	U	U	10-3025	CAMO-10-16847	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.221	0.13	0.43	—	pCi/L	Y	U	U	10-3025	CAMO-10-16843	GELC
R-44 S2	985.3	02/10/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.00394	0.093	0.32	—	pCi/L	Y	U	U	10-1802	CAMO-10-9373	GELC
R-44 S2	985.3	11/13/09	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.225	0.13	0.49	—	pCi/L	Y	U	U	10-515	CAMO-10-3228	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.45	—	—	0.133	mg/L	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.69	—	—	0.133	mg/L	Y	—	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.76	—	—	0.1	mg/L	Y	—	NQ	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.92	—	—	0.1	mg/L	Y	—	NQ	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	4.12	—	—	0.1	mg/L	Y	—	NQ	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	140	—	—	3.4	mg/L	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	117	—	—	3.4	mg/L	Y	—	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	147	—	—	3.4	mg/L	Y	—	NQ	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	136	—	—	3.4	mg/L	Y	—	NQ	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	142	—	—	2.4	mg/L	Y	—	NQ	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.906	—	—	0.33	mg/L	Y	J	J	2013-307	CAMO-13-24246	GELC
R-44 S2	985.3	05/24/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	N	1	—	—	0.33	mg/L	Y	U	U	12-1321	CAMO-12-14011	GELC
R-44 S2	985.3	11/17/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	N	1	—	—	0.33	mg/L	Y	U	U	12-377	CAMO-12-1502	GELC
R-44 S2	985.3	08/05/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.597	—	—	0.33	mg/L	Y	J	J	11-3066	CAMO-11-24648	GELC
R-44 S2	985.3	05/19/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.772	—	—	0.33	mg/L	Y	J	J	11-2471	CAMO-11-10709	GELC
R-44 S2	985.3	11/12/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.613	0.91	3.04	—	pCi/L	Y	U	U	2013-313	CAMO-13-24246	ARSL
R-44 S2	985.3	11/17/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.42	0.63	2.17	—	pCi/L	Y	U	U	12-436	CAMO-12-1502	ARSL
R-44 S2	985.3	05/19/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.6118	0.7406	2.4794	—	pCi/L	Y	U	U	11-2528	CAMO-11-10709	ARSL
R-44 S2	985.3	11/18/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.483	0.7728	2.6082	—	pCi/L	Y	U	U	11-748	CAMO-11-1278	ARSL
R-44 S2	985.3	11/18/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	3.864	1.288	2.6082	—	pCi/L	N	—	R	11-748	CAMO-11-1278	ARSL
R-44 S2	985.3	05/04/10	WG	UF	INIT	FD	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.644	0.644	2.1896	—	pCi/L	Y	U	U	10-3020	CAMO-10-16847	ARSL
R-44 S2	985.3	05/04/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0	0.6762	2.2862	—	pCi/L	Y	U	U	10-3020	CAMO-10-16843	ARSL
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.558	—	—	0.067	ug/L	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.606	—	—	0.067	ug/L	Y	—	NQ	12-1321	CAMO-12-14026	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.56	—	—	0.067	ug/L	Y	—	NQ	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.483	—	—	0.067	ug/L	Y	—	NQ	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.475	—	—	0.067	ug/L	Y	—	NQ	11-2471	CAMO-11-10708	GELC
R-44 S2	985.3	11/12/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.35	0.0307	0.0551	—	pCi/L	Y	—	NQ	2013-307	CAMO-13-24246	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.347	0.039	0.064	—	pCi/L	Y	—	NQ	10-3703	CAMO-10-22871	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.415	0.046	0.073	—	pCi/L	Y	—	NQ	10-3703	CAMO-10-22868	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.391	0.046	0.051	—	pCi/L	Y	—	NQ	10-3025	CAMO-10-16843	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.426	0.049	0.053	—	pCi/L	Y	—	NQ	10-3025	CAMO-10-16847	GELC
R-44 S2	985.3	02/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.481	0.066	0.091	—	pCi/L	Y	—	NQ	10-1802	CAMO-10-9373	GELC
R-44 S2	985.3	11/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.335	0.036	0.074	—	pCi/L	Y	—	NQ	10-515	CAMO-10-3228	GELC
R-44 S2	985.3	11/12/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0206	0.00881	0.0344	—	pCi/L	Y	U	U	2013-307	CAMO-13-24246	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0246	0.0089	0.039	—	pCi/L	Y	U	U	10-3703	CAMO-10-22871	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0176	0.008	0.044	—	pCi/L	Y	U	U	10-3703	CAMO-10-22868	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0117	0.0068	0.047	—	pCi/L	Y	U	U	10-3025	CAMO-10-16843	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0319	0.012	0.048	—	pCi/L	Y	U	U	10-3025	CAMO-10-16847	GELC
R-44 S2	985.3	02/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0215	0.013	0.073	—	pCi/L	Y	U	U	10-1802	CAMO-10-9373	GELC
R-44 S2	985.3	11/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00512	0.0081	0.038	—	pCi/L	Y	U	U	10-515	CAMO-10-3228	GELC
R-44 S2	985.3	11/12/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.173	0.0206	0.0374	—	pCi/L	Y	—	NQ	2013-307	CAMO-13-24246	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.258	0.032	0.044	—	pCi/L	Y	—	NQ	10-3703	CAMO-10-22871	GELC
R-44 S2	985.3	07/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.222	0.03	0.051	—	pCi/L	Y	—	NQ	10-3703	CAMO-10-22868	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.161	0.026	0.047	—	pCi/L	Y	—	NQ	10-3025	CAMO-10-16843	GELC
R-44 S2	985.3	05/04/10	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.242	0.033	0.048	—	pCi/L	Y	—	NQ	10-3025	CAMO-10-16847	GELC
R-44 S2	985.3	02/10/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.252	0.044	0.065	—	pCi/L	Y	—	NQ	10-1802	CAMO-10-9373	GELC
R-44 S2	985.3	11/13/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.128	0.02	0.046	—	pCi/L	Y	—	NQ	10-515	CAMO-10-3228	GELC
R-44 S2	985.3	11/12/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	6.25	—	—	1	ug/L	Y	—	NQ	2013-307	CAMO-13-24263	GELC
R-44 S2	985.3	05/24/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	6.87	—	—	1	ug/L	Y	—	NQ	12-1321	CAMO-12-14026	GELC
R-44 S2	985.3	11/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	N	5.08	—	—	1	ug/L	Y	—	U	12-378	CAMO-12-1501	GELC
R-44 S2	985.3	08/05/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	5.71	—	—	1	ug/L	Y	—	NQ	11-3066	CAMO-11-24647	GELC
R-44 S2	985.3	05/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	6.74	—	—	1	ug/L	Y	—	NQ	11-2471	CAMO-11-10708	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.86	—	—	0.01	SU	Y	H	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.9	—	—	0.01	SU	Y	H	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.87	—	—	0.01	SU	Y	H	J-	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.79	—	—	0.01	SU	Y	H	J-	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.86	—	—	0.01	SU	Y	H	J-	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	67	—	—	0.725	mg/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	65.8	—	—	0.725	mg/L	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	64.1	—	—	0.73	mg/L	Y	—	NQ	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	66.5	—	—	0.73	mg/L	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	78.3	—	—	0.73	mg/L	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.000766	0.00766	0.0261	—	pCi/L	Y	U	U	2013-276	CAMO-13-24247	GELC
R-45 S1	880	07/02/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00669	0.0037	0.038	—	pCi/L	Y	U	U	10-3567	CAMO-10-22877	GELC
R-45 S1	880	05/13/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00531	0.0035	0.028	—	pCi/L	Y	U	U	10-3165	CAMO-10-16825	GELC
R-45 S1	880	01/27/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00314	0.019	0.048	—	pCi/L	Y	U	U	10-1468	CAMO-10-9379	GELC
R-45 S1	880	11/16/09	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00285	0.0016	0.03	—	pCi/L	Y	U	U	10-542	CAMO-10-3231	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0243	—	—	0.017	mg/L	Y	J	J	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.0261	—	—	0.017	mg/L	Y	J	U	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0328	—	—	0.016	mg/L	Y	J	J	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	29.9	—	—	1	ug/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-45 S1	880	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	27.9	—	—	1	ug/L	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	29.6	—	—	1	ug/L	Y	—	J	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	29	—	—	1	ug/L	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	26	—	—	1	ug/L	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	16.7	—	—	15	ug/L	Y	J	J	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	16.9	—	—	15	ug/L	Y	J	J	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	16.5	—	—	15	ug/L	Y	J	J	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	17.6	—	—	15	ug/L	Y	J	J	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	16.6	—	—	15	ug/L	Y	J	J	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	18.6	—	—	0.05	mg/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	17.3	—	—	0.05	mg/L	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	18.2	—	—	0.05	mg/L	Y	—	NQ	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	17.8	—	—	0.05	mg/L	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	17	—	—	0.05	mg/L	Y	N	J-	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.912	1.7	5.99	—	pCi/L	Y	U	U	2013-276	CAMO-13-24247	GELC
R-45 S1	880	07/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.709	0.94	2.9	—	pCi/L	Y	U	U	10-3567	CAMO-10-22877	GELC
R-45 S1	880	05/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.505	1.6	5.2	—	pCi/L	Y	U	U	10-3165	CAMO-10-16825	GELC
R-45 S1	880	01/27/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.162	1.5	4.8	—	pCi/L	Y	U	U	10-1468	CAMO-10-9379	GELC
R-45 S1	880	11/16/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.62	1.5	5.1	—	pCi/L	Y	U	U	10-542	CAMO-10-3231	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.97	—	—	0.067	mg/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.88	—	—	0.067	mg/L	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.62	—	—	0.066	mg/L	Y	—	NQ	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.75	—	—	0.066	mg/L	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.83	—	—	0.066	mg/L	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	23	—	—	2	ug/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	19	—	—	2	ug/L	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	20.9	—	—	2	ug/L	Y	—	NQ	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	17.9	—	—	2	ug/L	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	17.6	—	—	2	ug/L	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.56	1.66	5.75	—	pCi/L	Y	U	U	2013-276	CAMO-13-24247	GELC
R-45 S1	880	07/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.166	0.91	3	—	pCi/L	Y	U	U	10-3567	CAMO-10-22877	GELC
R-45 S1	880	05/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	1.06	1.6	5.8	—	pCi/L	Y	U	U	10-3165	CAMO-10-16825	GELC
R-45 S1	880	01/27/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.916	1.4	4.9	—	pCi/L	Y	U	U	10-1468	CAMO-10-9379	GELC
R-45 S1	880	11/16/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.93	1.5	4.4	—	pCi/L	Y	U	U	10-542	CAMO-10-3231	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.351	—	—	0.033	mg/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.346	—	—	0.033	mg/L	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.328	—	—	0.033	mg/L	Y	—	NQ	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.3	—	—	0.033	mg/L	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.345	—	—	0.033	mg/L	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.806	0.75	2.78	—	pCi/L	Y	U	U	2013-276	CAMO-13-24247	GELC
R-45 S1	880	07/02/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.732	0.77	2.9	—	pCi/L	Y	U	U	10-3567	CAMO-10-22877	GELC
R-45 S1	880	05/13/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	2.07	0.91	2.4	—	pCi/L	Y	U	U	10-3165	CAMO-10-16825	GELC
R-45 S1	880	01/27/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.3	0.66	1.7	—	pCi/L	Y	U	U	10-1468	CAMO-10-9379	GELC
R-45 S1	880	11/16/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.538	0.66	2.6	—	pCi/L	Y	U	U	10-542	CAMO-10-3231	GELC
R-45 S1	880	11/06/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.68	0.674	2.02	—	pCi/L	Y	U	U	2013-276	CAMO-13-24247	GELC
R-45 S1	880	07/02/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	-0.0498	0.69	2.6	—	pCi/L	Y	U	U	10-3567	CAMO-10-22877	GELC
R-45 S1	880	05/13/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.04	0.69	2.3	—	pCi/L	Y	U	U	10-3165	CAMO-10-16825	GELC
R-45 S1	880	01/27/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.45	0.72	2.2	—	pCi/L	Y	U	U	10-1468	CAMO-10-9379	GELC
R-45 S1	880	11/16/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.42	0.87	2.9	—	pCi/L	Y	U	U	10-542	CAMO-10-3231	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	68	—	—	0.453	mg/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-45 S1	880	05/22/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	63.3	—	—	0.453	mg/L	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	65.6	—	—	0.45	mg/L	Y	—	NQ	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	64.2	—	—	0.45	mg/L	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	62.1	—	—	0.45	mg/L	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	5.24	—	—	0.11	mg/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.86	—	—	0.11	mg/L	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.89	—	—	0.11	mg/L	Y	—	NQ	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.82	—	—	0.11	mg/L	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.79	—	—	0.11	mg/L	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.908	—	—	0.165	ug/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.794	—	—	0.165	ug/L	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	N	0.856	—	—	0.17	ug/L	Y	—	U	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.748	—	—	0.17	ug/L	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.882	—	—	0.17	ug/L	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-5.88	3.63	11.7	—	pCi/L	Y	U	U	2013-276	CAMO-13-24247	GELC
R-45 S1	880	07/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-3.2	1.4	4.4	—	pCi/L	Y	U	U	10-3567	CAMO-10-22877	GELC
R-45 S1	880	05/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-8.28	3.2	8.8	—	pCi/L	Y	U	U	10-3165	CAMO-10-16825	GELC
R-45 S1	880	01/27/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.6	13	42	—	pCi/L	Y	U	U	10-1468	CAMO-10-9379	GELC
R-45 S1	880	11/16/09	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	16.7	12	41	—	pCi/L	Y	U	U	10-542	CAMO-10-3231	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.22	—	—	0.5	ug/L	Y	J	J	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.893	—	—	0.5	ug/L	Y	J	J	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	N	2	—	—	0.5	ug/L	Y	U	U	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.36	—	—	0.5	ug/L	Y	J	J	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.11	—	—	0.5	ug/L	Y	J	J	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.65	—	—	0.425	mg/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.53	—	—	0.085	mg/L	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.4	—	—	0.05	mg/L	Y	—	NQ	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.17	—	—	0.05	mg/L	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.61	—	—	0.05	mg/L	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.577	—	—	0.05	ug/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.545	—	—	0.05	ug/L	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.546	—	—	0.05	ug/L	Y	—	NQ	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.547	—	—	0.05	ug/L	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.533	—	—	0.05	ug/L	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00169	0.0059	0.0278	—	pCi/L	Y	U	U	2013-276	CAMO-13-24247	GELC
R-45 S1	880	07/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00238	0.0034	0.032	—	pCi/L	Y	U	U	10-3567	CAMO-10-22877	GELC
R-45 S1	880	05/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00196	0.0034	0.031	—	pCi/L	Y	U	U	10-3165	CAMO-10-16825	GELC
R-45 S1	880	01/27/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00389	0.0028	0.033	—	pCi/L	Y	U	U	10-1468	CAMO-10-9379	GELC
R-45 S1	880	11/16/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.0188	0.0066	0.034	—	pCi/L	Y	U	U	10-542	CAMO-10-3231	GELC
R-45 S1	880	11/06/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00301	0.00487	0.0459	—	pCi/L	Y	U	U	2013-276	CAMO-13-24247	GELC
R-45 S1	880	07/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0	0.0034	0.032	—	pCi/L	Y	U	U	10-3567	CAMO-10-22877	GELC
R-45 S1	880	05/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00391	0.0068	0.029	—	pCi/L	Y	U	U	10-3165	CAMO-10-16825	GELC
R-45 S1	880	01/27/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0	0.0019	0.022	—	pCi/L	Y	U	U	10-1468	CAMO-10-9379	GELC
R-45 S1	880	11/16/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00418	0.0051	0.034	—	pCi/L	Y	U	U	10-542	CAMO-10-3231	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.43	—	—	0.05	mg/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.28	—	—	0.05	mg/L	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.25	—	—	0.05	mg/L	Y	—	J	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.34	—	—	0.05	mg/L	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.06	—	—	0.05	mg/L	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	0.685	22.8	85.3	—	pCi/L	Y	U	U	2013-276	CAMO-13-24247	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-45 S1	880	07/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	25.3	9.9	37	—	pCi/L	Y	U	U	10-3567	CAMO-10-22877	GELC
R-45 S1	880	05/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-10.4	20	71	—	pCi/L	Y	U	U	10-3165	CAMO-10-16825	GELC
R-45 S1	880	01/27/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	29.6	16	59	—	pCi/L	Y	U	U	10-1468	CAMO-10-9379	GELC
R-45 S1	880	11/16/09	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	5.01	19	66	—	pCi/L	Y	U	U	10-542	CAMO-10-3231	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	77.9	—	—	0.053	mg/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	72.1	—	—	0.053	mg/L	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	76.4	—	—	0.053	mg/L	Y	—	NQ	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	72.2	—	—	0.053	mg/L	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	65.8	—	—	0.053	mg/L	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	11.6	—	—	0.1	mg/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.6	—	—	0.1	mg/L	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.6	—	—	0.1	mg/L	Y	—	NQ	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.6	—	—	0.1	mg/L	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.1	—	—	0.1	mg/L	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.71	1.64	5.62	—	pCi/L	Y	U	U	2013-276	CAMO-13-24247	GELC
R-45 S1	880	07/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.342	0.86	2.8	—	pCi/L	Y	U	U	10-3567	CAMO-10-22877	GELC
R-45 S1	880	05/13/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.88	1.5	4.7	—	pCi/L	Y	U	U	10-3165	CAMO-10-16825	GELC
R-45 S1	880	01/27/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-3.5	1.3	3.1	—	pCi/L	Y	U	U	10-1468	CAMO-10-9379	GELC
R-45 S1	880	11/16/09	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.36	1.5	4.6	—	pCi/L	Y	U	U	10-542	CAMO-10-3231	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	175	—	—	1	uS/cm	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	175	—	—	1	uS/cm	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	176	—	—	1	uS/cm	Y	—	NQ	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	168	—	—	1	uS/cm	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	173	—	—	1	uS/cm	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	81.7	—	—	1	ug/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	76.8	—	—	1	ug/L	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	79.9	—	—	1	ug/L	Y	—	NQ	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	78.1	—	—	1	ug/L	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	71.2	—	—	1	ug/L	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0292	0.102	0.403	—	pCi/L	Y	U	U	2013-276	CAMO-13-24247	GELC
R-45 S1	880	07/02/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.354	0.12	0.47	—	pCi/L	Y	U	U	10-3567	CAMO-10-22877	GELC
R-45 S1	880	05/13/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.133	0.14	0.48	—	pCi/L	Y	U	U	10-3165	CAMO-10-16825	GELC
R-45 S1	880	01/27/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.119	0.13	0.49	—	pCi/L	Y	U	U	10-1468	CAMO-10-9379	GELC
R-45 S1	880	11/16/09	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.118	0.098	0.42	—	pCi/L	Y	U	U	10-542	CAMO-10-3231	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	6.42	—	—	0.133	mg/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	5.99	—	—	0.133	mg/L	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	5.59	—	—	0.1	mg/L	Y	—	NQ	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	5.39	—	—	0.1	mg/L	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	5.91	—	—	0.1	mg/L	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	176	—	—	3.4	mg/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	153	—	—	3.4	mg/L	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	149	—	—	3.4	mg/L	Y	—	NQ	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	151	—	—	3.4	mg/L	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	147	—	—	2.4	mg/L	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0821	—	—	0.017	mg/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0368	—	—	0.017	mg/L	Y	J	J	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0257	—	—	0.015	mg/L	Y	J	J	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.0468	—	—	0.015	mg/L	Y	J	U	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0706	—	—	0.015	mg/L	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	2.149	0.699	1.959	—	pCi/L	Y	—	NQ	2013-291	CAMO-13-24247	ARSL

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-45 S1	880	11/16/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	1.55	0.75	2.33	—	pCi/L	Y	U	U	12-436	CAMO-12-1494	ARSL
R-45 S1	880	05/20/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	2.415	0.7728	2.1896	—	pCi/L	Y	—	NQ	11-2528	CAMO-11-10710	ARSL
R-45 S1	880	11/19/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	3.5742	1.1914	2.4472	—	pCi/L	N	—	R	11-748	CAMO-11-1279	ARSL
R-45 S1	880	11/19/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	4.5402	1.0304	2.4472	—	pCi/L	Y	—	NQ	11-748	CAMO-11-1279	ARSL
R-45 S1	880	05/13/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	1.2236	0.5474	1.7066	—	pCi/L	Y	U	U	10-3219	CAMO-10-16825	ARSL
R-45 S1	880	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.827	—	—	0.067	ug/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.8	—	—	0.067	ug/L	Y	—	NQ	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.835	—	—	0.067	ug/L	Y	—	NQ	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.896	—	—	0.067	ug/L	Y	—	J	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.782	—	—	0.067	ug/L	Y	—	NQ	11-2493	CAMO-11-10711	GELC
R-45 S1	880	11/06/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.973	0.0534	0.0617	—	pCi/L	Y	—	NQ	2013-276	CAMO-13-24247	GELC
R-45 S1	880	07/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.541	0.056	0.079	—	pCi/L	Y	—	NQ	10-3567	CAMO-10-22877	GELC
R-45 S1	880	05/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.921	0.077	0.031	—	pCi/L	Y	—	NQ	10-3165	CAMO-10-16825	GELC
R-45 S1	880	01/27/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.521	0.052	0.069	—	pCi/L	Y	—	NQ	10-1468	CAMO-10-9379	GELC
R-45 S1	880	11/16/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.52	0.048	0.07	—	pCi/L	Y	—	NQ	10-542	CAMO-10-3231	GELC
R-45 S1	880	11/06/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0319	0.0121	0.0388	—	pCi/L	Y	U	U	2013-276	CAMO-13-24247	GELC
R-45 S1	880	07/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0228	0.0094	0.048	—	pCi/L	Y	U	U	10-3567	CAMO-10-22877	GELC
R-45 S1	880	05/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	Y	0.0472	0.011	0.029	—	pCi/L	Y	—	NQ	10-3165	CAMO-10-16825	GELC
R-45 S1	880	01/27/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	Y	0.0458	0.014	0.04	—	pCi/L	Y	—	NQ	10-1468	CAMO-10-9379	GELC
R-45 S1	880	11/16/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0287	0.0098	0.035	—	pCi/L	Y	U	U	10-542	CAMO-10-3231	GELC
R-45 S1	880	11/06/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.471	0.0366	0.042	—	pCi/L	Y	—	NQ	2013-276	CAMO-13-24247	GELC
R-45 S1	880	07/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.23	0.032	0.055	—	pCi/L	Y	—	NQ	10-3567	CAMO-10-22877	GELC
R-45 S1	880	05/13/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.199	0.026	0.029	—	pCi/L	Y	—	NQ	10-3165	CAMO-10-16825	GELC
R-45 S1	880	01/27/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.227	0.029	0.045	—	pCi/L	Y	—	NQ	10-1468	CAMO-10-9379	GELC
R-45 S1	880	11/16/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.23	0.027	0.043	—	pCi/L	Y	—	NQ	10-542	CAMO-10-3231	GELC
R-45 S1	880	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	5.25	—	—	1	ug/L	Y	—	NQ	2013-276	CAMO-13-24264	GELC
R-45 S1	880	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	4.76	—	—	1	ug/L	Y	J	J	12-1314	CAMO-12-14027	GELC
R-45 S1	880	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	N	5.78	—	—	1	ug/L	Y	—	U	12-363	CAMO-12-1492	GELC
R-45 S1	880	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	5.41	—	—	1	ug/L	Y	—	NQ	11-2990	CAMO-11-24641	GELC
R-45 S1	880	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	4.93	—	—	1	ug/L	Y	J	J	11-2493	CAMO-11-10711	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.08	—	—	0.01	SU	Y	H	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.06	—	—	0.01	SU	Y	H	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.13	—	—	0.01	SU	Y	H	J-	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.07	—	—	0.01	SU	Y	H	J-	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.01	—	—	0.01	SU	Y	H	J-	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	70.8	—	—	0.725	mg/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	72.5	—	—	0.725	mg/L	Y	—	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	71.2	—	—	0.73	mg/L	Y	—	NQ	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	73.9	—	—	0.73	mg/L	Y	—	NQ	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	74.1	—	—	0.73	mg/L	Y	—	NQ	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0146	0.00714	0.0256	—	pCi/L	Y	U	U	2013-276	CAMO-13-24248	GELC
R-45 S2	974.9	07/02/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00515	0.0072	0.035	—	pCi/L	Y	U	U	10-3567	CAMO-10-22874	GELC
R-45 S2	974.9	05/14/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00834	0.0038	0.023	—	pCi/L	Y	U	U	10-3187	CAMO-10-16828	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.024	0.016	0.043	—	pCi/L	Y	U	U	10-1468	CAMO-10-9384	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	FD	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.0214	0.012	0.042	—	pCi/L	Y	U	U	10-1468	CAMO-10-9385	GELC
R-45 S2	974.9	11/16/09	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00285	0.0018	0.034	—	pCi/L	Y	U	U	10-542	CAMO-10-3234	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	30.3	—	—	1	ug/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	28.3	—	—	1	ug/L	Y	—	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	30.9	—	—	1	ug/L	Y	—	J	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	28.5	—	—	1	ug/L	Y	—	NQ	11-2990	CAMO-11-24643	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	27.3	—	—	1	ug/L	Y	—	NQ	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	20.8	—	—	15	ug/L	Y	J	J	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	18.8	—	—	15	ug/L	Y	J	J	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	20.5	—	—	15	ug/L	Y	J	J	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	19.9	—	—	15	ug/L	Y	J	J	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	18.6	—	—	15	ug/L	Y	J	J	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	17.8	—	—	0.05	mg/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	15.8	—	—	0.05	mg/L	Y	—	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	17.5	—	—	0.05	mg/L	Y	—	NQ	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	16.4	—	—	0.05	mg/L	Y	—	NQ	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	16.2	—	—	0.05	mg/L	Y	N	J-	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.935	1.61	6.04	—	pCi/L	Y	U	U	2013-276	CAMO-13-24248	GELC
R-45 S2	974.9	07/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.0449	1.9	6	—	pCi/L	Y	U	U	10-3567	CAMO-10-22874	GELC
R-45 S2	974.9	05/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.846	1.5	5	—	pCi/L	Y	U	U	10-3187	CAMO-10-16828	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	FD	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.0756	1.3	4.4	—	pCi/L	Y	U	U	10-1468	CAMO-10-9385	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.15	1.1	3.4	—	pCi/L	Y	U	U	10-1468	CAMO-10-9384	GELC
R-45 S2	974.9	11/16/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.17	1.2	4.2	—	pCi/L	Y	U	U	10-542	CAMO-10-3234	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.43	—	—	0.067	mg/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.37	—	—	0.067	mg/L	Y	—	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.16	—	—	0.066	mg/L	Y	—	NQ	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.34	—	—	0.066	mg/L	Y	—	NQ	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.36	—	—	0.066	mg/L	Y	—	NQ	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	12.5	—	—	2	ug/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	9.99	—	—	2	ug/L	Y	J	J	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	11.5	—	—	2	ug/L	Y	—	NQ	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	8.91	—	—	2	ug/L	Y	J	J	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	7.91	—	—	2	ug/L	Y	J	J	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	2.74	1.66	7.07	—	pCi/L	Y	U	U	2013-276	CAMO-13-24248	GELC
R-45 S2	974.9	07/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-3.78	1.6	3.6	—	pCi/L	Y	U	U	10-3567	CAMO-10-22874	GELC
R-45 S2	974.9	05/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	2.15	1.6	5.9	—	pCi/L	Y	U	U	10-3187	CAMO-10-16828	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	FD	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.496	1.4	4.6	—	pCi/L	Y	U	U	10-1468	CAMO-10-9385	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.687	1.4	4.7	—	pCi/L	Y	U	U	10-1468	CAMO-10-9384	GELC
R-45 S2	974.9	11/16/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.681	1.4	4.8	—	pCi/L	Y	U	U	10-542	CAMO-10-3234	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.422	—	—	0.033	mg/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.413	—	—	0.033	mg/L	Y	—	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.398	—	—	0.033	mg/L	Y	—	NQ	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.373	—	—	0.033	mg/L	Y	—	NQ	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.413	—	—	0.033	mg/L	Y	—	NQ	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.049	0.702	2.95	—	pCi/L	Y	U	U	2013-276	CAMO-13-24248	GELC
R-45 S2	974.9	07/02/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.427	0.76	2.9	—	pCi/L	Y	U	U	10-3567	CAMO-10-22874	GELC
R-45 S2	974.9	05/14/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.156	0.48	2.2	—	pCi/L	Y	U	U	10-3187	CAMO-10-16828	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.0534	0.4	2.1	—	pCi/L	Y	U	U	10-1468	CAMO-10-9384	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	1.36	0.73	2.1	—	pCi/L	Y	U	U	10-1468	CAMO-10-9385	GELC
R-45 S2	974.9	11/16/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.825	0.67	2.3	—	pCi/L	Y	U	U	10-542	CAMO-10-3234	GELC
R-45 S2	974.9	11/06/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	2.36	0.847	2.51	—	pCi/L	Y	U	U	2013-276	CAMO-13-24248	GELC
R-45 S2	974.9	07/02/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	9.32	1.5	2.8	—	pCi/L	Y	—	NQ	10-3567	CAMO-10-22874	GELC
R-45 S2	974.9	05/14/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.6	0.85	2.7	—	pCi/L	Y	U	U	10-3187	CAMO-10-16828	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	N	2.44	0.83	2.3	—	pCi/L	Y	—	U	10-1468	CAMO-10-9385	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.35	0.68	2.1	—	pCi/L	Y	U	U	10-1468	CAMO-10-9384	GELC
R-45 S2	974.9	11/16/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	-0.309	0.67	2.6	—	pCi/L	Y	U	U	10-542	CAMO-10-3234	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	65.9	—	—	0.453	mg/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	58.7	—	—	0.453	mg/L	Y	—	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	64.1	—	—	0.45	mg/L	Y	—	NQ	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	59.9	—	—	0.45	mg/L	Y	—	NQ	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	60	—	—	0.45	mg/L	Y	—	NQ	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	5.22	—	—	0.11	mg/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.66	—	—	0.11	mg/L	Y	—	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.95	—	—	0.11	mg/L	Y	—	NQ	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.59	—	—	0.11	mg/L	Y	—	NQ	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.72	—	—	0.11	mg/L	Y	—	NQ	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.942	—	—	0.165	ug/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.914	—	—	0.165	ug/L	Y	—	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	N	1.18	—	—	0.17	ug/L	Y	—	U	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.802	—	—	0.17	ug/L	Y	—	NQ	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.919	—	—	0.17	ug/L	Y	—	NQ	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	0.48	3.21	11.3	—	pCi/L	Y	U	U	2013-276	CAMO-13-24248	GELC
R-45 S2	974.9	07/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-0.39	2.7	9.1	—	pCi/L	Y	U	U	10-3567	CAMO-10-22874	GELC
R-45 S2	974.9	05/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-0.866	2.5	8.2	—	pCi/L	Y	U	U	10-3187	CAMO-10-16828	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-6.61	12	36	—	pCi/L	Y	U	U	10-1468	CAMO-10-9384	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	FD	RAD	EPA:901.1	Neptunium-237	Np-237	N	13.5	9.3	30	—	pCi/L	Y	U	U	10-1468	CAMO-10-9385	GELC
R-45 S2	974.9	11/16/09	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	1.24	10	34	—	pCi/L	Y	U	U	10-542	CAMO-10-3234	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.999	—	—	0.5	ug/L	Y	J	J	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.73	—	—	0.5	ug/L	Y	J	J	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.45	—	—	0.5	ug/L	Y	J	J	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.85	—	—	0.5	ug/L	Y	J	J	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.28	—	—	0.5	ug/L	Y	J	J	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.7	—	—	0.085	mg/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.68	—	—	0.085	mg/L	Y	—	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.6	—	—	0.05	mg/L	Y	—	NQ	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.65	—	—	0.05	mg/L	Y	—	NQ	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.85	—	—	0.05	mg/L	Y	—	NQ	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.388	—	—	0.05	ug/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.376	—	—	0.05	ug/L	Y	—	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.408	—	—	0.05	ug/L	Y	—	NQ	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.403	—	—	0.05	ug/L	Y	—	NQ	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.388	—	—	0.05	ug/L	Y	—	NQ	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.01	0.00555	0.0237	—	pCi/L	Y	U	U	2013-276	CAMO-13-24248	GELC
R-45 S2	974.9	07/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.002	0.026	—	pCi/L	Y	U	U	10-3567	CAMO-10-22874	GELC
R-45 S2	974.9	05/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.0137	0.0094	0.031	—	pCi/L	Y	U	U	10-3187	CAMO-10-16828	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00235	0.0024	0.04	—	pCi/L	Y	U	U	10-1468	CAMO-10-9385	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00198	0.002	0.033	—	pCi/L	Y	U	U	10-1468	CAMO-10-9384	GELC
R-45 S2	974.9	11/16/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00666	0.0044	0.036	—	pCi/L	Y	U	U	10-542	CAMO-10-3234	GELC
R-45 S2	974.9	11/06/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00314	0.00528	0.0392	—	pCi/L	Y	U	U	2013-276	CAMO-13-24248	GELC
R-45 S2	974.9	07/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00391	0.0039	0.027	—	pCi/L	Y	U	U	10-3567	CAMO-10-22874	GELC
R-45 S2	974.9	05/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00391	0.0048	0.029	—	pCi/L	Y	U	U	10-3187	CAMO-10-16828	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00235	0.0041	0.027	—	pCi/L	Y	U	U	10-1468	CAMO-10-9385	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00198	0.002	0.023	—	pCi/L	Y	U	U	10-1468	CAMO-10-9384	GELC
R-45 S2	974.9	11/16/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00888	0.0077	0.036	—	pCi/L	Y	U	U	10-542	CAMO-10-3234	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.54	—	—	0.05	mg/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.32	—	—	0.05	mg/L	Y	—	NQ	12-1314	CAMO-12-14028	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.34	—	—	0.05	mg/L	Y	—	J	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.39	—	—	0.05	mg/L	Y	—	NQ	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.12	—	—	0.05	mg/L	Y	—	NQ	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	32.8	18.4	77	—	pCi/L	Y	U	U	2013-276	CAMO-13-24248	GELC
R-45 S2	974.9	07/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	17	19	70	—	pCi/L	Y	U	U	10-3567	CAMO-10-22874	GELC
R-45 S2	974.9	05/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-21.9	21	59	—	pCi/L	Y	U	U	10-3187	CAMO-10-16828	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	FD	RAD	EPA:901.1	Potassium-40	K-40	N	-4.7	20	66	—	pCi/L	Y	U	U	10-1468	CAMO-10-9385	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-51.6	16	44	—	pCi/L	Y	U	U	10-1468	CAMO-10-9384	GELC
R-45 S2	974.9	11/16/09	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	19.2	19	65	—	pCi/L	Y	U	U	10-542	CAMO-10-3234	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	82.5	—	—	0.053	mg/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	74.6	—	—	0.053	mg/L	Y	—	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	80.3	—	—	0.053	mg/L	Y	—	NQ	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	73.1	—	—	0.053	mg/L	Y	—	NQ	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	69	—	—	0.053	mg/L	Y	—	NQ	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	12.2	—	—	0.1	mg/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.7	—	—	0.1	mg/L	Y	—	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	11.4	—	—	0.1	mg/L	Y	—	NQ	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.8	—	—	0.1	mg/L	Y	—	NQ	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.9	—	—	0.1	mg/L	Y	—	NQ	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.26	1.54	5.52	—	pCi/L	Y	U	U	2013-276	CAMO-13-24248	GELC
R-45 S2	974.9	07/02/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	2.73	1.7	6.6	—	pCi/L	Y	U	U	10-3567	CAMO-10-22874	GELC
R-45 S2	974.9	05/14/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.5	1.4	5	—	pCi/L	Y	U	U	10-3187	CAMO-10-16828	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	FD	RAD	EPA:901.1	Sodium-22	Na-22	N	0.882	1	3.7	—	pCi/L	Y	U	U	10-1468	CAMO-10-9385	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-2.08	1.4	4	—	pCi/L	Y	U	U	10-1468	CAMO-10-9384	GELC
R-45 S2	974.9	11/16/09	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.02	1.1	3.4	—	pCi/L	Y	U	U	10-542	CAMO-10-3234	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	167	—	—	1	uS/cm	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	167	—	—	1	uS/cm	Y	—	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	170	—	—	1	uS/cm	Y	—	NQ	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	161	—	—	1	uS/cm	Y	—	NQ	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	169	—	—	1	uS/cm	Y	—	NQ	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	75.6	—	—	1	ug/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	68.1	—	—	1	ug/L	Y	—	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	75.1	—	—	1	ug/L	Y	—	NQ	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	70.5	—	—	1	ug/L	Y	—	NQ	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	67.8	—	—	1	ug/L	Y	—	NQ	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.229	0.14	0.464	—	pCi/L	Y	U	U	2013-276	CAMO-13-24248	GELC
R-45 S2	974.9	07/02/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.113	0.14	0.47	—	pCi/L	Y	U	U	10-3567	CAMO-10-22874	GELC
R-45 S2	974.9	05/14/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.251	0.14	0.47	—	pCi/L	Y	U	U	10-3187	CAMO-10-16828	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.239	0.12	0.48	—	pCi/L	Y	U	U	10-1468	CAMO-10-9384	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	FD	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.283	0.15	0.49	—	pCi/L	Y	U	U	10-1468	CAMO-10-9385	GELC
R-45 S2	974.9	11/16/09	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.262	0.097	0.45	—	pCi/L	Y	U	U	10-542	CAMO-10-3234	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	4.38	—	—	0.133	mg/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	4.24	—	—	0.133	mg/L	Y	—	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	4.27	—	—	0.1	mg/L	Y	—	NQ	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	4.21	—	—	0.1	mg/L	Y	—	NQ	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	4.4	—	—	0.1	mg/L	Y	—	NQ	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	181	—	—	3.4	mg/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	150	—	—	3.4	mg/L	Y	—	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	149	—	—	3.4	mg/L	Y	—	NQ	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	150	—	—	3.4	mg/L	Y	—	NQ	11-2990	CAMO-11-24643	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	147	—	—	2.4	mg/L	Y	—	NQ	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0834	—	—	0.017	mg/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0407	—	—	0.017	mg/L	Y	J	J	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0775	—	—	0.015	mg/L	Y	—	NQ	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.0456	—	—	0.015	mg/L	Y	J	U	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0348	—	—	0.015	mg/L	Y	J	J	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	1.567	0.691	2.102	—	pCi/L	Y	U	U	2013-291	CAMO-13-24248	ARSL
R-45 S2	974.9	11/16/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.53	0.73	2.42	—	pCi/L	Y	U	U	12-436	CAMO-12-1497	ARSL
R-45 S2	974.9	05/20/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	1.3202	0.8694	2.7692	—	pCi/L	Y	U	U	11-2528	CAMO-11-10713	ARSL
R-45 S2	974.9	11/19/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	1.9964	0.805	2.4472	—	pCi/L	Y	U	U	11-748	CAMO-11-1282	ARSL
R-45 S2	974.9	11/19/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	3.6064	1.1914	2.4472	—	pCi/L	N	—	R	11-748	CAMO-11-1282	ARSL
R-45 S2	974.9	05/14/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.5796	0.6118	2.0286	—	pCi/L	Y	U	U	10-3219	CAMO-10-16828	ARSL
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.746	—	—	0.067	ug/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.717	—	—	0.067	ug/L	Y	—	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.784	—	—	0.067	ug/L	Y	—	NQ	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.766	—	—	0.067	ug/L	Y	—	J	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.661	—	—	0.067	ug/L	Y	—	NQ	11-2493	CAMO-11-10712	GELC
R-45 S2	974.9	11/06/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.517	0.041	0.0637	—	pCi/L	Y	—	NQ	2013-276	CAMO-13-24248	GELC
R-45 S2	974.9	07/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.435	0.05	0.082	—	pCi/L	Y	—	NQ	10-3567	CAMO-10-22874	GELC
R-45 S2	974.9	05/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.459	0.049	0.044	—	pCi/L	Y	—	NQ	10-3187	CAMO-10-16828	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.588	0.058	0.071	—	pCi/L	Y	—	NQ	10-1468	CAMO-10-9384	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.555	0.057	0.08	—	pCi/L	Y	—	NQ	10-1468	CAMO-10-9385	GELC
R-45 S2	974.9	11/16/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.465	0.045	0.075	—	pCi/L	Y	—	NQ	10-542	CAMO-10-3234	GELC
R-45 S2	974.9	11/06/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0194	0.0112	0.04	—	pCi/L	Y	U	U	2013-276	CAMO-13-24248	GELC
R-45 S2	974.9	07/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0397	0.013	0.05	—	pCi/L	Y	U	U	10-3567	CAMO-10-22874	GELC
R-45 S2	974.9	05/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0167	0.0076	0.04	—	pCi/L	Y	U	U	10-3187	CAMO-10-16828	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0176	0.008	0.046	—	pCi/L	Y	U	U	10-1468	CAMO-10-9385	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0219	0.0084	0.041	—	pCi/L	Y	U	U	10-1468	CAMO-10-9384	GELC
R-45 S2	974.9	11/16/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0181	0.0079	0.038	—	pCi/L	Y	U	U	10-542	CAMO-10-3234	GELC
R-45 S2	974.9	11/06/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.243	0.027	0.0434	—	pCi/L	Y	—	NQ	2013-276	CAMO-13-24248	GELC
R-45 S2	974.9	07/02/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.193	0.029	0.057	—	pCi/L	Y	—	NQ	10-3567	CAMO-10-22874	GELC
R-45 S2	974.9	05/14/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.192	0.027	0.04	—	pCi/L	Y	—	NQ	10-3187	CAMO-10-16828	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.205	0.027	0.046	—	pCi/L	Y	—	NQ	10-1468	CAMO-10-9384	GELC
R-45 S2	974.9	01/27/10	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.222	0.03	0.052	—	pCi/L	Y	—	NQ	10-1468	CAMO-10-9385	GELC
R-45 S2	974.9	11/16/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.191	0.025	0.046	—	pCi/L	Y	—	NQ	10-542	CAMO-10-3234	GELC
R-45 S2	974.9	11/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.69	—	—	1	ug/L	Y	—	NQ	2013-276	CAMO-13-24265	GELC
R-45 S2	974.9	05/22/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	6.55	—	—	1	ug/L	Y	—	NQ	12-1314	CAMO-12-14028	GELC
R-45 S2	974.9	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	6.94	—	—	1	ug/L	Y	—	J	12-363	CAMO-12-1496	GELC
R-45 S2	974.9	08/01/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	6.86	—	—	1	ug/L	Y	—	NQ	11-2990	CAMO-11-24643	GELC
R-45 S2	974.9	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	6.34	—	—	1	ug/L	Y	—	NQ	11-2493	CAMO-11-10712	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.02	—	—	0.01	SU	Y	H	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8	—	—	0.01	SU	Y	H	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.96	—	—	0.01	SU	Y	H	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.84	—	—	0.01	SU	Y	H	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.84	—	—	0.01	SU	Y	H	J-	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	63.8	—	—	0.725	mg/L	Y	—	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	61.9	—	—	0.725	mg/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	59.5	—	—	0.725	mg/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	61	—	—	0.725	mg/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	59.5	—	—	0.73	mg/L	Y	—	NQ	12-384	CAMO-12-1504	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-50 S1	1077	11/09/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00187	0.00619	0.0212	—	pCi/L	Y	U	U	2013-306	CAMO-13-24249	GELC
R-50 S1	1077	08/15/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0136	0.00753	0.0266	—	pCi/L	Y	U	U	12-1503	CAMO-12-21737	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00616	0.0036	0.015	—	pCi/L	Y	U	U	11-3042	CAMO-11-24673	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	FD	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.006	0.0035	0.015	—	pCi/L	Y	U	U	11-3042	CAMO-11-24675	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	FD	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0183	0.0056	0.023	—	pCi/L	Y	U	U	11-2549	CAMO-11-10722	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0157	0.0053	0.024	—	pCi/L	Y	U	U	11-2549	CAMO-11-10720	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.000769	0.0029	0.027	—	pCi/L	Y	U	U	11-1433	CAMO-11-4611	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	FD	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00295	0.0029	0.029	—	pCi/L	Y	U	U	11-1433	CAMO-11-4614	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0923	—	—	0.017	mg/L	Y	—	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.174	—	—	0.017	mg/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.017	mg/L	Y	U	U	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.0667	—	—	0.016	mg/L	Y	—	U	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	F	RE	REG	INORGANIC	SW-846:6020	Arsenic	As	Y	2.23	—	—	1.7	ug/L	Y	J	J	2013-306-1	CAMO-13-24266	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Arsenic	As	N	5	—	—	1.7	ug/L	N	U	R	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Arsenic	As	N	5	—	—	1.7	ug/L	Y	U	U	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Arsenic	As	N	5	—	—	1.7	ug/L	Y	U	U	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Arsenic	As	N	5	—	—	1.7	ug/L	Y	U	U	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Arsenic	As	N	5	—	—	1.7	ug/L	Y	U	U	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	17.6	—	—	1	ug/L	Y	—	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	17.7	—	—	1	ug/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	16.6	—	—	1	ug/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	15.6	—	—	1	ug/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	16.1	—	—	1	ug/L	Y	—	NQ	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	22.2	—	—	15	ug/L	Y	J	J	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	18	—	—	15	ug/L	Y	J	J	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	19.8	—	—	15	ug/L	Y	J	J	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	15.6	—	—	15	ug/L	Y	J	J	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	17.2	—	—	15	ug/L	Y	J	J	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.0775	—	—	0.067	mg/L	Y	J	J	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	N	0.2	—	—	0.067	mg/L	Y	U	U	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	N	0.2	—	—	0.067	mg/L	Y	U	U	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.0691	—	—	0.066	mg/L	Y	J	J	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.0849	—	—	0.066	mg/L	Y	J	J	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	16.2	—	—	0.05	mg/L	Y	—	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	14.5	—	—	0.05	mg/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	15.1	—	—	0.05	mg/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	15.4	—	—	0.05	mg/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	15.1	—	—	0.05	mg/L	Y	—	NQ	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-2.37	1.88	6.27	—	pCi/L	Y	U	U	2013-306	CAMO-13-24249	GELC
R-50 S1	1077	08/15/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.48	1.36	5.34	—	pCi/L	Y	U	U	12-1503	CAMO-12-21737	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.64	1.6	5.2	—	pCi/L	Y	U	U	11-3042	CAMO-11-24673	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	FD	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.989	1.6	5.4	—	pCi/L	Y	U	U	11-3042	CAMO-11-24675	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	2.7	1.6	5.8	—	pCi/L	Y	U	U	11-2549	CAMO-11-10720	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	FD	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.33	1.3	4.1	—	pCi/L	Y	U	U	11-2549	CAMO-11-10722	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	FD	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.975	1.4	5	—	pCi/L	Y	U	U	11-1433	CAMO-11-4614	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.283	1.3	4.2	—	pCi/L	Y	U	U	11-1433	CAMO-11-4611	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	7.07	—	—	0.067	mg/L	Y	—	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	7.14	—	—	0.067	mg/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	7.79	—	—	0.067	mg/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-50 S1	1077	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	7.08	—	—	0.066	mg/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	6.72	—	—	0.066	mg/L	Y	—	NQ	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	F	RE	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	96.3	—	—	2	ug/L	Y	—	NQ	2013-306-1	CAMO-13-24266	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	3.79	—	—	2	ug/L	N	J	R	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	87.4	—	—	2	ug/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	98.3	—	—	2	ug/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	99.8	—	—	2	ug/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	89.4	—	—	2	ug/L	Y	—	NQ	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.222	1.61	6.26	—	pCi/L	Y	U	U	2013-306	CAMO-13-24249	GELC
R-50 S1	1077	08/15/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.808	1.38	5.59	—	pCi/L	Y	U	U	12-1503	CAMO-12-21737	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	1.39	1.7	5.9	—	pCi/L	Y	U	U	11-3042	CAMO-11-24673	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	FD	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.742	1.1	4.1	—	pCi/L	Y	U	U	11-3042	CAMO-11-24675	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	FD	RAD	EPA:901.1	Cobalt-60	Co-60	N	2.85	1.3	5.2	—	pCi/L	Y	U	U	11-2549	CAMO-11-10722	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.981	1.7	5.8	—	pCi/L	Y	U	U	11-2549	CAMO-11-10720	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.0178	1.5	4.8	—	pCi/L	Y	U	U	11-1433	CAMO-11-4611	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	FD	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.299	1.6	5.2	—	pCi/L	Y	U	U	11-1433	CAMO-11-4614	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.337	—	—	0.033	mg/L	Y	—	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.328	—	—	0.033	mg/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.336	—	—	0.033	mg/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.334	—	—	0.033	mg/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.313	—	—	0.033	mg/L	Y	—	NQ	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.83	0.612	2.08	—	pCi/L	Y	U	U	2013-306	CAMO-13-24249	GELC
R-50 S1	1077	08/15/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.0264	0.333	2.1	—	pCi/L	Y	U	U	12-1503	CAMO-12-21737	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	1.37	0.74	2.1	—	pCi/L	Y	U	U	11-3042	CAMO-11-24675	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.829	0.69	2.2	—	pCi/L	Y	U	U	11-3042	CAMO-11-24673	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	1.73	0.79	1.9	—	pCi/L	Y	U	U	11-2549	CAMO-11-10722	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.1	0.72	2.3	—	pCi/L	Y	U	U	11-2549	CAMO-11-10720	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.7	0.62	2.3	—	pCi/L	Y	U	U	11-1433	CAMO-11-4611	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	0.21	0.59	2.5	—	pCi/L	Y	U	U	11-1433	CAMO-11-4614	GELC
R-50 S1	1077	11/09/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.67	0.821	2.61	—	pCi/L	Y	U	U	2013-306	CAMO-13-24249	GELC
R-50 S1	1077	08/15/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.741	0.808	2.76	—	pCi/L	Y	U	U	12-1503	CAMO-12-21737	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	N	1.95	0.87	2.6	—	pCi/L	Y	U	U	11-3042	CAMO-11-24675	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.57	0.7	2.1	—	pCi/L	Y	U	U	11-3042	CAMO-11-24673	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	N	2.35	0.97	3	—	pCi/L	Y	U	U	11-2549	CAMO-11-10722	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	-0.254	0.69	2.7	—	pCi/L	Y	U	U	11-2549	CAMO-11-10720	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.3	0.73	2.3	—	pCi/L	Y	U	U	11-1433	CAMO-11-4611	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	N	2	0.89	2.7	—	pCi/L	Y	U	U	11-1433	CAMO-11-4614	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	61.4	—	—	0.453	mg/L	Y	—	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	54.5	—	—	0.453	mg/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	56.9	—	—	0.453	mg/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	58.1	—	—	0.453	mg/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	56	—	—	0.45	mg/L	Y	—	NQ	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	5.09	—	—	0.11	mg/L	Y	—	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.41	—	—	0.11	mg/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.64	—	—	0.11	mg/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.77	—	—	0.11	mg/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.44	—	—	0.11	mg/L	Y	—	J	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	F	RE	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.65	—	—	0.165	ug/L	Y	—	NQ	2013-306-1	CAMO-13-24266	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.17	—	—	0.165	ug/L	N	—	R	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.75	—	—	0.165	ug/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-50 S1	1077	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.6	—	—	0.165	ug/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.85	—	—	0.165	ug/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	2.47	—	—	0.17	ug/L	Y	—	NQ	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	4.38	3.63	13.2	—	pCi/L	Y	U	U	2013-306	CAMO-13-24249	GELC
R-50 S1	1077	08/15/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-0.675	2.66	9.23	—	pCi/L	Y	U	U	12-1503	CAMO-12-21737	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-1.45	2.3	7.6	—	pCi/L	Y	U	U	11-3042	CAMO-11-24673	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	FD	RAD	EPA:901.1	Neptunium-237	Np-237	N	-3.97	2.9	9	—	pCi/L	Y	U	U	11-3042	CAMO-11-24675	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	6.12	2.7	9.7	—	pCi/L	Y	U	U	11-1433	CAMO-11-4611	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	FD	RAD	EPA:901.1	Neptunium-237	Np-237	N	-0.668	3.2	10	—	pCi/L	Y	U	U	11-1433	CAMO-11-4614	GELC
R-50 S1	1077	11/16/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	1.88	2.1	7.1	—	pCi/L	Y	U	U	11-563	CAMO-11-1312	GELC
R-50 S1	1077	11/09/12	WG	F	RE	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	7.11	—	—	0.5	ug/L	Y	—	NQ	2013-306-1	CAMO-13-24266	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.7	—	—	0.5	ug/L	N	J	R	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	5.01	—	—	0.5	ug/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	4.5	—	—	0.5	ug/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	5.41	—	—	0.5	ug/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	2.51	—	—	0.5	ug/L	Y	—	NQ	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.5	—	—	0.085	mg/L	Y	—	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.81	—	—	0.085	mg/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.72	—	—	0.085	mg/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.53	—	—	0.05	mg/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.47	—	—	0.05	mg/L	Y	—	NQ	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.552	—	—	0.05	ug/L	Y	—	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.555	—	—	0.05	ug/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.582	—	—	0.05	ug/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.521	—	—	0.05	ug/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.545	—	—	0.05	ug/L	Y	—	NQ	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00857	0.00606	0.0206	—	pCi/L	Y	U	U	2013-306	CAMO-13-24249	GELC
R-50 S1	1077	08/15/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00477	0.00477	0.016	—	pCi/L	Y	U	U	12-1503	CAMO-12-21737	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.0113	0.0056	0.039	—	pCi/L	Y	U	U	11-3042	CAMO-11-24673	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.0056	0.0056	0.048	—	pCi/L	Y	U	U	11-3042	CAMO-11-24675	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00412	0.0041	0.025	—	pCi/L	Y	U	U	11-2549	CAMO-11-10722	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00429	0.0043	0.026	—	pCi/L	Y	U	U	11-2549	CAMO-11-10720	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00232	0.004	0.029	—	pCi/L	Y	U	U	11-1433	CAMO-11-4611	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00249	0.0035	0.031	—	pCi/L	Y	U	U	11-1433	CAMO-11-4614	GELC
R-50 S1	1077	11/09/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0107	0.00643	0.0342	—	pCi/L	Y	U	U	2013-306	CAMO-13-24249	GELC
R-50 S1	1077	08/15/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00238	0.00715	0.0287	—	pCi/L	Y	U	U	12-1503	CAMO-12-21737	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00227	0.0039	0.056	—	pCi/L	Y	U	U	11-3042	CAMO-11-24673	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	6.67E-10	0.0069	0.069	—	pCi/L	Y	U	U	11-3042	CAMO-11-24675	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00214	0.0083	0.039	—	pCi/L	Y	U	U	11-2549	CAMO-11-10720	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0	0.005	0.038	—	pCi/L	Y	U	U	11-2549	CAMO-11-10722	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00248	0.0056	0.046	—	pCi/L	Y	U	U	11-1433	CAMO-11-4614	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00464	0.0057	0.043	—	pCi/L	Y	U	U	11-1433	CAMO-11-4611	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.61	—	—	0.05	mg/L	Y	—	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.55	—	—	0.05	mg/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.56	—	—	0.05	mg/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.51	—	—	0.05	mg/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.46	—	—	0.05	mg/L	Y	—	NQ	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-2.43	23.2	85.6	—	pCi/L	Y	U	U	2013-306	CAMO-13-24249	GELC
R-50 S1	1077	08/15/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-5.93	19.7	65.5	—	pCi/L	Y	U	U	12-1503	CAMO-12-21737	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	FD	RAD	EPA:901.1	Potassium-40	K-40	N	-19	21	70	—	pCi/L	Y	U	U	11-3042	CAMO-11-24675	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-50 S1	1077	08/04/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-53.1	24	58	—	pCi/L	Y	U	U	11-3042	CAMO-11-24673	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	FD	RAD	EPA:901.1	Potassium-40	K-40	N	14.1	16	42	—	pCi/L	Y	U	U	11-2549	CAMO-11-10722	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	7.32	20	67	—	pCi/L	Y	U	U	11-2549	CAMO-11-10720	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-6.04	17	60	—	pCi/L	Y	U	U	11-1433	CAMO-11-4611	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	FD	RAD	EPA:901.1	Potassium-40	K-40	N	14.5	20	69	—	pCi/L	Y	U	U	11-1433	CAMO-11-4614	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	75.2	—	—	0.053	mg/L	Y	—	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	68.2	—	—	0.053	mg/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	70.2	—	—	0.053	mg/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	72.4	—	—	0.053	mg/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	66.8	—	—	0.053	mg/L	Y	—	NQ	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	14.4	—	—	0.1	mg/L	Y	—	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	13.7	—	—	0.1	mg/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	13.8	—	—	0.1	mg/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	14.9	—	—	0.1	mg/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	14.7	—	—	0.1	mg/L	Y	—	NQ	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.35	1.66	6.76	—	pCi/L	Y	U	U	2013-306	CAMO-13-24249	GELC
R-50 S1	1077	08/15/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.55	1.46	5	—	pCi/L	Y	U	U	12-1503	CAMO-12-21737	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	FD	RAD	EPA:901.1	Sodium-22	Na-22	N	0.253	1.3	4.5	—	pCi/L	Y	U	U	11-3042	CAMO-11-24675	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-3.19	1.5	4.4	—	pCi/L	Y	U	U	11-3042	CAMO-11-24673	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	FD	RAD	EPA:901.1	Sodium-22	Na-22	N	0.663	1.2	4.3	—	pCi/L	Y	U	U	11-2549	CAMO-11-10722	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.204	1.5	5.1	—	pCi/L	Y	U	U	11-2549	CAMO-11-10720	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.35	1.4	4.9	—	pCi/L	Y	U	U	11-1433	CAMO-11-4611	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	FD	RAD	EPA:901.1	Sodium-22	Na-22	N	2.76	1.7	6.4	—	pCi/L	Y	U	U	11-1433	CAMO-11-4614	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	187	—	—	1	uS/cm	Y	—	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	180	—	—	1	uS/cm	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	184	—	—	1	uS/cm	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	179	—	—	1	uS/cm	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	177	—	—	1	uS/cm	Y	—	NQ	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	65.8	—	—	1	ug/L	Y	—	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	60.1	—	—	1	ug/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	63	—	—	1	ug/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	61.6	—	—	1	ug/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	58.6	—	—	1	ug/L	Y	—	NQ	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0381	0.139	0.494	—	pCi/L	Y	U	U	2013-306	CAMO-13-24249	GELC
R-50 S1	1077	08/15/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0219	0.128	0.486	—	pCi/L	Y	U	U	12-1503	CAMO-12-21737	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0124	0.15	0.52	—	pCi/L	Y	U	U	11-3042	CAMO-11-24673	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	FD	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.265	0.14	0.53	—	pCi/L	Y	U	U	11-3042	CAMO-11-24675	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.161	0.15	0.5	—	pCi/L	Y	U	U	11-2549	CAMO-11-10720	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	FD	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0136	0.13	0.48	—	pCi/L	Y	U	U	11-2549	CAMO-11-10722	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0982	0.14	0.51	—	pCi/L	Y	U	U	11-1433	CAMO-11-4611	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	FD	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.233	0.16	0.51	—	pCi/L	Y	U	U	11-1433	CAMO-11-4614	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	10.7	—	—	0.133	mg/L	Y	—	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	10.6	—	—	0.133	mg/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	11.4	—	—	0.133	mg/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	10.7	—	—	0.1	mg/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	10.3	—	—	0.1	mg/L	Y	—	NQ	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	153	—	—	3.4	mg/L	Y	—	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	149	—	—	3.4	mg/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	139	—	—	3.4	mg/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	153	—	—	3.4	mg/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-50 S1	1077	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	144	—	—	3.4	mg/L	Y	—	NQ	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.0786	—	—	0.035	mg/L	Y	J	J+	2013-306	CAMO-13-24249	GELC
R-50 S1	1077	08/15/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	U	12-1503	CAMO-12-21737	GELC
R-50 S1	1077	05/31/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.0765	—	—	0.035	mg/L	Y	J	J	12-1334	CAMO-12-14014	GELC
R-50 S1	1077	03/08/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	U	12-1066	CAMO-12-12021	GELC
R-50 S1	1077	11/18/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	U	12-383	CAMO-12-1505	GELC
R-50 S1	1077	11/09/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	2.4	—	—	0.33	mg/L	Y	—	NQ	2013-306	CAMO-13-24249	GELC
R-50 S1	1077	08/15/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	2.22	—	—	0.33	mg/L	Y	—	NQ	12-1503	CAMO-12-21737	GELC
R-50 S1	1077	05/31/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	1.67	—	—	0.33	mg/L	Y	—	NQ	12-1334	CAMO-12-14014	GELC
R-50 S1	1077	03/08/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	N	0.831	—	—	0.33	mg/L	Y	J	U	12-1066	CAMO-12-12021	GELC
R-50 S1	1077	11/18/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.44	—	—	0.33	mg/L	Y	J	J	12-383	CAMO-12-1505	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0482	—	—	0.017	mg/L	Y	J	J	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0308	—	—	0.017	mg/L	Y	J	J	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.029	—	—	0.017	mg/L	Y	J	J	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.0608	—	—	0.015	mg/L	Y	—	U	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0181	—	—	0.015	mg/L	Y	J	J	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	22.455	3.603	3.008	—	pCi/L	Y	—	J-	2013-313	CAMO-13-24249	ARSL
R-50 S1	1077	05/31/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	23.236	3.631	2.236	—	pCi/L	Y	—	NQ	12-1342	CAMO-12-14014	ARSL
R-50 S1	1077	11/18/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	24.75	3.98	3.41	—	pCi/L	Y	—	NQ	12-436	CAMO-12-1505	ARSL
R-50 S1	1077	08/04/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	12.7512	2.1574	2.5438	—	pCi/L	Y	—	NQ	11-3040	CAMO-11-24673	ARSL
R-50 S1	1077	08/04/11	WG	UF	INIT	FD	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	16.2932	2.6404	2.2862	—	pCi/L	Y	—	NQ	11-3040	CAMO-11-24675	ARSL
R-50 S1	1077	05/25/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	20.286	3.1878	1.9642	—	pCi/L	Y	—	NQ	11-2539	CAMO-11-10720	ARSL
R-50 S1	1077	05/25/11	WG	UF	INIT	FD	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	24.0856	3.7996	2.576	—	pCi/L	Y	—	NQ	11-2539	CAMO-11-10722	ARSL
R-50 S1	1077	11/09/12	WG	F	RE	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.573	—	—	0.067	ug/L	Y	—	NQ	2013-306-1	CAMO-13-24266	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.636	—	—	0.067	ug/L	N	—	R	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.623	—	—	0.067	ug/L	Y	—	NQ	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.6	—	—	0.067	ug/L	Y	—	NQ	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.654	—	—	0.067	ug/L	Y	—	NQ	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.609	—	—	0.067	ug/L	Y	—	NQ	12-384	CAMO-12-1504	GELC
R-50 S1	1077	11/09/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.42	0.0372	0.0726	—	pCi/L	Y	—	NQ	2013-306	CAMO-13-24249	GELC
R-50 S1	1077	08/15/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.369	0.0352	0.0764	—	pCi/L	Y	—	NQ	12-1503	CAMO-12-21737	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.484	0.05	0.056	—	pCi/L	Y	—	NQ	11-3042	CAMO-11-24673	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.431	0.044	0.045	—	pCi/L	Y	—	NQ	11-3042	CAMO-11-24675	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.454	0.051	0.085	—	pCi/L	Y	—	NQ	11-2549	CAMO-11-10722	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.509	0.051	0.065	—	pCi/L	Y	—	NQ	11-2549	CAMO-11-10720	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.501	0.052	0.06	—	pCi/L	Y	—	NQ	11-1433	CAMO-11-4614	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.403	0.045	0.061	—	pCi/L	Y	—	NQ	11-1433	CAMO-11-4611	GELC
R-50 S1	1077	11/09/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0271	0.0128	0.0453	—	pCi/L	Y	U	U	2013-306	CAMO-13-24249	GELC
R-50 S1	1077	08/15/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0141	0.00999	0.0493	—	pCi/L	Y	U	U	12-1503	CAMO-12-21737	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.011	0.0078	0.028	—	pCi/L	Y	U	U	11-3042	CAMO-11-24675	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0134	0.0068	0.034	—	pCi/L	Y	U	U	11-3042	CAMO-11-24673	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.032	0.011	0.037	—	pCi/L	Y	U	U	11-2549	CAMO-11-10720	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0189	0.01	0.048	—	pCi/L	Y	U	U	11-2549	CAMO-11-10722	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0213	0.01	0.039	—	pCi/L	Y	U	U	11-1433	CAMO-11-4611	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0242	0.011	0.038	—	pCi/L	Y	U	U	11-1433	CAMO-11-4614	GELC
R-50 S1	1077	11/09/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.21	0.0267	0.0493	—	pCi/L	Y	—	NQ	2013-306	CAMO-13-24249	GELC
R-50 S1	1077	08/15/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.16	0.0221	0.0387	—	pCi/L	Y	—	NQ	12-1503	CAMO-12-21737	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.195	0.026	0.035	—	pCi/L	Y	—	NQ	11-3042	CAMO-11-24675	GELC
R-50 S1	1077	08/04/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.193	0.027	0.043	—	pCi/L	Y	—	NQ	11-3042	CAMO-11-24673	GELC
R-50 S1	1077	05/25/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.181	0.027	0.029	—	pCi/L	Y	—	NQ	11-2549	CAMO-11-10720	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-50 S1	1077	05/25/11	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.267	0.036	0.038	—	pCi/L	Y	—	NQ	11-2549	CAMO-11-10722	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.19	0.028	0.041	—	pCi/L	Y	—	NQ	11-1433	CAMO-11-4614	GELC
R-50 S1	1077	02/23/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.219	0.03	0.042	—	pCi/L	Y	—	NQ	11-1433	CAMO-11-4611	GELC
R-50 S1	1077	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	5.32	—	—	1	ug/L	Y	—	NQ	2013-306	CAMO-13-24266	GELC
R-50 S1	1077	08/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	4.91	—	—	1	ug/L	Y	J	J	12-1503	CAMO-12-21745	GELC
R-50 S1	1077	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	4.82	—	—	1	ug/L	Y	J	J	12-1334	CAMO-12-14029	GELC
R-50 S1	1077	03/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	4.72	—	—	1	ug/L	Y	J	J	12-1066	CAMO-12-12030	GELC
R-50 S1	1077	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	4.52	—	—	1	ug/L	Y	J	J	12-384	CAMO-12-1504	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.11	—	—	0.01	SU	Y	H	NQ	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.86	—	—	0.01	SU	Y	H	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.07	—	—	0.01	SU	Y	H	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.1	—	—	0.01	SU	Y	H	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.95	—	—	0.01	SU	Y	H	J-	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	63.8	—	—	0.725	mg/L	Y	—	NQ	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	61.9	—	—	0.725	mg/L	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	62.1	—	—	0.725	mg/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	61.6	—	—	0.725	mg/L	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	60.5	—	—	0.73	mg/L	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00749	0.0053	0.0213	—	pCi/L	Y	U	U	2013-306	CAMO-13-24250	GELC
R-50 S2	1185	08/16/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0	0.00314	0.0305	—	pCi/L	Y	U	U	12-1506	CAMO-12-21738	GELC
R-50 S2	1185	08/08/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00554	0.0041	0.014	—	pCi/L	Y	U	U	11-3082	CAMO-11-24679	GELC
R-50 S2	1185	05/24/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0019	0.0033	0.039	—	pCi/L	Y	U	U	11-2527	CAMO-11-10726	GELC
R-50 S2	1185	02/24/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00828	0.0036	0.026	—	pCi/L	Y	U	U	11-1440	CAMO-11-4617	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0694	—	—	0.017	mg/L	Y	—	NQ	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.399	—	—	0.017	mg/L	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0723	—	—	0.017	mg/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.0808	—	—	0.016	mg/L	Y	—	U	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.072	—	—	0.016	mg/L	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	F	RE	REG	INORGANIC	SW-846:6020	Arsenic	As	Y	2.26	—	—	1.7	ug/L	Y	J	J	2013-306-1	CAMO-13-24267	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Arsenic	As	N	5	—	—	1.7	ug/L	N	U	R	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Arsenic	As	N	5	—	—	1.7	ug/L	Y	U	U	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Arsenic	As	N	5	—	—	1.7	ug/L	Y	U	U	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Arsenic	As	N	5	—	—	1.7	ug/L	Y	U	U	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Arsenic	As	N	5	—	—	1.7	ug/L	Y	U	U	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	19.9	—	—	1	ug/L	Y	—	NQ	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	23.6	—	—	1	ug/L	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	23.8	—	—	1	ug/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	22.9	—	—	1	ug/L	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	26.1	—	—	1	ug/L	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	12.7	—	—	0.05	mg/L	Y	—	NQ	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	11.1	—	—	0.05	mg/L	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	11	—	—	0.05	mg/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	11.1	—	—	0.05	mg/L	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	11.9	—	—	0.05	mg/L	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.23	1.11	4.33	—	pCi/L	Y	U	U	2013-306	CAMO-13-24250	GELC
R-50 S2	1185	08/16/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.84	1.54	6.08	—	pCi/L	Y	U	U	12-1506	CAMO-12-21738	GELC
R-50 S2	1185	08/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-5.65	2.9	7.2	—	pCi/L	Y	U	U	11-3082	CAMO-11-24679	GELC
R-50 S2	1185	05/24/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.5	1.8	6.3	—	pCi/L	Y	U	U	11-2527	CAMO-11-10726	GELC
R-50 S2	1185	02/24/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.468	1.6	5.5	—	pCi/L	Y	U	U	11-1440	CAMO-11-4617	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.11	—	—	0.067	mg/L	Y	—	NQ	2013-306	CAMO-13-24267	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-50 S2	1185	08/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.11	—	—	0.067	mg/L	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.08	—	—	0.067	mg/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.06	—	—	0.066	mg/L	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.09	—	—	0.066	mg/L	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	F	RE	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	4.25	—	—	2	ug/L	Y	J	J	2013-306-1	CAMO-13-24267	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	14.6	—	—	2	ug/L	N	—	R	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	3.17	—	—	2	ug/L	Y	J	J	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	2.99	—	—	2	ug/L	Y	J	J	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	3.77	—	—	2	ug/L	Y	J	J	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	N	10	—	—	2	ug/L	Y	U	U	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-2.77	1.42	4.48	—	pCi/L	Y	U	U	2013-306	CAMO-13-24250	GELC
R-50 S2	1185	08/16/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.498	1.45	5.46	—	pCi/L	Y	U	U	12-1506	CAMO-12-21738	GELC
R-50 S2	1185	08/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.52	2.1	5	—	pCi/L	Y	U	U	11-3082	CAMO-11-24679	GELC
R-50 S2	1185	05/24/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-3.63	1.4	2.1	—	pCi/L	Y	U	U	11-2527	CAMO-11-10726	GELC
R-50 S2	1185	02/24/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-2.41	1.8	5.1	—	pCi/L	Y	U	U	11-1440	CAMO-11-4617	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.401	—	—	0.033	mg/L	Y	—	NQ	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.339	—	—	0.033	mg/L	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.39	—	—	0.033	mg/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.394	—	—	0.033	mg/L	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.38	—	—	0.033	mg/L	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.0227	0.473	2.32	—	pCi/L	Y	U	U	2013-306	CAMO-13-24250	GELC
R-50 S2	1185	08/16/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.009	0.506	2.4	—	pCi/L	Y	U	U	12-1506	CAMO-12-21738	GELC
R-50 S2	1185	08/08/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.497	0.79	3	—	pCi/L	Y	U	U	11-3082	CAMO-11-24679	GELC
R-50 S2	1185	05/24/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.562	0.62	2.3	—	pCi/L	Y	U	U	11-2527	CAMO-11-10726	GELC
R-50 S2	1185	02/24/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.8	0.78	1.8	—	pCi/L	Y	U	U	11-1440	CAMO-11-4617	GELC
R-50 S2	1185	11/09/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.933	0.707	2.39	—	pCi/L	Y	U	U	2013-306	CAMO-13-24250	GELC
R-50 S2	1185	08/16/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	2.16	0.929	2.98	—	pCi/L	Y	U	U	12-1506	CAMO-12-21738	GELC
R-50 S2	1185	08/08/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.36	0.89	2.9	—	pCi/L	Y	U	U	11-3082	CAMO-11-24679	GELC
R-50 S2	1185	05/24/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	2.58	0.94	2.8	—	pCi/L	Y	U	U	11-2527	CAMO-11-10726	GELC
R-50 S2	1185	02/24/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	-0.137	0.63	2.4	—	pCi/L	Y	U	U	11-1440	CAMO-11-4617	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	46.8	—	—	0.453	mg/L	Y	—	NQ	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	43.9	—	—	0.453	mg/L	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	43.7	—	—	0.453	mg/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	43.9	—	—	0.453	mg/L	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	46.7	—	—	0.45	mg/L	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.66	—	—	0.11	mg/L	Y	—	NQ	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.93	—	—	0.11	mg/L	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.92	—	—	0.11	mg/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.9	—	—	0.11	mg/L	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.13	—	—	0.11	mg/L	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	F	RE	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.25	—	—	0.165	ug/L	Y	—	NQ	2013-306-1	CAMO-13-24267	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.895	—	—	0.165	ug/L	N	—	R	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.3	—	—	0.165	ug/L	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.21	—	—	0.165	ug/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.33	—	—	0.165	ug/L	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.31	—	—	0.17	ug/L	Y	—	J	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-1.02	2.66	9.55	—	pCi/L	Y	U	U	2013-306	CAMO-13-24250	GELC
R-50 S2	1185	08/16/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	5.02	3.01	11.4	—	pCi/L	Y	U	U	12-1506	CAMO-12-21738	GELC
R-50 S2	1185	08/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.2	2.1	7	—	pCi/L	Y	U	U	11-3082	CAMO-11-24679	GELC
R-50 S2	1185	02/24/11	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.1	3.3	10	—	pCi/L	Y	U	U	11-1440	CAMO-11-4617	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-50 S2	1185	11/16/10	WG	UF	INIT	FD	RAD	EPA:901.1	Neptunium-237	Np-237	N	-0.236	2.6	8.5	—	pCi/L	Y	U	U	11-563	CAMO-11-1317	GELC
R-50 S2	1185	11/16/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	1.06	2	6.9	—	pCi/L	Y	U	U	11-563	CAMO-11-1316	GELC
R-50 S2	1185	11/09/12	WG	F	RE	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.61	—	—	0.5	ug/L	Y	J	J	2013-306-1	CAMO-13-24267	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.866	—	—	0.5	ug/L	N	J	R	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.38	—	—	0.5	ug/L	Y	J	J	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.45	—	—	0.5	ug/L	Y	J	J	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.6	—	—	0.5	ug/L	Y	J	J	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.47	—	—	0.5	ug/L	Y	J	J	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.471	—	—	0.017	mg/L	Y	—	NQ	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	RE	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.495	—	—	0.017	mg/L	Y	H	NQ	12-1506-1	CAMO-12-21746	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.975	—	—	0.085	mg/L	N	—	R	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.55	—	—	0.085	mg/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.505	—	—	0.05	mg/L	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.17	—	—	0.01	mg/L	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.33	—	—	0.05	ug/L	Y	—	NQ	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.336	—	—	0.05	ug/L	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.341	—	—	0.05	ug/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.325	—	—	0.05	ug/L	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.31	—	—	0.05	ug/L	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00229	0.00605	0.022	—	pCi/L	Y	U	U	2013-306	CAMO-13-24250	GELC
R-50 S2	1185	08/16/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00506	0.00506	0.017	—	pCi/L	Y	U	U	12-1506	CAMO-12-21738	GELC
R-50 S2	1185	08/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	9.41E-10	0.0079	0.034	—	pCi/L	Y	U	U	11-3082	CAMO-11-24679	GELC
R-50 S2	1185	05/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00193	0.0019	0.023	—	pCi/L	Y	U	U	11-2527	CAMO-11-10726	GELC
R-50 S2	1185	02/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00361	0.0089	0.023	—	pCi/L	Y	U	U	11-1440	CAMO-11-4617	GELC
R-50 S2	1185	11/09/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00458	0.00647	0.0365	—	pCi/L	Y	U	U	2013-306	CAMO-13-24250	GELC
R-50 S2	1185	08/16/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00253	0.00438	0.0305	—	pCi/L	Y	U	U	12-1506	CAMO-12-21738	GELC
R-50 S2	1185	08/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.0118	0.0056	0.048	—	pCi/L	Y	U	U	11-3082	CAMO-11-24679	GELC
R-50 S2	1185	05/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0077	0.0047	0.035	—	pCi/L	Y	U	U	11-2527	CAMO-11-10726	GELC
R-50 S2	1185	02/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00181	0.0048	0.034	—	pCi/L	Y	U	U	11-1440	CAMO-11-4617	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.17	—	—	0.05	mg/L	Y	—	NQ	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.45	—	—	0.05	mg/L	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.42	—	—	0.05	mg/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.42	—	—	0.05	mg/L	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.51	—	—	0.05	mg/L	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-9.62	14.8	56.5	—	pCi/L	Y	U	U	2013-306	CAMO-13-24250	GELC
R-50 S2	1185	08/16/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	0.964	19.9	75.6	—	pCi/L	Y	U	U	12-1506	CAMO-12-21738	GELC
R-50 S2	1185	08/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-14.4	22	60	—	pCi/L	Y	U	U	11-3082	CAMO-11-24679	GELC
R-50 S2	1185	05/24/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-23.3	21	63	—	pCi/L	Y	U	U	11-2527	CAMO-11-10726	GELC
R-50 S2	1185	02/24/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	41.6	21	79	—	pCi/L	Y	U	U	11-1440	CAMO-11-4617	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	71.7	—	—	0.053	mg/L	Y	—	NQ	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	76.9	—	—	0.053	mg/L	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	76.7	—	—	0.053	mg/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	77.6	—	—	0.053	mg/L	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	80.6	—	—	0.053	mg/L	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	9.39	—	—	0.1	mg/L	Y	—	NQ	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.9	—	—	0.1	mg/L	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.7	—	—	0.1	mg/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	11.8	—	—	0.1	mg/L	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	12.3	—	—	0.1	mg/L	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.08	1.46	5.99	—	pCi/L	Y	U	U	2013-306	CAMO-13-24250	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-50 S2	1185	08/16/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.591	1.52	6.08	—	pCi/L	Y	U	U	12-1506	CAMO-12-21738	GELC
R-50 S2	1185	08/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.22	1.3	4.4	—	pCi/L	Y	U	U	11-3082	CAMO-11-24679	GELC
R-50 S2	1185	05/24/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-2.45	1.9	5.6	—	pCi/L	Y	U	U	11-2527	CAMO-11-10726	GELC
R-50 S2	1185	02/24/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.338	1.6	5.3	—	pCi/L	Y	U	U	11-1440	CAMO-11-4617	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	138	—	—	1	uS/cm	Y	—	NQ	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	135	—	—	1	uS/cm	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	136	—	—	1	uS/cm	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	137	—	—	1	uS/cm	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	138	—	—	1	uS/cm	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	55.4	—	—	1	ug/L	Y	—	NQ	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	50.7	—	—	1	ug/L	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	50.6	—	—	1	ug/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	52.6	—	—	1	ug/L	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	54.7	—	—	1	ug/L	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.431	0.156	0.485	—	pCi/L	Y	U	U	2013-306	CAMO-13-24250	GELC
R-50 S2	1185	08/16/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.319	0.122	0.484	—	pCi/L	Y	U	U	12-1506	CAMO-12-21738	GELC
R-50 S2	1185	08/08/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0159	0.15	0.52	—	pCi/L	Y	U	U	11-3082	CAMO-11-24679	GELC
R-50 S2	1185	05/24/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.168	0.13	0.48	—	pCi/L	Y	U	U	11-2527	CAMO-11-10726	GELC
R-50 S2	1185	02/24/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.12	0.14	0.5	—	pCi/L	Y	U	U	11-1440	CAMO-11-4617	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.59	—	—	0.133	mg/L	Y	—	NQ	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.48	—	—	0.133	mg/L	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.49	—	—	0.133	mg/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.54	—	—	0.1	mg/L	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.65	—	—	0.1	mg/L	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	F	RE	REG	INORGANIC	SW-846:6020	Thallium	Tl	Y	0.477	—	—	0.45	ug/L	Y	J	J	2013-306-1	CAMO-13-24267	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Thallium	Tl	N	2	—	—	0.45	ug/L	N	U	R	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Thallium	Tl	N	2	—	—	0.45	ug/L	Y	U	U	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Thallium	Tl	N	2	—	—	0.45	ug/L	Y	U	U	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Thallium	Tl	N	2	—	—	0.45	ug/L	Y	U	U	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Thallium	Tl	N	2	—	—	0.45	ug/L	Y	U	U	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	137	—	—	3.4	mg/L	Y	—	NQ	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	130	—	—	3.4	mg/L	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	123	—	—	3.4	mg/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	136	—	—	3.4	mg/L	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	120	—	—	3.4	mg/L	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.0885	—	—	0.035	mg/L	Y	J	J	2013-306	CAMO-13-24250	GELC
R-50 S2	1185	08/16/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	UJ	12-1506	CAMO-12-21738	GELC
R-50 S2	1185	05/31/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.0354	—	—	0.035	mg/L	Y	J	J	12-1334	CAMO-12-14015	GELC
R-50 S2	1185	03/07/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	U	12-1061	CAMO-12-12022	GELC
R-50 S2	1185	11/28/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	U	12-440	CAMO-12-1809	GELC
R-50 S2	1185	11/09/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.761	—	—	0.33	mg/L	Y	J	J	2013-306	CAMO-13-24250	GELC
R-50 S2	1185	08/16/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.534	—	—	0.33	mg/L	Y	J	J	12-1506	CAMO-12-21738	GELC
R-50 S2	1185	05/31/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.663	—	—	0.33	mg/L	Y	J	J	12-1334	CAMO-12-14015	GELC
R-50 S2	1185	03/07/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.568	—	—	0.33	mg/L	Y	J	J	12-1061	CAMO-12-12022	GELC
R-50 S2	1185	11/28/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.56	—	—	0.33	mg/L	Y	J	J	12-440	CAMO-12-1809	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0192	—	—	0.017	mg/L	Y	J	J	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.05	—	—	0.017	mg/L	Y	U	U	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0297	—	—	0.017	mg/L	Y	J	J	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0228	—	—	0.015	mg/L	Y	J	J	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.05	—	—	0.015	mg/L	Y	U	UJ	12-440	CAMO-12-1808	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-50 S2	1185	11/09/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.287	0.883	3.027	—	pCi/L	Y	U	U	2013-313	CAMO-13-24250	ARSL
R-50 S2	1185	05/31/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.084	0.633	2.144	—	pCi/L	Y	U	U	12-1342	CAMO-12-14015	ARSL
R-50 S2	1185	11/28/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.12	0.59	2.01	—	pCi/L	Y	U	U	12-456	CAMO-12-1809	ARSL
R-50 S2	1185	11/21/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	23.15	3.71	3.09	—	pCi/L	Y	—	NQ	12-436	CAMO-12-1509	ARSL
R-50 S2	1185	08/08/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-1.2558	0.6762	2.3184	—	pCi/L	Y	U	U	11-3040	CAMO-11-24679	ARSL
R-50 S2	1185	11/09/12	WG	F	RE	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.574	—	—	0.067	ug/L	Y	—	NQ	2013-306-1	CAMO-13-24267	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.463	—	—	0.067	ug/L	N	—	R	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.62	—	—	0.067	ug/L	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.603	—	—	0.067	ug/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.673	—	—	0.067	ug/L	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.642	—	—	0.067	ug/L	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-50 S2	1185	11/09/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.328	0.031	0.0614	—	pCi/L	Y	—	NQ	2013-306	CAMO-13-24250	GELC
R-50 S2	1185	08/16/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.446	0.0373	0.0722	—	pCi/L	Y	—	J	12-1506	CAMO-12-21738	GELC
R-50 S2	1185	08/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.51	0.048	0.041	—	pCi/L	Y	—	NQ	11-3082	CAMO-11-24679	GELC
R-50 S2	1185	05/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.528	0.054	0.072	—	pCi/L	Y	—	NQ	11-2527	CAMO-11-10726	GELC
R-50 S2	1185	02/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.468	0.048	0.05	—	pCi/L	Y	—	NQ	11-1440	CAMO-11-4617	GELC
R-50 S2	1185	11/09/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0294	0.0109	0.0383	—	pCi/L	Y	U	U	2013-306	CAMO-13-24250	GELC
R-50 S2	1185	08/16/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0267	0.0106	0.0466	—	pCi/L	Y	U	U	12-1506	CAMO-12-21738	GELC
R-50 S2	1185	08/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	Y	0.0296	0.0088	0.025	—	pCi/L	Y	—	NQ	11-3082	CAMO-11-24679	GELC
R-50 S2	1185	05/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0172	0.0092	0.055	—	pCi/L	Y	U	U	11-2527	CAMO-11-10726	GELC
R-50 S2	1185	02/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0125	0.0063	0.037	—	pCi/L	Y	U	U	11-1440	CAMO-11-4617	GELC
R-50 S2	1185	11/09/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.188	0.0238	0.0417	—	pCi/L	Y	—	NQ	2013-306	CAMO-13-24250	GELC
R-50 S2	1185	08/16/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.203	0.0237	0.0366	—	pCi/L	Y	—	J	12-1506	CAMO-12-21738	GELC
R-50 S2	1185	08/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.201	0.025	0.032	—	pCi/L	Y	—	NQ	11-3082	CAMO-11-24679	GELC
R-50 S2	1185	05/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.272	0.034	0.038	—	pCi/L	Y	—	NQ	11-2527	CAMO-11-10726	GELC
R-50 S2	1185	02/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.177	0.025	0.036	—	pCi/L	Y	—	NQ	11-1440	CAMO-11-4617	GELC
R-50 S2	1185	11/09/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	4.61	—	—	1	ug/L	Y	J	J	2013-306	CAMO-13-24267	GELC
R-50 S2	1185	08/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.23	—	—	1	ug/L	Y	—	NQ	12-1506	CAMO-12-21746	GELC
R-50 S2	1185	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.32	—	—	1	ug/L	Y	—	NQ	12-1334	CAMO-12-14030	GELC
R-50 S2	1185	03/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	8.08	—	—	1	ug/L	Y	—	NQ	12-1061	CAMO-12-12031	GELC
R-50 S2	1185	11/28/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.37	—	—	1	ug/L	Y	—	NQ	12-440	CAMO-12-1808	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	6.78	—	—	0.01	SU	Y	H	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.34	—	—	0.01	SU	Y	H	J-	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.44	—	—	0.01	SU	Y	H	J-	12-412	CAMO-12-1510	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.41	—	—	0.01	SU	Y	H	J-	12-412	CAMO-12-1515	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.34	—	—	0.01	SU	Y	H	J-	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.56	—	—	0.01	SU	Y	H	J-	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	41.7	—	—	0.725	mg/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	65.3	—	—	0.73	mg/L	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	71.2	—	—	0.73	mg/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	71.7	—	—	0.73	mg/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	90.7	—	—	0.73	mg/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	68.2	—	—	0.73	mg/L	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Aluminum	Al	Y	107	—	—	68	ug/L	Y	J	J	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Aluminum	Al	N	200	—	—	68	ug/L	Y	U	U	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Aluminum	Al	N	200	—	—	68	ug/L	Y	U	U	12-412	CAMO-12-1510	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Aluminum	Al	N	200	—	—	68	ug/L	Y	U	U	12-412	CAMO-12-1515	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Aluminum	Al	N	200	—	—	68	ug/L	Y	U	U	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Aluminum	Al	N	200	—	—	68	ug/L	Y	U	U	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00246	0.0055	0.028	—	pCi/L	Y	U	U	2013-334	CAMO-13-24251	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-61 S1	1125	02/07/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00514	0.0036	0.052	—	pCi/L	Y	U	U	12-735	CAMO-12-2229	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0104	0.0047	0.038	—	pCi/L	Y	U	U	12-412	CAMO-12-1511	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	FD	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00465	0.0033	0.042	—	pCi/L	Y	U	U	12-412	CAMO-12-1513	GELC
R-61 S1	1125	08/18/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0098	0.0052	0.033	—	pCi/L	Y	U	U	11-3263	CAMO-11-24698	GELC
R-61 S1	1125	05/20/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00197	0.0044	0.04	—	pCi/L	Y	U	U	11-2470	CAMO-11-10852	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0253	—	—	0.017	mg/L	Y	J	J	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0233	—	—	0.016	mg/L	Y	J	J	12-734	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0193	—	—	0.016	mg/L	Y	J	J	12-412	CAMO-12-1515	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	UJ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.0315	—	—	0.016	mg/L	Y	J	U	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Antimony	Sb	Y	1.07	—	—	1	ug/L	Y	J	J	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Antimony	Sb	N	3	—	—	1	ug/L	Y	U	U	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Antimony	Sb	N	3	—	—	1	ug/L	Y	U	U	12-412	CAMO-12-1510	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SW-846:6020	Antimony	Sb	N	3	—	—	1	ug/L	Y	U	U	12-412	CAMO-12-1515	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Antimony	Sb	N	3	—	—	1	ug/L	Y	U	U	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Antimony	Sb	N	3	—	—	1	ug/L	Y	U	U	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	31.3	—	—	1	ug/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	31.5	—	—	1	ug/L	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	47	—	—	1	ug/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Barium	Ba	Y	47.6	—	—	1	ug/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	61.6	—	—	1	ug/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	23.2	—	—	1	ug/L	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	20.4	—	—	15	ug/L	Y	J	J	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	21.5	—	—	15	ug/L	Y	J	J	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	20.3	—	—	15	ug/L	Y	J	J	12-412	CAMO-12-1510	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Boron	B	Y	20.8	—	—	15	ug/L	Y	J	J	12-412	CAMO-12-1515	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	28.7	—	—	15	ug/L	Y	J	J	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	21.1	—	—	15	ug/L	Y	J	J	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	5.88	—	—	0.05	mg/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	12	—	—	0.05	mg/L	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	13.4	—	—	0.05	mg/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Calcium	Ca	Y	13.5	—	—	0.05	mg/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	16.4	—	—	0.05	mg/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	12	—	—	0.05	mg/L	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.18	1.78	6.79	—	pCi/L	Y	U	U	2013-334	CAMO-13-24251	GELC
R-61 S1	1125	02/07/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.05	1.3	4.6	—	pCi/L	Y	U	U	12-735	CAMO-12-2229	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.572	1.5	5.6	—	pCi/L	Y	U	U	12-412	CAMO-12-1511	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	FD	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.6	1.3	5.1	—	pCi/L	Y	U	U	12-412	CAMO-12-1513	GELC
R-61 S1	1125	08/18/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.0929	1.2	3.7	—	pCi/L	Y	U	U	11-3263	CAMO-11-24698	GELC
R-61 S1	1125	05/20/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.61	1.4	4.3	—	pCi/L	Y	U	U	11-2470	CAMO-11-10852	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.17	—	—	0.067	mg/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.05	—	—	0.066	mg/L	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.05	—	—	0.066	mg/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.06	—	—	0.066	mg/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.35	—	—	0.066	mg/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	3.59	—	—	0.066	mg/L	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	UF	INIT	REG	VOC	SW-846:8260B	Chloroform	67-66-3	Y	2.47	—	—	0.3	ug/L	Y	—	NQ	2013-334	CAMO-13-24251	GELC
R-61 S1	1125	02/07/12	WG	UF	INIT	REG	VOC	SW-846:8260B	Chloroform	67-66-3	N	1	—	—	0.25	ug/L	Y	U	U	12-734	CAMO-12-2229	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	REG	VOC	SW-846:8260B	Chloroform	67-66-3	N	1	—	—	0.25	ug/L	Y	U	U	12-424	CAMO-12-1511	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-61 S1	1125	11/21/11	WG	UF	INIT	FD	VOC	SW-846:8260B	Chloroform	67-66-3	N	1	—	—	0.25	ug/L	Y	U	U	12-411	CAMO-12-1513	GELC
R-61 S1	1125	08/18/11	WG	UF	INIT	REG	VOC	SW-846:8260B	Chloroform	67-66-3	N	1	—	—	0.25	ug/L	Y	U	U	11-3263	CAMO-11-24698	GELC
R-61 S1	1125	08/18/11	WG	UF	INIT	FD	VOC	SW-846:8260B	Chloroform	67-66-3	N	1	—	—	0.25	ug/L	Y	U	U	11-3263	CAMO-11-24699	GELC
R-61 S1	1125	05/20/11	WG	UF	INIT	FD	VOC	SW-846:8260B	Chloroform	67-66-3	N	1	—	—	0.25	ug/L	Y	U	U	11-2469	CAMO-11-11687	GELC
R-61 S1	1125	05/20/11	WG	UF	INIT	REG	VOC	SW-846:8260B	Chloroform	67-66-3	N	1	—	—	0.25	ug/L	Y	U	U	11-2469	CAMO-11-10852	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	16.4	—	—	2	ug/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	2.03	—	—	2	ug/L	Y	J	J	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	2.84	—	—	2	ug/L	Y	J	J	12-412	CAMO-12-1510	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SW-846:6020	Chromium	Cr	Y	2.68	—	—	2	ug/L	Y	J	J	12-412	CAMO-12-1515	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	N	10	—	—	2	ug/L	Y	U	U	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	16.8	—	—	2	ug/L	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.487	1.39	5.2	—	pCi/L	Y	U	U	2013-334	CAMO-13-24251	GELC
R-61 S1	1125	02/07/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-2.07	1.3	4.3	—	pCi/L	Y	U	U	12-735	CAMO-12-2229	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	FD	RAD	EPA:901.1	Cobalt-60	Co-60	N	2.16	1.2	5.7	—	pCi/L	Y	U	U	12-412	CAMO-12-1513	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	1.3	1.5	6.4	—	pCi/L	Y	U	U	12-412	CAMO-12-1511	GELC
R-61 S1	1125	08/18/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.95	1.4	4.7	—	pCi/L	Y	U	U	11-3263	CAMO-11-24698	GELC
R-61 S1	1125	05/20/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.642	1.7	4.9	—	pCi/L	Y	U	U	11-2470	CAMO-11-10852	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.589	—	—	0.033	mg/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.329	—	—	0.033	mg/L	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.326	—	—	0.033	mg/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.318	—	—	0.033	mg/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.303	—	—	0.033	mg/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.324	—	—	0.033	mg/L	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	Y	3.93	1.18	2.28	—	pCi/L	Y	—	NQ	2013-334	CAMO-13-24251	GELC
R-61 S1	1125	02/07/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	2.77	1	2.3	—	pCi/L	Y	—	U	12-735	CAMO-12-2229	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	2.35	0.97	2.4	—	pCi/L	Y	U	U	12-412	CAMO-12-1513	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	Y	4.25	1.3	2.5	—	pCi/L	Y	—	NQ	12-412	CAMO-12-1511	GELC
R-61 S1	1125	08/18/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.18	0.71	2.2	—	pCi/L	Y	U	U	11-3263	CAMO-11-24698	GELC
R-61 S1	1125	05/20/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.575	0.57	2	—	pCi/L	Y	U	U	11-2470	CAMO-11-10852	GELC
R-61 S1	1125	11/15/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	22.8	1.71	2.17	—	pCi/L	Y	—	NQ	2013-334	CAMO-13-24251	GELC
R-61 S1	1125	02/07/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.431	0.56	2	—	pCi/L	Y	U	U	12-735	CAMO-12-2229	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	N	1.56	0.74	2.2	—	pCi/L	Y	U	U	12-412	CAMO-12-1513	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.44	0.76	2.4	—	pCi/L	Y	U	U	12-412	CAMO-12-1511	GELC
R-61 S1	1125	08/18/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	2.75	0.98	2.9	—	pCi/L	Y	U	U	11-3263	CAMO-11-24698	GELC
R-61 S1	1125	05/20/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	-0.743	0.57	2.5	—	pCi/L	Y	U	U	11-2470	CAMO-11-10852	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	24.5	—	—	0.453	mg/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	46.4	—	—	0.45	mg/L	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	49.5	—	—	0.45	mg/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	49.3	—	—	0.45	mg/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	60.3	—	—	0.45	mg/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	43.7	—	—	0.45	mg/L	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	Y	72	—	—	30	ug/L	Y	J	J	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	Y	1150	—	—	30	ug/L	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Iron	Fe	Y	920	—	—	30	ug/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	Y	909	—	—	30	ug/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	Y	2550	—	—	30	ug/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	Y	35.3	—	—	30	ug/L	Y	J	J	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	2.38	—	—	0.11	mg/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.02	—	—	0.11	mg/L	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.83	—	—	0.11	mg/L	Y	—	NQ	12-412	CAMO-12-1515	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.82	—	—	0.11	mg/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.69	—	—	0.11	mg/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.36	—	—	0.11	mg/L	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	33.7	—	—	2	ug/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	554	—	—	2	ug/L	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	902	—	—	2	ug/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Manganese	Mn	Y	914	—	—	2	ug/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	1100	—	—	2	ug/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	113	—	—	2	ug/L	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	2.14	—	—	0.165	ug/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	3.73	—	—	0.17	ug/L	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	6.67	—	—	0.17	ug/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	6.49	—	—	0.17	ug/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	14.6	—	—	0.17	ug/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	3.06	—	—	0.17	ug/L	Y	—	J	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	2.8	3.36	12.2	—	pCi/L	Y	U	U	2013-334	CAMO-13-24251	GELC
R-61 S1	1125	02/07/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-1.47	2.9	10	—	pCi/L	Y	U	U	12-735	CAMO-12-2229	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	FD	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.67	2.7	9	—	pCi/L	Y	U	U	12-412	CAMO-12-1513	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	4.51	3.2	12	—	pCi/L	Y	U	U	12-412	CAMO-12-1511	GELC
R-61 S1	1125	08/18/11	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	0.9	2.6	8.3	—	pCi/L	Y	U	U	11-3263	CAMO-11-24698	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	2.66	—	—	0.5	ug/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	3.57	—	—	0.5	ug/L	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SW-846:6020	Nickel	Ni	Y	2.34	—	—	0.5	ug/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	2.25	—	—	0.5	ug/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	4.02	—	—	0.5	ug/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.68	—	—	0.5	ug/L	Y	J	J	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.58	—	—	0.085	mg/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.68	—	—	0.05	mg/L	Y	—	NQ	12-734	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.55	—	—	0.05	mg/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.41	—	—	0.05	mg/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.427	—	—	0.01	mg/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.32	—	—	0.05	mg/L	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	6.13	—	—	0.5	ug/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	7.37	—	—	0.5	ug/L	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	5.96	—	—	0.5	ug/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	5.9	—	—	0.5	ug/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	2.96	—	—	0.25	ug/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	6.54	—	—	0.5	ug/L	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00309	0.00535	0.0297	—	pCi/L	Y	U	U	2013-334	CAMO-13-24251	GELC
R-61 S1	1125	02/07/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00424	0.003	0.027	—	pCi/L	Y	U	U	12-735	CAMO-12-2229	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00186	0.0032	0.022	—	pCi/L	Y	U	U	12-412	CAMO-12-1513	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.0038	0.0027	0.023	—	pCi/L	Y	U	U	12-412	CAMO-12-1511	GELC
R-61 S1	1125	08/18/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00225	0.0039	0.021	—	pCi/L	Y	U	U	11-3263	CAMO-11-24698	GELC
R-61 S1	1125	05/20/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00411	0.005	0.025	—	pCi/L	Y	U	U	11-2470	CAMO-11-10852	GELC
R-61 S1	1125	11/15/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00309	0.0069	0.0493	—	pCi/L	Y	U	U	2013-334	CAMO-13-24251	GELC
R-61 S1	1125	02/07/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00212	0.0056	0.031	—	pCi/L	Y	U	U	12-735	CAMO-12-2229	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0133	0.0051	0.024	—	pCi/L	Y	U	U	12-412	CAMO-12-1511	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00558	0.0032	0.023	—	pCi/L	Y	U	U	12-412	CAMO-12-1513	GELC
R-61 S1	1125	08/18/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00225	0.0087	0.034	—	pCi/L	Y	U	U	11-3263	CAMO-11-24698	GELC
R-61 S1	1125	05/20/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00411	0.0029	0.038	—	pCi/L	Y	U	U	11-2470	CAMO-11-10852	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	27.4	—	—	0.05	mg/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.96	—	—	0.05	mg/L	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.62	—	—	0.05	mg/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Potassium	K	Y	1.59	—	—	0.05	mg/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.83	—	—	0.05	mg/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.46	—	—	0.05	mg/L	Y	—	J	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	41.1	19.1	80.4	—	pCi/L	Y	U	U	2013-334	CAMO-13-24251	GELC
R-61 S1	1125	02/07/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	37	17	70	—	pCi/L	Y	U	U	12-735	CAMO-12-2229	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	26.4	20	82	—	pCi/L	Y	U	U	12-412	CAMO-12-1511	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	FD	RAD	EPA:901.1	Potassium-40	K-40	N	-23.9	15	56	—	pCi/L	Y	U	U	12-412	CAMO-12-1513	GELC
R-61 S1	1125	08/18/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	1.54	14	46	—	pCi/L	Y	U	U	11-3263	CAMO-11-24698	GELC
R-61 S1	1125	05/20/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	28.9	19	43	—	pCi/L	Y	U	U	11-2470	CAMO-11-10852	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	102	—	—	0.053	mg/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	76.3	—	—	0.053	mg/L	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	63.6	—	—	0.053	mg/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	62.9	—	—	0.053	mg/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	63.1	—	—	0.053	mg/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	67.6	—	—	0.053	mg/L	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	13.3	—	—	0.1	mg/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	19.2	—	—	0.1	mg/L	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	17.9	—	—	0.1	mg/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Sodium	Na	Y	17.9	—	—	0.1	mg/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	23.1	—	—	0.1	mg/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	18	—	—	0.1	mg/L	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.865	1.45	5.25	—	pCi/L	Y	U	U	2013-334	CAMO-13-24251	GELC
R-61 S1	1125	02/07/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.11	1.3	5.1	—	pCi/L	Y	U	U	12-735	CAMO-12-2229	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	FD	RAD	EPA:901.1	Sodium-22	Na-22	N	0.551	1.2	5	—	pCi/L	Y	U	U	12-412	CAMO-12-1513	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.291	1.3	5	—	pCi/L	Y	U	U	12-412	CAMO-12-1511	GELC
R-61 S1	1125	08/18/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.34	1.4	4.1	—	pCi/L	Y	U	U	11-3263	CAMO-11-24698	GELC
R-61 S1	1125	05/20/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.219	1.4	4.7	—	pCi/L	Y	U	U	11-2470	CAMO-11-10852	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	181	—	—	1	uS/cm	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	165	—	—	1	uS/cm	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	177	—	—	1	uS/cm	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	177	—	—	1	uS/cm	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	209	—	—	1	uS/cm	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	168	—	—	1	uS/cm	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	25.8	—	—	1	ug/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	67.2	—	—	1	ug/L	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Strontium	Sr	Y	70.7	—	—	1	ug/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	70.3	—	—	1	ug/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	91.5	—	—	1	ug/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	59.1	—	—	1	ug/L	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0396	0.131	0.486	—	pCi/L	Y	U	U	2013-334	CAMO-13-24251	GELC
R-61 S1	1125	02/07/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.141	0.14	0.48	—	pCi/L	Y	U	U	12-735	CAMO-12-2229	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	FD	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.224	0.15	0.49	—	pCi/L	Y	U	U	12-412	CAMO-12-1513	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.216	0.13	0.49	—	pCi/L	Y	U	U	12-412	CAMO-12-1511	GELC
R-61 S1	1125	08/18/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0782	0.14	0.49	—	pCi/L	Y	U	U	11-3263	CAMO-11-24698	GELC
R-61 S1	1125	05/20/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.293	0.13	0.51	—	pCi/L	Y	U	U	11-2470	CAMO-11-10852	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	5.41	—	—	0.133	mg/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	5.04	—	—	0.1	mg/L	Y	—	NQ	12-735	CAMO-12-2230	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-61 S1	1125	11/21/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	4.59	—	—	0.1	mg/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	4.57	—	—	0.1	mg/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.27	—	—	0.1	mg/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	5.68	—	—	0.1	mg/L	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	203	—	—	3.4	mg/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	121	—	—	3.4	mg/L	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	144	—	—	3.4	mg/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	126	—	—	3.4	mg/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	65.7	—	—	3.4	mg/L	Y	—	J	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	139	—	—	2.4	mg/L	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.126	—	—	0.033	mg/L	Y	—	NQ	2013-334	CAMO-13-24251	GELC
R-61 S1	1125	02/07/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.133	—	—	0.035	mg/L	Y	—	NQ	12-734	CAMO-12-2229	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	UJ	12-412	CAMO-12-1511	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	FD	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	U	12-411	CAMO-12-1513	GELC
R-61 S1	1125	08/18/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.0812	—	—	0.035	mg/L	Y	J	U	11-3264	CAMO-11-24698	GELC
R-61 S1	1125	05/20/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.134	—	—	0.035	mg/L	Y	—	U	11-2470	CAMO-11-10852	GELC
R-61 S1	1125	11/15/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	1.59	—	—	0.33	mg/L	Y	—	NQ	2013-334	CAMO-13-24251	GELC
R-61 S1	1125	02/07/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.86	—	—	0.33	mg/L	Y	J	J	12-734	CAMO-12-2229	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	1.14	—	—	0.33	mg/L	Y	—	NQ	12-412	CAMO-12-1511	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	FD	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	1.08	—	—	0.33	mg/L	Y	—	NQ	12-411	CAMO-12-1513	GELC
R-61 S1	1125	08/18/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	10.1	—	—	0.33	mg/L	Y	—	NQ	11-3264	CAMO-11-24698	GELC
R-61 S1	1125	05/20/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.77	—	—	0.33	mg/L	Y	J	J	11-2470	CAMO-11-10852	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	11.8	—	—	0.17	mg/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0531	—	—	0.015	mg/L	Y	—	NQ	12-734	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.05	—	—	0.015	mg/L	Y	U	UJ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.05	—	—	0.015	mg/L	Y	U	U	12-412	CAMO-12-1510	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.0642	—	—	0.015	mg/L	Y	—	U	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.253	—	—	0.015	mg/L	Y	—	J	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	30.976	4.788	2.404	—	pCi/L	Y	—	NQ	2013-360	CAMO-13-24251	ARSL
R-61 S1	1125	02/07/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	31.26	4.8	1.85	—	pCi/L	Y	—	NQ	12-736	CAMO-12-2229	ARSL
R-61 S1	1125	11/21/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	33.63	5.19	2.46	—	pCi/L	Y	—	NQ	12-436	CAMO-12-1511	ARSL
R-61 S1	1125	11/21/11	WG	UF	INIT	FD	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	33.26	5.1	2.05	—	pCi/L	Y	—	NQ	12-436	CAMO-12-1513	ARSL
R-61 S1	1125	08/18/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	15.0374	2.4472	2.2862	—	pCi/L	Y	—	NQ	11-3305	CAMO-11-24698	ARSL
R-61 S1	1125	05/20/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	7.8246	1.3846	2.1252	—	pCi/L	Y	—	U	11-2531	CAMO-11-10852	ARSL
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.255	—	—	0.067	ug/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1	—	—	0.067	ug/L	Y	—	NQ	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SW-846:6020	Uranium	U	Y	0.736	—	—	0.067	ug/L	Y	—	NQ	12-412	CAMO-12-1515	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.73	—	—	0.067	ug/L	Y	—	NQ	12-412	CAMO-12-1510	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.1	—	—	0.067	ug/L	Y	—	NQ	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.715	—	—	0.067	ug/L	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.168	0.0276	0.0695	—	pCi/L	Y	—	NQ	2013-334	CAMO-13-24251	GELC
R-61 S1	1125	02/07/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.813	0.066	0.048	—	pCi/L	Y	—	NQ	12-735	CAMO-12-2229	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.483	0.045	0.049	—	pCi/L	Y	—	NQ	12-412	CAMO-12-1511	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.526	0.047	0.045	—	pCi/L	Y	—	NQ	12-412	CAMO-12-1513	GELC
R-61 S1	1125	08/18/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.576	0.065	0.073	—	pCi/L	Y	—	NQ	11-3263	CAMO-11-24698	GELC
R-61 S1	1125	05/20/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.65	0.065	0.076	—	pCi/L	Y	—	NQ	11-2470	CAMO-11-10852	GELC
R-61 S1	1125	11/15/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0037	0.00979	0.0434	—	pCi/L	Y	U	U	2013-334	CAMO-13-24251	GELC
R-61 S1	1125	02/07/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0234	0.0087	0.026	—	pCi/L	Y	U	U	12-735	CAMO-12-2229	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.021	0.008	0.025	—	pCi/L	Y	U	U	12-412	CAMO-12-1513	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0186	0.0074	0.027	—	pCi/L	Y	U	U	12-412	CAMO-12-1511	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-61 S1	1125	08/18/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0198	0.01	0.052	—	pCi/L	Y	U	U	11-3263	CAMO-11-24698	GELC
R-61 S1	1125	05/20/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0109	0.0082	0.059	—	pCi/L	Y	U	U	11-2470	CAMO-11-10852	GELC
R-61 S1	1125	11/15/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.102	0.0189	0.0472	—	pCi/L	Y	—	NQ	2013-334	CAMO-13-24251	GELC
R-61 S1	1125	02/07/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.361	0.036	0.037	—	pCi/L	Y	—	NQ	12-735	CAMO-12-2229	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.251	0.027	0.024	—	pCi/L	Y	—	NQ	12-412	CAMO-12-1513	GELC
R-61 S1	1125	11/21/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.248	0.028	0.027	—	pCi/L	Y	—	NQ	12-412	CAMO-12-1511	GELC
R-61 S1	1125	08/18/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.312	0.043	0.063	—	pCi/L	Y	—	NQ	11-3263	CAMO-11-24698	GELC
R-61 S1	1125	05/20/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.32	0.038	0.04	—	pCi/L	Y	—	NQ	11-2470	CAMO-11-10852	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	4.21	—	—	1	ug/L	Y	J	J	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	2.99	—	—	1	ug/L	Y	J	J	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	N	5	—	—	1	ug/L	Y	U	U	12-412	CAMO-12-1510	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Vanadium	V	N	5	—	—	1	ug/L	Y	U	U	12-412	CAMO-12-1515	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	N	5	—	—	1	ug/L	Y	U	U	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	3.91	—	—	1	ug/L	Y	J	J	11-2470	CAMO-11-10853	GELC
R-61 S1	1125	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	22.1	—	—	3.3	ug/L	Y	—	NQ	2013-334	CAMO-13-24268	GELC
R-61 S1	1125	02/07/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	N	10	—	—	3.3	ug/L	Y	U	U	12-735	CAMO-12-2230	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	N	10	—	—	3.3	ug/L	Y	U	U	12-412	CAMO-12-1510	GELC
R-61 S1	1125	11/21/11	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Zinc	Zn	N	10	—	—	3.3	ug/L	Y	U	U	12-412	CAMO-12-1515	GELC
R-61 S1	1125	08/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	N	10	—	—	3.3	ug/L	Y	U	U	11-3264	CAMO-11-24696	GELC
R-61 S1	1125	05/20/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	18.3	—	—	3.3	ug/L	Y	—	NQ	11-2470	CAMO-11-10853	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	6.69	—	—	0.01	SU	Y	H	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.25	—	—	0.01	SU	Y	H	J-	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.2	—	—	0.01	SU	Y	H	J-	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.14	—	—	0.01	SU	Y	H	J-	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.81	—	—	0.01	SU	Y	H	J-	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	51.5	—	—	0.725	mg/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	75.3	—	—	0.73	mg/L	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	75.8	—	—	0.73	mg/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	94.4	—	—	0.73	mg/L	Y	—	NQ	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	69.3	—	—	0.73	mg/L	Y	—	NQ	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Aluminum	Al	Y	197	—	—	68	ug/L	Y	J	J	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Aluminum	Al	N	200	—	—	68	ug/L	Y	U	U	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Aluminum	Al	N	200	—	—	68	ug/L	Y	U	U	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Aluminum	Al	N	200	—	—	68	ug/L	Y	U	U	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Aluminum	Al	N	200	—	—	68	ug/L	Y	U	U	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00325	0.0086	0.037	—	pCi/L	Y	U	U	2013-334	CAMO-13-24252	GELC
R-61 S2	1220.4	02/08/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00204	0.0079	0.041	—	pCi/L	Y	U	U	12-745	CAMO-12-2232	GELC
R-61 S2	1220.4	11/18/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00192	0.0051	0.035	—	pCi/L	Y	U	U	12-399	CAMO-12-1516	GELC
R-61 S2	1220.4	08/19/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00587	0.0059	0.049	—	pCi/L	Y	U	U	11-3277	CAMO-11-24703	GELC
R-61 S2	1220.4	05/24/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00172	0.0017	0.035	—	pCi/L	Y	U	U	11-2502	CAMO-11-11689	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Arsenic	As	Y	2.99	—	—	1.7	ug/L	Y	J	J	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Arsenic	As	N	5	—	—	1.7	ug/L	Y	U	U	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Arsenic	As	N	5	—	—	1.7	ug/L	Y	U	U	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Arsenic	As	N	5	—	—	1.7	ug/L	Y	U	U	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Arsenic	As	N	5	—	—	1.7	ug/L	Y	U	U	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	32.6	—	—	1	ug/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	44.7	—	—	1	ug/L	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	31.4	—	—	1	ug/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	42.2	—	—	1	ug/L	Y	—	NQ	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	19.9	—	—	1	ug/L	Y	—	NQ	11-2502	CAMO-11-11691	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	29	—	—	15	ug/L	Y	J	J	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	17.5	—	—	15	ug/L	Y	J	J	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	22.2	—	—	15	ug/L	Y	J	J	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	33.2	—	—	15	ug/L	Y	J	J	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	16.7	—	—	15	ug/L	Y	J	J	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	7.99	—	—	0.05	mg/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	12	—	—	0.05	mg/L	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	11.9	—	—	0.05	mg/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	13.9	—	—	0.05	mg/L	Y	—	NQ	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	10	—	—	0.05	mg/L	Y	—	NQ	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.02	1.61	6	—	pCi/L	Y	U	U	2013-334	CAMO-13-24252	GELC
R-61 S2	1220.4	02/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.37	1.2	4.6	—	pCi/L	Y	U	U	12-745	CAMO-12-2232	GELC
R-61 S2	1220.4	11/18/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.76	1.5	5.7	—	pCi/L	Y	U	U	12-399	CAMO-12-1516	GELC
R-61 S2	1220.4	08/19/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-6.3	2.2	7.7	—	pCi/L	Y	U	U	11-3277	CAMO-11-24703	GELC
R-61 S2	1220.4	05/24/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.203	1.6	5.4	—	pCi/L	Y	U	U	11-2502	CAMO-11-11689	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.63	—	—	0.067	mg/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.01	—	—	0.066	mg/L	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.95	—	—	0.066	mg/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.18	—	—	0.066	mg/L	Y	—	J+	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	2.17	—	—	0.066	mg/L	Y	—	J+	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	UF	INIT	REG	VOC	SW-846:8260B	Chloroform	67-66-3	Y	10.7	—	—	0.3	ug/L	Y	—	NQ	2013-334	CAMO-13-24252	GELC
R-61 S2	1220.4	02/08/12	WG	UF	INIT	REG	VOC	SW-846:8260B	Chloroform	67-66-3	N	1	—	—	0.25	ug/L	Y	U	U	12-744	CAMO-12-2232	GELC
R-61 S2	1220.4	11/18/11	WG	UF	INIT	REG	VOC	SW-846:8260B	Chloroform	67-66-3	N	1	—	—	0.25	ug/L	Y	U	U	12-398	CAMO-12-1516	GELC
R-61 S2	1220.4	08/19/11	WG	UF	INIT	FD	VOC	SW-846:8260B	Chloroform	67-66-3	N	1	—	—	0.25	ug/L	Y	U	U	11-3277	CAMO-11-24700	GELC
R-61 S2	1220.4	08/19/11	WG	UF	INIT	REG	VOC	SW-846:8260B	Chloroform	67-66-3	N	1	—	—	0.25	ug/L	Y	U	U	11-3277	CAMO-11-24703	GELC
R-61 S2	1220.4	05/24/11	WG	UF	INIT	REG	VOC	SW-846:8260B	Chloroform	67-66-3	N	1	—	—	0.25	ug/L	Y	U	U	11-2501	CAMO-11-11689	GELC
R-61 S2	1220.4	05/24/11	WG	UF	INIT	FD	VOC	SW-846:8260B	Chloroform	67-66-3	N	1	—	—	0.25	ug/L	Y	U	U	11-2501	CAMO-11-11688	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	2.18	—	—	2	ug/L	Y	J	J	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	N	10	—	—	2	ug/L	Y	U	U	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	N	10	—	—	2	ug/L	Y	U	U	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	N	10	—	—	2	ug/L	Y	U	U	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	2.17	—	—	2	ug/L	Y	J	J	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	2.88	1.47	6.47	—	pCi/L	Y	U	U	2013-334	CAMO-13-24252	GELC
R-61 S2	1220.4	02/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	2.08	1.2	5.2	—	pCi/L	Y	U	U	12-745	CAMO-12-2232	GELC
R-61 S2	1220.4	11/18/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	2.05	1.7	7	—	pCi/L	Y	U	U	12-399	CAMO-12-1516	GELC
R-61 S2	1220.4	08/19/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.515	1.6	5.2	—	pCi/L	Y	U	U	11-3277	CAMO-11-24703	GELC
R-61 S2	1220.4	05/24/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.89	2	5.8	—	pCi/L	Y	U	U	11-2502	CAMO-11-11689	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.739	—	—	0.033	mg/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.342	—	—	0.033	mg/L	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.31	—	—	0.033	mg/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.241	—	—	0.033	mg/L	Y	—	NQ	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.344	—	—	0.033	mg/L	Y	—	NQ	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	Y	5.49	1.45	2.39	—	pCi/L	Y	—	NQ	2013-334	CAMO-13-24252	GELC
R-61 S2	1220.4	02/08/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.147	0.42	2.4	—	pCi/L	Y	U	U	12-745	CAMO-12-2232	GELC
R-61 S2	1220.4	11/18/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.293	0.49	2	—	pCi/L	Y	U	U	12-399	CAMO-12-1516	GELC
R-61 S2	1220.4	08/19/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.14	0.61	1.7	—	pCi/L	Y	U	U	11-3277	CAMO-11-24703	GELC
R-61 S2	1220.4	05/24/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.24	0.73	2.2	—	pCi/L	Y	U	U	11-2502	CAMO-11-11689	GELC
R-61 S2	1220.4	11/15/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	18.7	1.6	2.24	—	pCi/L	Y	—	NQ	2013-334	CAMO-13-24252	GELC
R-61 S2	1220.4	02/08/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.757	0.64	2.2	—	pCi/L	Y	U	U	12-745	CAMO-12-2232	GELC
R-61 S2	1220.4	11/18/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	2.81	0.87	2.3	—	pCi/L	Y	—	NQ	12-399	CAMO-12-1516	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-61 S2	1220.4	08/19/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	2.69	0.82	2.2	—	pCi/L	Y	—	NQ	11-3277	CAMO-11-24703	GELC
R-61 S2	1220.4	05/24/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.66	0.89	2.9	—	pCi/L	Y	U	U	11-2502	CAMO-11-11689	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	33.8	—	—	0.453	mg/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	44.7	—	—	0.45	mg/L	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	45.2	—	—	0.45	mg/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	53.1	—	—	0.45	mg/L	Y	—	NQ	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	38.5	—	—	0.45	mg/L	Y	—	NQ	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	Y	331	—	—	30	ug/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	Y	148	—	—	30	ug/L	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	Y	1750	—	—	30	ug/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	Y	5590	—	—	30	ug/L	Y	—	NQ	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Iron	Fe	N	100	—	—	30	ug/L	Y	U	U	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Lead	Pb	Y	0.785	—	—	0.5	ug/L	Y	J	J	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Lead	Pb	N	2	—	—	0.5	ug/L	Y	U	U	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Lead	Pb	N	2	—	—	0.5	ug/L	Y	U	U	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Lead	Pb	N	2	—	—	0.5	ug/L	Y	U	U	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Lead	Pb	N	2	—	—	0.5	ug/L	Y	U	U	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.37	—	—	0.11	mg/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.59	—	—	0.11	mg/L	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.78	—	—	0.11	mg/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.48	—	—	0.11	mg/L	Y	—	NQ	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.26	—	—	0.11	mg/L	Y	—	NQ	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	91.5	—	—	2	ug/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	744	—	—	2	ug/L	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	566	—	—	2	ug/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	908	—	—	2	ug/L	Y	—	NQ	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Manganese	Mn	Y	22.2	—	—	2	ug/L	Y	—	NQ	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	6.81	—	—	0.165	ug/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	4.71	—	—	0.17	ug/L	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	5.76	—	—	0.17	ug/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	10.9	—	—	0.17	ug/L	Y	—	NQ	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.6	—	—	0.17	ug/L	Y	—	NQ	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-1	3.22	11	—	pCi/L	Y	U	U	2013-334	CAMO-13-24252	GELC
R-61 S2	1220.4	02/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	0.431	2.8	9.6	—	pCi/L	Y	U	U	12-745	CAMO-12-2232	GELC
R-61 S2	1220.4	11/18/11	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.61	3.1	10	—	pCi/L	Y	U	U	12-399	CAMO-12-1516	GELC
R-61 S2	1220.4	08/19/11	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.24	2.7	8.9	—	pCi/L	Y	U	U	11-3277	CAMO-11-24703	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.84	—	—	0.5	ug/L	Y	J	J	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.34	—	—	0.5	ug/L	Y	J	J	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.38	—	—	0.5	ug/L	Y	J	J	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.59	—	—	0.5	ug/L	Y	J	J	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	N	2	—	—	0.5	ug/L	Y	U	U	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.27	—	—	0.017	mg/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	N	0.05	—	—	0.01	mg/L	Y	U	U	12-744	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.313	—	—	0.05	mg/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.362	—	—	0.1	mg/L	Y	J	J	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.438	—	—	0.05	mg/L	Y	—	J+	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.253	—	—	0.05	ug/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.278	—	—	0.05	ug/L	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.265	—	—	0.05	ug/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.205	—	—	0.05	ug/L	Y	—	NQ	11-3277	CAMO-11-24702	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.306	—	—	0.05	ug/L	Y	—	NQ	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00786	0.00694	0.0252	—	pCi/L	Y	U	U	2013-334	CAMO-13-24252	GELC
R-61 S2	1220.4	02/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00629	0.007	0.026	—	pCi/L	Y	U	U	12-745	CAMO-12-2232	GELC
R-61 S2	1220.4	11/18/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.0154	0.0066	0.021	—	pCi/L	Y	U	U	12-399	CAMO-12-1516	GELC
R-61 S2	1220.4	08/19/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00255	0.0044	0.026	—	pCi/L	Y	U	U	11-3277	CAMO-11-24703	GELC
R-61 S2	1220.4	05/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.0039	0.0039	0.024	—	pCi/L	Y	U	U	11-2502	CAMO-11-11689	GELC
R-61 S2	1220.4	11/15/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0105	0.00741	0.0418	—	pCi/L	Y	U	U	2013-334	CAMO-13-24252	GELC
R-61 S2	1220.4	02/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00839	0.0066	0.031	—	pCi/L	Y	U	U	12-745	CAMO-12-2232	GELC
R-61 S2	1220.4	11/18/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00683	0.0034	0.021	—	pCi/L	Y	U	U	12-399	CAMO-12-1516	GELC
R-61 S2	1220.4	08/19/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0051	0.0062	0.049	—	pCi/L	Y	U	U	11-3277	CAMO-11-24703	GELC
R-61 S2	1220.4	05/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0039	0.0048	0.036	—	pCi/L	Y	U	U	11-2502	CAMO-11-11689	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	21.8	—	—	0.05	mg/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.51	—	—	0.05	mg/L	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.83	—	—	0.05	mg/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.34	—	—	0.05	mg/L	Y	—	NQ	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.6	—	—	0.05	mg/L	Y	—	J	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	17.7	22	85.5	—	pCi/L	Y	U	U	2013-334	CAMO-13-24252	GELC
R-61 S2	1220.4	02/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-35.6	17	57	—	pCi/L	Y	U	U	12-745	CAMO-12-2232	GELC
R-61 S2	1220.4	11/18/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-6.14	20	74	—	pCi/L	Y	U	U	12-399	CAMO-12-1516	GELC
R-61 S2	1220.4	08/19/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	8.24	21	74	—	pCi/L	Y	U	U	11-3277	CAMO-11-24703	GELC
R-61 S2	1220.4	05/24/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	12.1	20	73	—	pCi/L	Y	U	U	11-2502	CAMO-11-11689	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	120	—	—	0.53	mg/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	64.1	—	—	0.053	mg/L	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	69.8	—	—	0.053	mg/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	70.2	—	—	0.053	mg/L	Y	—	NQ	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	69.4	—	—	0.053	mg/L	Y	—	NQ	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	20.7	—	—	0.1	mg/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	16.6	—	—	0.1	mg/L	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	17.9	—	—	0.1	mg/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	24.4	—	—	0.1	mg/L	Y	—	NQ	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	11.3	—	—	0.1	mg/L	Y	—	NQ	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.572	1.45	5.38	—	pCi/L	Y	U	U	2013-334	CAMO-13-24252	GELC
R-61 S2	1220.4	02/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.323	1.2	4.2	—	pCi/L	Y	U	U	12-745	CAMO-12-2232	GELC
R-61 S2	1220.4	11/18/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.05	1.3	4.9	—	pCi/L	Y	U	U	12-399	CAMO-12-1516	GELC
R-61 S2	1220.4	08/19/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.0637	1.6	5.2	—	pCi/L	Y	U	U	11-3277	CAMO-11-24703	GELC
R-61 S2	1220.4	05/24/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.01	1.4	5	—	pCi/L	Y	U	U	11-2502	CAMO-11-11689	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	197	—	—	1	uS/cm	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	159	—	—	1	uS/cm	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	164	—	—	1	uS/cm	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	203	—	—	1	uS/cm	Y	—	NQ	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	134	—	—	1	uS/cm	Y	—	NQ	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	33.6	—	—	1	ug/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	63.4	—	—	1	ug/L	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	65.1	—	—	1	ug/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	81.4	—	—	1	ug/L	Y	—	NQ	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	44.4	—	—	1	ug/L	Y	—	NQ	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.122	0.143	0.499	—	pCi/L	Y	U	U	2013-334	CAMO-13-24252	GELC
R-61 S2	1220.4	02/08/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0985	0.14	0.47	—	pCi/L	Y	U	U	12-745	CAMO-12-2232	GELC
R-61 S2	1220.4	11/18/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.294	0.15	0.49	—	pCi/L	Y	U	U	12-399	CAMO-12-1516	GELC
R-61 S2	1220.4	08/19/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.144	0.15	0.5	—	pCi/L	Y	U	U	11-3277	CAMO-11-24703	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-61 S2	1220.4	05/24/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.151	0.14	0.48	—	pCi/L	Y	U	U	11-2502	CAMO-11-11689	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.16	—	—	0.133	mg/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.2	—	—	0.1	mg/L	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.13	—	—	0.1	mg/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	1.85	—	—	0.1	mg/L	Y	—	NQ	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.61	—	—	0.1	mg/L	Y	—	J+	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	256	—	—	3.4	mg/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	143	—	—	3.4	mg/L	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	147	—	—	3.4	mg/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	123	—	—	3.4	mg/L	Y	—	NQ	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	141	—	—	2.4	mg/L	Y	—	NQ	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.14	—	—	0.033	mg/L	Y	—	NQ	2013-334	CAMO-13-24252	GELC
R-61 S2	1220.4	02/08/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.113	—	—	0.035	mg/L	Y	—	NQ	12-744	CAMO-12-2232	GELC
R-61 S2	1220.4	11/18/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	U	12-399	CAMO-12-1516	GELC
R-61 S2	1220.4	08/19/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.17	—	—	0.035	mg/L	Y	—	U	11-3277	CAMO-11-24703	GELC
R-61 S2	1220.4	05/24/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.5	—	—	0.18	mg/L	Y	U	UJ	11-2502	CAMO-11-11689	GELC
R-61 S2	1220.4	11/15/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	3.65	—	—	0.33	mg/L	Y	—	NQ	2013-334	CAMO-13-24252	GELC
R-61 S2	1220.4	02/08/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.864	—	—	0.33	mg/L	Y	J	J	12-744	CAMO-12-2232	GELC
R-61 S2	1220.4	11/18/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	2.49	—	—	0.33	mg/L	Y	—	NQ	12-399	CAMO-12-1516	GELC
R-61 S2	1220.4	08/19/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	14.7	—	—	0.33	mg/L	Y	—	J	11-3277	CAMO-11-24703	GELC
R-61 S2	1220.4	05/24/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.573	—	—	0.33	mg/L	Y	J	J	11-2502	CAMO-11-11689	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	19.1	—	—	0.17	mg/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0389	—	—	0.015	mg/L	Y	J	J	12-744	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.05	—	—	0.015	mg/L	Y	U	U	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.05	—	—	0.015	mg/L	Y	U	U	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.05	—	—	0.015	mg/L	Y	U	U	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	2.122	0.786	2.307	—	pCi/L	Y	U	U	2013-360	CAMO-13-24252	ARSL
R-61 S2	1220.4	02/08/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	1.97	0.67	1.89	—	pCi/L	Y	—	U	12-746	CAMO-12-2232	ARSL
R-61 S2	1220.4	11/18/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-1.25	0.64	2.17	—	pCi/L	Y	U	U	12-436	CAMO-12-1516	ARSL
R-61 S2	1220.4	08/19/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.2898	0.7084	2.3506	—	pCi/L	Y	U	U	11-3305	CAMO-11-24703	ARSL
R-61 S2	1220.4	05/24/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.3864	0.6118	2.1252	—	pCi/L	Y	U	U	11-2531	CAMO-11-11689	ARSL
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.224	—	—	0.067	ug/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.719	—	—	0.067	ug/L	Y	—	NQ	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.759	—	—	0.067	ug/L	Y	—	NQ	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.606	—	—	0.067	ug/L	Y	—	NQ	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.847	—	—	0.067	ug/L	Y	—	NQ	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.215	0.0315	0.0761	—	pCi/L	Y	—	NQ	2013-334	CAMO-13-24252	GELC
R-61 S2	1220.4	02/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.497	0.045	0.047	—	pCi/L	Y	—	NQ	12-745	CAMO-12-2232	GELC
R-61 S2	1220.4	11/18/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.472	0.044	0.047	—	pCi/L	Y	—	NQ	12-399	CAMO-12-1516	GELC
R-61 S2	1220.4	08/19/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.4	0.047	0.06	—	pCi/L	Y	—	NQ	11-3277	CAMO-11-24703	GELC
R-61 S2	1220.4	05/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.552	0.055	0.07	—	pCi/L	Y	—	NQ	11-2502	CAMO-11-11689	GELC
R-61 S2	1220.4	11/15/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0	0.00811	0.0475	—	pCi/L	Y	U	U	2013-334	CAMO-13-24252	GELC
R-61 S2	1220.4	02/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0229	0.0086	0.025	—	pCi/L	Y	U	U	12-745	CAMO-12-2232	GELC
R-61 S2	1220.4	11/18/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0155	0.0067	0.026	—	pCi/L	Y	U	U	12-399	CAMO-12-1516	GELC
R-61 S2	1220.4	08/19/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0244	0.01	0.043	—	pCi/L	Y	U	U	11-3277	CAMO-11-24703	GELC
R-61 S2	1220.4	05/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.01	0.0089	0.054	—	pCi/L	Y	U	U	11-2502	CAMO-11-11689	GELC
R-61 S2	1220.4	11/15/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.197	0.0262	0.0516	—	pCi/L	Y	—	NQ	2013-334	CAMO-13-24252	GELC
R-61 S2	1220.4	02/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.294	0.031	0.036	—	pCi/L	Y	—	NQ	12-745	CAMO-12-2232	GELC
R-61 S2	1220.4	11/18/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.208	0.025	0.026	—	pCi/L	Y	—	NQ	12-399	CAMO-12-1516	GELC
R-61 S2	1220.4	08/19/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.266	0.037	0.051	—	pCi/L	Y	—	NQ	11-3277	CAMO-11-24703	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-61 S2	1220.4	05/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.349	0.04	0.037	—	pCi/L	Y	—	NQ	11-2502	CAMO-11-11689	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	5.11	—	—	1	ug/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	3.51	—	—	1	ug/L	Y	J	J	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	2.07	—	—	1	ug/L	Y	J	J	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	N	5	—	—	1	ug/L	Y	U	U	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	4.41	—	—	1	ug/L	Y	J	J	11-2502	CAMO-11-11691	GELC
R-61 S2	1220.4	11/15/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	10.4	—	—	3.3	ug/L	Y	—	NQ	2013-334	CAMO-13-24269	GELC
R-61 S2	1220.4	02/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	N	10	—	—	3.3	ug/L	Y	U	U	12-745	CAMO-12-2231	GELC
R-61 S2	1220.4	11/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	N	10	—	—	3.3	ug/L	Y	U	U	12-399	CAMO-12-1518	GELC
R-61 S2	1220.4	08/19/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	5.43	—	—	3.3	ug/L	Y	J	J	11-3277	CAMO-11-24702	GELC
R-61 S2	1220.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	N	10	—	—	3.3	ug/L	Y	U	U	11-2502	CAMO-11-11691	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.74	—	—	0.01	SU	Y	H	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.74	—	—	0.01	SU	Y	H	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.45	—	—	0.01	SU	Y	H	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.48	—	—	0.01	SU	Y	H	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.49	—	—	0.01	SU	Y	H	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.3	—	—	0.01	SU	Y	H	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	63.8	—	—	0.725	mg/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	62.2	—	—	0.725	mg/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	64.5	—	—	0.725	mg/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	62.7	—	—	0.725	mg/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	63.6	—	—	0.725	mg/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	60.5	—	—	0.725	mg/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	3.43E-10	0.00411	0.0234	—	pCi/L	Y	U	U	2013-297	CAMO-13-24253	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	FD	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00436	0.00534	0.0248	—	pCi/L	Y	U	U	2013-297	CAMO-13-24228	GELC
R-62	1158.4	08/08/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00885	0.0078	0.0404	—	pCi/L	Y	U	U	12-1482	CAMO-12-21741	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	FD	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0	0.00273	0.0466	—	pCi/L	Y	U	U	12-1349	CAMO-12-13999	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00691	0.00949	0.0393	—	pCi/L	Y	U	U	12-1349	CAMO-12-14018	GELC
R-62	1158.4	03/26/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00871	0.00435	0.0392	—	pCi/L	Y	U	U	12-1149	CAMO-12-12025	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0606	—	—	0.017	mg/L	Y	—	J-	2013-297	CAMO-13-24229	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.288	—	—	0.017	mg/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.148	—	—	0.017	mg/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0629	—	—	0.017	mg/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0449	—	—	0.017	mg/L	Y	J	J	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.119	—	—	0.017	mg/L	Y	—	U	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	25.6	—	—	1	ug/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Barium	Ba	Y	24.4	—	—	1	ug/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	23	—	—	1	ug/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	22.9	—	—	1	ug/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Barium	Ba	Y	22.5	—	—	1	ug/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	24.4	—	—	1	ug/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	16.2	—	—	15	ug/L	Y	J	J	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Boron	B	N	50	—	—	15	ug/L	Y	U	U	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	N	50	—	—	15	ug/L	Y	U	U	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	N	50	—	—	15	ug/L	Y	U	U	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Boron	B	Y	15.4	—	—	15	ug/L	Y	J	J	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	N	50	—	—	15	ug/L	Y	U	U	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.106	—	—	0.067	mg/L	Y	J	J	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.137	—	—	0.067	mg/L	Y	J	J	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.118	—	—	0.067	mg/L	Y	J	J	12-1482	CAMO-12-21749	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-62	1158.4	06/06/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.075	—	—	0.067	mg/L	Y	J	J	12-1349	CAMO-12-14000	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	N	0.2	—	—	0.067	mg/L	Y	U	U	12-1349	CAMO-12-14033	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	N	0.2	—	—	0.066	mg/L	Y	U	U	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	18.1	—	—	0.05	mg/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Calcium	Ca	Y	17.6	—	—	0.05	mg/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	16.1	—	—	0.05	mg/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Calcium	Ca	Y	15.8	—	—	0.05	mg/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	16	—	—	0.05	mg/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	17.9	—	—	0.05	mg/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	FD	RAD	EPA:901.1	Cesium-137	Cs-137	N	2.46	1.47	6.07	—	pCi/L	Y	U	U	2013-297	CAMO-13-24228	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.881	1.89	6.96	—	pCi/L	Y	U	U	2013-297	CAMO-13-24253	GELC
R-62	1158.4	08/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	3.55	1.38	6.11	—	pCi/L	Y	U	U	12-1482	CAMO-12-21741	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.239	1.45	5.45	—	pCi/L	Y	U	U	12-1349	CAMO-12-14018	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	FD	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.07	1.55	5.26	—	pCi/L	Y	U	U	12-1349	CAMO-12-13999	GELC
R-62	1158.4	03/26/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.714	1.39	4.99	—	pCi/L	Y	U	U	12-1149	CAMO-12-12025	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	7.83	—	—	0.067	mg/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	7.85	—	—	0.067	mg/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	8.74	—	—	0.067	mg/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	8.26	—	—	0.067	mg/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	8.26	—	—	0.067	mg/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.64	—	—	0.066	mg/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	128	—	—	10	ug/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Chromium	Cr	Y	133	—	—	10	ug/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	175	—	—	2	ug/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	135	—	—	10	ug/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Chromium	Cr	Y	129	—	—	10	ug/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	198	—	—	2	ug/L	Y	N	J-	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-2.34	2.11	7.35	—	pCi/L	Y	U	U	2013-297	CAMO-13-24253	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	FD	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.877	1.64	6.63	—	pCi/L	Y	U	U	2013-297	CAMO-13-24228	GELC
R-62	1158.4	08/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.822	1.39	5.96	—	pCi/L	Y	U	U	12-1482	CAMO-12-21741	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	1.67	1.94	8.1	—	pCi/L	Y	U	U	12-1349	CAMO-12-14018	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	FD	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.255	1.22	4.81	—	pCi/L	Y	U	U	12-1349	CAMO-12-13999	GELC
R-62	1158.4	03/26/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.51	1.16	4.41	—	pCi/L	Y	U	U	12-1149	CAMO-12-12025	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.246	—	—	0.033	mg/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.244	—	—	0.033	mg/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.202	—	—	0.033	mg/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.242	—	—	0.033	mg/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.246	—	—	0.033	mg/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.413	—	—	0.033	mg/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	0.671	0.626	2.32	—	pCi/L	Y	U	U	2013-297	CAMO-13-24228	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.256	0.631	2.88	—	pCi/L	Y	U	U	2013-297	CAMO-13-24253	GELC
R-62	1158.4	08/08/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.91	0.822	2.24	—	pCi/L	Y	U	U	12-1482	CAMO-12-21741	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	1.89	0.87	2.34	—	pCi/L	Y	U	U	12-1349	CAMO-12-13999	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.861	0.757	2.5	—	pCi/L	Y	U	U	12-1349	CAMO-12-14018	GELC
R-62	1158.4	03/26/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.45	0.772	2.25	—	pCi/L	Y	U	U	12-1149	CAMO-12-12025	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	3.03	0.917	2.64	—	pCi/L	Y	—	NQ	2013-297	CAMO-13-24253	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	N	1.04	0.678	2.26	—	pCi/L	Y	U	U	2013-297	CAMO-13-24228	GELC
R-62	1158.4	08/08/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.2	0.677	2.17	—	pCi/L	Y	U	U	12-1482	CAMO-12-21741	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	2.39	0.789	2.47	—	pCi/L	Y	U	U	12-1349	CAMO-12-14018	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	Y	3.17	0.864	2.65	—	pCi/L	Y	—	NQ	12-1349	CAMO-12-13999	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-62	1158.4	03/26/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.72	0.794	2.49	—	pCi/L	Y	U	U	12-1149	CAMO-12-12025	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	65.6	—	—	0.453	mg/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	64	—	—	0.453	mg/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	58.3	—	—	0.453	mg/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	57.7	—	—	0.453	mg/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	57.1	—	—	0.453	mg/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	64.8	—	—	0.453	mg/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.96	—	—	0.11	mg/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.88	—	—	0.11	mg/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.4	—	—	0.11	mg/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.32	—	—	0.11	mg/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.31	—	—	0.11	mg/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	4.86	—	—	0.11	mg/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.91	—	—	0.165	ug/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.92	—	—	0.165	ug/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.61	—	—	0.165	ug/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	2.14	—	—	0.165	ug/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	2.09	—	—	0.165	ug/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.36	—	—	0.165	ug/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	2.32	3.63	13.5	—	pCi/L	Y	U	U	2013-297	CAMO-13-24253	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	FD	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.39	3.6	12.2	—	pCi/L	Y	U	U	2013-297	CAMO-13-24228	GELC
R-62	1158.4	08/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	4.26	2.75	10.8	—	pCi/L	Y	U	U	12-1482	CAMO-12-21741	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	3.58	2.85	11.1	—	pCi/L	Y	U	U	12-1349	CAMO-12-14018	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	FD	RAD	EPA:901.1	Neptunium-237	Np-237	N	-0.0449	2.58	9.3	—	pCi/L	Y	U	U	12-1349	CAMO-12-13999	GELC
R-62	1158.4	03/26/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-0.985	2.55	8.96	—	pCi/L	Y	U	U	12-1149	CAMO-12-12025	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.96	—	—	0.5	ug/L	Y	J	J	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Nickel	Ni	Y	2.01	—	—	0.5	ug/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	2.15	—	—	0.5	ug/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	2.09	—	—	0.5	ug/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Nickel	Ni	Y	2.11	—	—	0.5	ug/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	2.06	—	—	0.5	ug/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.99	—	—	0.085	mg/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.02	—	—	0.017	mg/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.33	—	—	0.085	mg/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.08	—	—	0.085	mg/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.1	—	—	0.085	mg/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	1.39	—	—	0.05	mg/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.771	—	—	0.05	ug/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.764	—	—	0.05	ug/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.819	—	—	0.05	ug/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.775	—	—	0.05	ug/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.765	—	—	0.05	ug/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.777	—	—	0.05	ug/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.0029	0.00502	0.0278	—	pCi/L	Y	U	U	2013-297	CAMO-13-24253	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.0125	0.00969	0.024	—	pCi/L	Y	U	U	2013-297	CAMO-13-24228	GELC
R-62	1158.4	08/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.00414	0.0197	—	pCi/L	Y	U	U	12-1482	CAMO-12-21741	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00834	0.016	0.0632	—	pCi/L	Y	U	U	12-1349	CAMO-12-13999	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.00799	0.0642	—	pCi/L	Y	U	U	12-1349	CAMO-12-14018	GELC
R-62	1158.4	03/26/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.0142	0.00884	0.037	—	pCi/L	Y	U	U	12-1149	CAMO-12-12025	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.0029	0.00766	0.0462	—	pCi/L	Y	U	U	2013-297	CAMO-13-24253	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-62	1158.4	11/08/12	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.0025	0.00662	0.0399	—	pCi/L	Y	U	U	2013-297	CAMO-13-24228	GELC
R-62	1158.4	08/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0117	0.00926	0.0353	—	pCi/L	Y	U	U	12-1482	CAMO-12-21741	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0167	0.00681	0.0624	—	pCi/L	Y	U	U	12-1349	CAMO-12-13999	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00565	0.00799	0.0634	—	pCi/L	Y	U	U	12-1349	CAMO-12-14018	GELC
R-62	1158.4	03/26/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00608	0.00731	0.0286	—	pCi/L	Y	U	U	12-1149	CAMO-12-12025	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Potassium	K	Y	1.49	—	—	0.05	mg/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.54	—	—	0.05	mg/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.42	—	—	0.05	mg/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.47	—	—	0.05	mg/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Potassium	K	Y	1.47	—	—	0.05	mg/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.38	—	—	0.05	mg/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-31.7	23.8	89.2	—	pCi/L	Y	U	U	2013-297	CAMO-13-24253	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	FD	RAD	EPA:901.1	Potassium-40	K-40	N	-36	19.7	64.7	—	pCi/L	Y	U	U	2013-297	CAMO-13-24228	GELC
R-62	1158.4	08/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	16.9	17	71.7	—	pCi/L	Y	U	U	12-1482	CAMO-12-21741	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	39	22.2	95.2	—	pCi/L	Y	U	U	12-1349	CAMO-12-14018	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	FD	RAD	EPA:901.1	Potassium-40	K-40	N	-8.52	17.6	67.4	—	pCi/L	Y	U	U	12-1349	CAMO-12-13999	GELC
R-62	1158.4	03/26/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	12.1	15.7	65.6	—	pCi/L	Y	U	U	12-1149	CAMO-12-12025	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	64.5	—	—	0.053	mg/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	63	—	—	0.053	mg/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	0.0609	—	—	0.053	mg/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	61.4	—	—	0.053	mg/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	60.7	—	—	0.053	mg/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	64.3	—	—	0.053	mg/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	13.9	—	—	0.1	mg/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Sodium	Na	Y	13.6	—	—	0.1	mg/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	13.3	—	—	0.1	mg/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Sodium	Na	Y	15.8	—	—	0.1	mg/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	16.1	—	—	0.1	mg/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	14.1	—	—	0.1	mg/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.35	2.08	8.82	—	pCi/L	Y	U	U	2013-297	CAMO-13-24253	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	FD	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.12	1.8	6.46	—	pCi/L	Y	U	U	2013-297	CAMO-13-24228	GELC
R-62	1158.4	08/08/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.09	1.3	5.73	—	pCi/L	Y	U	U	12-1482	CAMO-12-21741	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	FD	RAD	EPA:901.1	Sodium-22	Na-22	N	0.706	1.16	4.62	—	pCi/L	Y	U	U	12-1349	CAMO-12-13999	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	3.33	1.74	7.95	—	pCi/L	Y	U	U	12-1349	CAMO-12-14018	GELC
R-62	1158.4	03/26/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.65	1.49	4.95	—	pCi/L	Y	U	U	12-1149	CAMO-12-12025	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	189	—	—	1	uS/cm	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	188	—	—	1	uS/cm	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	192	—	—	1	uS/cm	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	18.4	—	—	1	uS/cm	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	188	—	—	1	uS/cm	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	198	—	—	1	uS/cm	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	98.9	—	—	1	ug/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Strontium	Sr	Y	96.3	—	—	1	ug/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	77.5	—	—	1	ug/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	80.3	—	—	1	ug/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Strontium	Sr	Y	79.1	—	—	1	ug/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	80.4	—	—	1	ug/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0275	0.123	0.462	—	pCi/L	Y	U	U	2013-297	CAMO-13-24253	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	FD	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0518	0.138	0.486	—	pCi/L	Y	U	U	2013-297	CAMO-13-24228	GELC
R-62	1158.4	08/08/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.232	0.131	0.482	—	pCi/L	Y	U	U	12-1482	CAMO-12-21741	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-62	1158.4	06/06/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.386	0.13	0.478	—	pCi/L	Y	U	U	12-1349	CAMO-12-14018	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	FD	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.019	0.132	0.487	—	pCi/L	Y	U	U	12-1349	CAMO-12-13999	GELC
R-62	1158.4	03/26/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.103	0.108	0.414	—	pCi/L	Y	U	U	12-1149	CAMO-12-12025	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	13.2	—	—	0.133	mg/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	13.1	—	—	0.133	mg/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	14.6	—	—	0.133	mg/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	13.8	—	—	0.133	mg/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	13.8	—	—	0.133	mg/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.56	—	—	0.1	mg/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	126	—	—	3.4	mg/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	141	—	—	3.4	mg/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	141	—	—	3.4	mg/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	140	—	—	3.4	mg/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	151	—	—	3.4	mg/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	180	—	—	3.4	mg/L	Y	—	J	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.641	—	—	0.33	mg/L	Y	J	J	2013-297	CAMO-13-24253	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	FD	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.573	—	—	0.33	mg/L	Y	J	J	2013-297	CAMO-13-24228	GELC
R-62	1158.4	08/08/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.589	—	—	0.33	mg/L	Y	J	J	12-1482	CAMO-12-21741	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.928	—	—	0.33	mg/L	Y	J	J	12-1349	CAMO-12-14018	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	FD	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.889	—	—	0.33	mg/L	Y	J	J	12-1349	CAMO-12-13999	GELC
R-62	1158.4	03/26/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.398	—	—	0.33	mg/L	Y	J	J-	12-1149	CAMO-12-12025	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0743	—	—	0.017	mg/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0665	—	—	0.017	mg/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.0573	—	—	0.017	mg/L	Y	—	U	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.0488	—	—	0.017	mg/L	Y	J	U	12-1349	CAMO-12-14000	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	N	0.057	—	—	0.017	mg/L	Y	—	U	12-1349	CAMO-12-14033	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0724	—	—	0.017	mg/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	5.878	1.245	2.593	—	pCi/L	Y	—	NQ	2013-282	CAMO-13-24253	ARSL
R-62	1158.4	11/08/12	WG	UF	INIT	FD	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	2.12	0.83	2.46	—	pCi/L	Y	U	U	2013-282	CAMO-13-24228	ARSL
R-62	1158.4	08/08/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	7.009	1.284	2.032	—	pCi/L	Y	—	U	12-1497	CAMO-12-21741	ARSL
R-62	1158.4	06/06/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	4.822	0.993	1.993	—	pCi/L	Y	—	NQ	12-1361	CAMO-12-14018	ARSL
R-62	1158.4	06/06/12	WG	UF	INIT	FD	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	4.663	0.978	2.015	—	pCi/L	Y	—	NQ	12-1361	CAMO-12-13999	ARSL
R-62	1158.4	03/26/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	6.638	1.215	1.943	—	pCi/L	Y	—	NQ	12-1152	CAMO-12-12025	ARSL
R-62	1158.4	11/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.991	—	—	0.067	ug/L	Y	—	NQ	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Uranium	U	Y	0.995	—	—	0.067	ug/L	Y	—	NQ	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.957	—	—	0.067	ug/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.991	—	—	0.067	ug/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Uranium	U	Y	0.945	—	—	0.067	ug/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.06	—	—	0.067	ug/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.783	0.0494	0.0666	—	pCi/L	Y	—	NQ	2013-297	CAMO-13-24228	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.707	0.0483	0.0713	—	pCi/L	Y	—	NQ	2013-297	CAMO-13-24253	GELC
R-62	1158.4	08/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.605	0.0359	0.0538	—	pCi/L	Y	—	J	12-1482	CAMO-12-21741	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.661	0.0612	0.131	—	pCi/L	Y	—	J	12-1349	CAMO-12-14018	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.586	0.0472	0.093	—	pCi/L	Y	—	NQ	12-1349	CAMO-12-13999	GELC
R-62	1158.4	03/26/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.8	0.0437	0.0561	—	pCi/L	Y	—	J	12-1149	CAMO-12-12025	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0319	0.0128	0.0416	—	pCi/L	Y	U	U	2013-297	CAMO-13-24228	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0304	0.0132	0.0445	—	pCi/L	Y	U	U	2013-297	CAMO-13-24253	GELC
R-62	1158.4	08/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00995	0.00609	0.0347	—	pCi/L	Y	U	U	12-1482	CAMO-12-21741	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0359	0.0136	0.0522	—	pCi/L	Y	U	U	12-1349	CAMO-12-13999	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00661	0.0106	0.0743	—	pCi/L	Y	U	U	12-1349	CAMO-12-14018	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-62	1158.4	03/26/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0199	0.00944	0.0324	—	pCi/L	Y	U	U	12-1149	CAMO-12-12025	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.261	0.0299	0.0484	—	pCi/L	Y	—	NQ	2013-297	CAMO-13-24253	GELC
R-62	1158.4	11/08/12	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.33	0.0313	0.0452	—	pCi/L	Y	—	NQ	2013-297	CAMO-13-24228	GELC
R-62	1158.4	08/08/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.268	0.0236	0.0273	—	pCi/L	Y	—	J	12-1482	CAMO-12-21741	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.313	0.0427	0.0687	—	pCi/L	Y	—	J	12-1349	CAMO-12-14018	GELC
R-62	1158.4	06/06/12	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.301	0.0327	0.0485	—	pCi/L	Y	—	NQ	12-1349	CAMO-12-13999	GELC
R-62	1158.4	03/26/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.341	0.029	0.036	—	pCi/L	Y	—	J	12-1149	CAMO-12-12025	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	3.27	—	—	1	ug/L	Y	J	J	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Vanadium	V	Y	3.17	—	—	1	ug/L	Y	J	J	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	2.95	—	—	1	ug/L	Y	J	J	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	3.67	—	—	1	ug/L	Y	J	J	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Vanadium	V	Y	3.49	—	—	1	ug/L	Y	J	J	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	4.27	—	—	1	ug/L	Y	J	J	12-1149	CAMO-12-12034	GELC
R-62	1158.4	11/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	5.83	—	—	3.3	ug/L	Y	J	J	2013-297	CAMO-13-24270	GELC
R-62	1158.4	11/08/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Zinc	Zn	Y	5.04	—	—	3.3	ug/L	Y	J	J	2013-297	CAMO-13-24229	GELC
R-62	1158.4	08/08/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	16.8	—	—	3.3	ug/L	Y	—	NQ	12-1482	CAMO-12-21749	GELC
R-62	1158.4	06/06/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	14.9	—	—	3.3	ug/L	Y	—	NQ	12-1349	CAMO-12-14033	GELC
R-62	1158.4	06/06/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Zinc	Zn	Y	14.1	—	—	3.3	ug/L	Y	—	NQ	12-1349	CAMO-12-14000	GELC
R-62	1158.4	03/26/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	37.5	—	—	3.3	ug/L	Y	—	NQ	12-1149	CAMO-12-12034	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.84	—	—	0.01	SU	Y	H	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.56	—	—	0.01	SU	Y	H	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.29	—	—	0.01	SU	Y	H	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.46	—	—	0.01	SU	Y	H	J-	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.65	—	—	0.01	SU	Y	H	J-	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	105	—	—	0.725	mg/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	111	—	—	0.725	mg/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	112	—	—	0.73	mg/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	105	—	—	0.73	mg/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	106	—	—	0.73	mg/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0	0.011	0.051	—	pCi/L	Y	U	U	2013-264	CASA-13-24215	GELC
SCI-1	358.4	11/16/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.037	0.011	0.044	—	pCi/L	Y	U	U	12-352	CASA-12-1373	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0296	0.01	0.042	—	pCi/L	Y	U	U	10-3651	CASA-10-22646	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	FD	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0167	0.0059	0.038	—	pCi/L	Y	U	U	10-3651	CASA-10-22648	GELC
SCI-1	358.4	02/05/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00449	0.0048	0.039	—	pCi/L	Y	U	U	10-1679	CASA-10-9452	GELC
SCI-1	358.4	08/03/09	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00706	0.0038	0.034	—	pCi/L	Y	U	U	09-2757	CASA-09-10350	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0197	—	—	0.017	mg/L	Y	J	J	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.135	—	—	0.017	mg/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0332	—	—	0.016	mg/L	Y	J	J	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	33.7	—	—	1	ug/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	38.9	—	—	1	ug/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	34.7	—	—	1	ug/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	51.3	—	—	1	ug/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	41.6	—	—	1	ug/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	85.8	—	—	15	ug/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	84.9	—	—	15	ug/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	85.8	—	—	15	ug/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	99.4	—	—	15	ug/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	72.8	—	—	15	ug/L	Y	—	NQ	11-2518	CASA-11-10804	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
SCI-1	358.4	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.781	—	—	0.067	mg/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.793	—	—	0.067	mg/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.838	—	—	0.066	mg/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.882	—	—	0.066	mg/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.926	—	—	0.066	mg/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	64.2	—	—	0.05	mg/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	67.6	—	—	0.05	mg/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	70.4	—	—	0.05	mg/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	77.4	—	—	0.05	mg/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	68.1	—	—	0.05	mg/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.0752	1.24	4.55	—	pCi/L	Y	U	U	2013-264	CASA-13-24215	GELC
SCI-1	358.4	11/16/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.281	1.2	4.1	—	pCi/L	Y	U	U	12-352	CASA-12-1373	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.837	1.4	4.6	—	pCi/L	Y	U	U	10-3651	CASA-10-22646	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	FD	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.11	1.3	3.9	—	pCi/L	Y	U	U	10-3651	CASA-10-22648	GELC
SCI-1	358.4	02/05/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.54	1.7	5	—	pCi/L	Y	U	U	10-1679	CASA-10-9452	GELC
SCI-1	358.4	08/03/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.615	1.3	4.2	—	pCi/L	Y	U	U	09-2757	CASA-09-10350	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	97.2	—	—	0.67	mg/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	94.7	—	—	0.67	mg/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	97.6	—	—	0.66	mg/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	92	—	—	0.66	mg/L	Y	—	J+	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	92.2	—	—	0.66	mg/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	10.1	—	—	2	ug/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	9.9	—	—	2	ug/L	Y	J	J	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	RE	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	8.96	—	—	2	ug/L	Y	J	J	12-352	CASA-12-1374	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	48.7	—	—	10	ug/L	N	J	R	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	10.5	—	—	2	ug/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	10.6	—	—	2	ug/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.337	1.16	4.37	—	pCi/L	Y	U	U	2013-264	CASA-13-24215	GELC
SCI-1	358.4	11/16/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	1.8	1.2	4.7	—	pCi/L	Y	U	U	12-352	CASA-12-1373	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.76	1.5	4.4	—	pCi/L	Y	U	U	10-3651	CASA-10-22646	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	FD	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.251	1.5	4.9	—	pCi/L	Y	U	U	10-3651	CASA-10-22648	GELC
SCI-1	358.4	02/05/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.753	1.5	5	—	pCi/L	Y	U	U	10-1679	CASA-10-9452	GELC
SCI-1	358.4	08/03/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.986	1.2	4.3	—	pCi/L	Y	U	U	09-2757	CASA-09-10350	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.202	—	—	0.033	mg/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.197	—	—	0.033	mg/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.192	—	—	0.033	mg/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.16	—	—	0.033	mg/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.195	—	—	0.033	mg/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.88	0.99	2.93	—	pCi/L	Y	U	U	2013-264	CASA-13-24215	GELC
SCI-1	358.4	11/16/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	Y	5.45	1.8	3.4	—	pCi/L	Y	—	NQ	12-352	CASA-12-1373	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	Y	4.88	1.4	3	—	pCi/L	Y	—	NQ	10-3651	CASA-10-22648	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	3.4	1.3	2.9	—	pCi/L	Y	—	U	10-3651	CASA-10-22646	GELC
SCI-1	358.4	08/03/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	3.89	1.4	3.1	—	pCi/L	Y	—	U	09-2757	CASA-09-10350	GELC
SCI-1	358.4	08/22/07	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	Y	5	1.33	2.66	—	pCi/L	Y	—	J	192311	GU070800SCI101	GELC
SCI-1	358.4	11/02/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.474	0.751	2.7	—	pCi/L	Y	U	U	2013-264	CASA-13-24215	GELC
SCI-1	358.4	11/16/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	3.59	1.1	3	—	pCi/L	Y	—	NQ	12-352	CASA-12-1373	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	Y	6.11	1.3	3	—	pCi/L	Y	—	NQ	10-3651	CASA-10-22648	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.414	0.84	3	—	pCi/L	Y	U	U	10-3651	CASA-10-22646	GELC
SCI-1	358.4	08/03/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.25	0.54	1.7	—	pCi/L	Y	U	U	09-2757	CASA-09-10350	GELC
SCI-1	358.4	08/22/07	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	4.5	1.4	4.16	—	pCi/L	Y	—	J	192311	GU070800SCI101	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
SCI-1	358.4	11/02/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	201	—	—	0.453	mg/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	212	—	—	0.453	mg/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	219	—	—	0.45	mg/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	241	—	—	0.45	mg/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	212	—	—	0.45	mg/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	9.86	—	—	0.11	mg/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	10.4	—	—	0.11	mg/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	10.5	—	—	0.11	mg/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	11.5	—	—	0.11	mg/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	10.2	—	—	0.11	mg/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	86.9	—	—	0.165	ug/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	74.1	—	—	0.165	ug/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	RE	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	77.3	—	—	0.17	ug/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	77	—	—	0.17	ug/L	N	—	R	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	68.9	—	—	0.17	ug/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	74.3	—	—	0.17	ug/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	1.3	2.51	9.02	—	pCi/L	Y	U	U	2013-264	CASA-13-24215	GELC
SCI-1	358.4	11/16/11	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-0.488	2.7	9.4	—	pCi/L	Y	U	U	12-352	CASA-12-1373	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	0.869	2.7	9.2	—	pCi/L	Y	U	U	10-3651	CASA-10-22646	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	FD	RAD	EPA:901.1	Neptunium-237	Np-237	N	1.46	2.5	8.4	—	pCi/L	Y	U	U	10-3651	CASA-10-22648	GELC
SCI-1	358.4	02/05/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	28.6	13	46	—	pCi/L	Y	U	U	10-1679	CASA-10-9452	GELC
SCI-1	358.4	08/03/09	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	23.1	12	41	—	pCi/L	Y	U	U	09-2757	CASA-09-10350	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	4.02	—	—	0.5	ug/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	4.26	—	—	0.5	ug/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	50.8	—	—	2.5	ug/L	N	—	R	12-352	CASA-12-1374	GELC
SCI-1	358.4	11/16/11	WG	F	RE	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	5.13	—	—	0.5	ug/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	4.5	—	—	0.5	ug/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	5.16	—	—	0.5	ug/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.89	—	—	0.085	mg/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.28	—	—	0.085	mg/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.43	—	—	0.05	mg/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.38	—	—	0.1	mg/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	2.83	—	—	0.05	mg/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.774	—	—	0.05	ug/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.972	—	—	0.05	ug/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.89	—	—	0.05	ug/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.895	—	—	0.1	ug/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.902	—	—	0.05	ug/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.007	0.007	0.0336	—	pCi/L	Y	U	U	2013-264	CASA-13-24215	GELC
SCI-1	358.4	11/16/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00181	0.0031	0.021	—	pCi/L	Y	U	U	12-352	CASA-12-1373	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.0018	0.024	—	pCi/L	Y	U	U	10-3651	CASA-10-22646	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00199	0.002	0.027	—	pCi/L	Y	U	U	10-3651	CASA-10-22648	GELC
SCI-1	358.4	02/05/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.0031	0.037	—	pCi/L	Y	U	U	10-1679	CASA-10-9452	GELC
SCI-1	358.4	08/03/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.0212	0.0085	0.029	—	pCi/L	Y	U	U	09-2757	CASA-09-10350	GELC
SCI-1	358.4	11/02/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.007	0.007	0.0559	—	pCi/L	Y	U	U	2013-264	CASA-13-24215	GELC
SCI-1	358.4	11/16/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00362	0.0026	0.029	—	pCi/L	Y	U	U	12-352	CASA-12-1373	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00181	0.0041	0.025	—	pCi/L	Y	U	U	10-3651	CASA-10-22646	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00399	0.0049	0.027	—	pCi/L	Y	U	U	10-3651	CASA-10-22648	GELC
SCI-1	358.4	02/05/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00221	0.0038	0.026	—	pCi/L	Y	U	U	10-1679	CASA-10-9452	GELC
SCI-1	358.4	08/03/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00193	0.0051	0.035	—	pCi/L	Y	U	U	09-2757	CASA-09-10350	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
SCI-1	358.4	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.4	—	—	0.05	mg/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.72	—	—	0.05	mg/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.93	—	—	0.05	mg/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.07	—	—	0.05	mg/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.39	—	—	0.05	mg/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	2.49	15.7	56.3	—	pCi/L	Y	U	U	2013-264	CASA-13-24215	GELC
SCI-1	358.4	11/16/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-20.9	15	53	—	pCi/L	Y	U	U	12-352	CASA-12-1373	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-12.6	21	71	—	pCi/L	Y	U	U	10-3651	CASA-10-22646	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	FD	RAD	EPA:901.1	Potassium-40	K-40	N	5.15	19	66	—	pCi/L	Y	U	U	10-3651	CASA-10-22648	GELC
SCI-1	358.4	02/05/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	17.8	21	78	—	pCi/L	Y	U	U	10-1679	CASA-10-9452	GELC
SCI-1	358.4	08/03/09	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	27.1	14	52	—	pCi/L	Y	U	U	09-2757	CASA-09-10350	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	64.9	—	—	0.053	mg/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	63.5	—	—	0.053	mg/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	64.3	—	—	0.053	mg/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	69.3	—	—	0.053	mg/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	59.8	—	—	0.053	mg/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	57.8	—	—	0.1	mg/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	55.3	—	—	0.1	mg/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	57.5	—	—	0.1	mg/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	55.5	—	—	0.1	mg/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	51.7	—	—	0.1	mg/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.755	1.2	4.19	—	pCi/L	Y	U	U	2013-264	CASA-13-24215	GELC
SCI-1	358.4	11/16/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.0544	1.1	4.3	—	pCi/L	Y	U	U	12-352	CASA-12-1373	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	FD	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.606	1.5	4.6	—	pCi/L	Y	U	U	10-3651	CASA-10-22648	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.555	1.1	3.5	—	pCi/L	Y	U	U	10-3651	CASA-10-22646	GELC
SCI-1	358.4	02/05/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.52	1.6	5.6	—	pCi/L	Y	U	U	10-1679	CASA-10-9452	GELC
SCI-1	358.4	08/03/09	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.56	1.2	4.3	—	pCi/L	Y	U	U	09-2757	CASA-09-10350	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	696	—	—	1	uS/cm	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	714	—	—	1	uS/cm	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	719	—	—	1	uS/cm	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	651	—	—	1	uS/cm	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	712	—	—	1	uS/cm	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	280	—	—	1	ug/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	301	—	—	1	ug/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	314	—	—	1	ug/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	338	—	—	1	ug/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	301	—	—	1	ug/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0567	0.131	0.485	—	pCi/L	Y	U	U	2013-264	CASA-13-24215	GELC
SCI-1	358.4	11/16/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0157	0.14	0.49	—	pCi/L	Y	U	U	12-352	CASA-12-1373	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	FD	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.129	0.086	0.28	—	pCi/L	Y	U	U	10-3651	CASA-10-22648	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0308	0.093	0.35	—	pCi/L	Y	U	U	10-3651	CASA-10-22646	GELC
SCI-1	358.4	02/05/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0589	0.14	0.49	—	pCi/L	Y	U	U	10-1679	CASA-10-9452	GELC
SCI-1	358.4	08/03/09	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0186	0.095	0.36	—	pCi/L	Y	U	U	09-2757	CASA-09-10350	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	67.3	—	—	1.33	mg/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	75.5	—	—	1.33	mg/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	78.4	—	—	1	mg/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	79.6	—	—	1	mg/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	84.9	—	—	1	mg/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	456	—	—	3.4	mg/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	471	—	—	3.4	mg/L	Y	—	NQ	12-1311	CASA-12-14065	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
SCI-1	358.4	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	491	—	—	3.4	mg/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	454	—	—	3.4	mg/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	487	—	—	2.4	mg/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.341	—	—	0.035	mg/L	Y	—	NQ	2013-264	CASA-13-24215	GELC
SCI-1	358.4	05/21/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.166	—	—	0.035	mg/L	Y	—	NQ	12-1311	CASA-12-14060	GELC
SCI-1	358.4	11/16/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.115	—	—	0.035	mg/L	Y	—	J+	12-352	CASA-12-1373	GELC
SCI-1	358.4	08/16/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.179	—	—	0.035	mg/L	Y	—	U	11-3243	CASA-11-24764	GELC
SCI-1	358.4	05/24/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	UJ	11-2518	CASA-11-10805	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	1.01	—	—	0.017	mg/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.956	—	—	0.017	mg/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.842	—	—	0.015	mg/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.693	—	—	0.015	mg/L	Y	—	J	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.735	—	—	0.015	mg/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	N	56.6	45.7	152	—	pCi/L	Y	U	U	2013-264	CASA-13-24215	GELC
SCI-1	358.4	11/16/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	60.72	9.22	2.33	—	pCi/L	Y	—	NQ	12-353	CASA-12-1373	ARSL
SCI-1	358.4	05/24/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	78.0528	11.8174	2.1896	—	pCi/L	Y	—	NQ	11-2519	CASA-11-10805	ARSL
SCI-1	358.4	11/16/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	301.167	45.241	2.576	—	pCi/L	N	—	R	11-556	CASA-11-1360	ARSL
SCI-1	358.4	11/16/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	88.1314	13.3308	2.576	—	pCi/L	Y	—	NQ	11-556	CASA-11-1360	ARSL
SCI-1	358.4	05/07/10	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	70.84	10.6904	1.8354	—	pCi/L	Y	—	NQ	10-3122	CASA-10-16757	ARSL
SCI-1	358.4	05/07/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	69.23	10.465	1.8354	—	pCi/L	N	—	R	10-3122	CASA-10-16757	ARSL
SCI-1	358.4	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	2.32	—	—	0.067	ug/L	Y	—	NQ	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	2.49	—	—	0.067	ug/L	Y	—	NQ	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	RE	REG	INORGANIC	SW-846:6020	Uranium	U	Y	3.09	—	—	0.067	ug/L	Y	—	NQ	12-352	CASA-12-1374	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	2.84	—	—	0.067	ug/L	N	—	R	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.95	—	—	0.067	ug/L	Y	—	NQ	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	2.06	—	—	0.067	ug/L	Y	—	NQ	11-2518	CASA-11-10804	GELC
SCI-1	358.4	11/02/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	1.34	0.0666	0.0734	—	pCi/L	Y	—	NQ	2013-264	CASA-13-24215	GELC
SCI-1	358.4	11/16/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	1.91	0.15	0.062	—	pCi/L	Y	—	NQ	12-352	CASA-12-1373	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	1.59	0.14	0.14	—	pCi/L	Y	—	NQ	10-3651	CASA-10-22648	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	1.64	0.14	0.13	—	pCi/L	Y	—	NQ	10-3651	CASA-10-22646	GELC
SCI-1	358.4	02/05/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	1.45	0.12	0.068	—	pCi/L	Y	—	NQ	10-1679	CASA-10-9452	GELC
SCI-1	358.4	08/03/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	1.28	0.1	0.076	—	pCi/L	Y	—	NQ	09-2757	CASA-09-10350	GELC
SCI-1	358.4	11/02/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0352	0.0141	0.0459	—	pCi/L	Y	U	U	2013-264	CASA-13-24215	GELC
SCI-1	358.4	11/16/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	Y	0.0722	0.016	0.032	—	pCi/L	Y	—	NQ	12-352	CASA-12-1373	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0166	0.015	0.061	—	pCi/L	Y	U	U	10-3651	CASA-10-22646	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0485	0.017	0.067	—	pCi/L	Y	U	U	10-3651	CASA-10-22648	GELC
SCI-1	358.4	02/05/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	Y	0.072	0.016	0.039	—	pCi/L	Y	—	NQ	10-1679	CASA-10-9452	GELC
SCI-1	358.4	08/03/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0342	0.01	0.037	—	pCi/L	Y	U	U	09-2757	CASA-09-10350	GELC
SCI-1	358.4	11/02/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.636	0.0453	0.0499	—	pCi/L	Y	—	NQ	2013-264	CASA-13-24215	GELC
SCI-1	358.4	11/16/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.915	0.08	0.027	—	pCi/L	Y	—	NQ	12-352	CASA-12-1373	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.814	0.085	0.086	—	pCi/L	Y	—	NQ	10-3651	CASA-10-22648	GELC
SCI-1	358.4	07/12/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.774	0.08	0.078	—	pCi/L	Y	—	NQ	10-3651	CASA-10-22646	GELC
SCI-1	358.4	02/05/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.677	0.063	0.044	—	pCi/L	Y	—	NQ	10-1679	CASA-10-9452	GELC
SCI-1	358.4	08/03/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.647	0.057	0.037	—	pCi/L	Y	—	NQ	09-2757	CASA-09-10350	GELC
SCI-1	358.4	11/02/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	2.17	—	—	1	ug/L	Y	J	J	2013-264	CASA-13-24223	GELC
SCI-1	358.4	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	1.07	—	—	1	ug/L	Y	J	J	12-1311	CASA-12-14065	GELC
SCI-1	358.4	11/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	1.08	—	—	1	ug/L	Y	J	J	12-352	CASA-12-1374	GELC
SCI-1	358.4	08/16/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	1.13	—	—	1	ug/L	Y	J	J	11-3243	CASA-11-24763	GELC
SCI-1	358.4	05/24/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	1.25	—	—	1	ug/L	Y	J	J	11-2518	CASA-11-10804	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.65	—	—	0.01	SU	Y	H	NQ	2013-270	CASA-13-24224	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
SCI-2	548	08/13/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.78	—	—	0.01	SU	Y	H	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.86	—	—	0.01	SU	Y	H	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.58	—	—	0.01	SU	Y	H	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.65	—	—	0.01	SU	Y	H	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.67	—	—	0.01	SU	Y	H	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.66	—	—	0.01	SU	Y	H	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.51	—	—	0.01	SU	Y	H	J-	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	93.3	—	—	0.725	mg/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	84.1	—	—	0.725	mg/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	83.6	—	—	0.725	mg/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	81.8	—	—	0.725	mg/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	82.3	—	—	0.725	mg/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	81.6	—	—	0.725	mg/L	Y	—	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	82.1	—	—	0.725	mg/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	80.3	—	—	0.73	mg/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0183	0.00782	0.0297	—	pCi/L	Y	U	U	2013-270	CASA-13-24216	GELC
SCI-2	548	11/14/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00387	0.0039	0.03	—	pCi/L	Y	U	U	12-331	CASA-12-1376	GELC
SCI-2	548	07/15/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00643	0.0045	0.037	—	pCi/L	Y	U	U	10-3718	CASA-10-22650	GELC
SCI-2	548	05/06/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00744	0.004	0.021	—	pCi/L	Y	U	U	10-3084	CASA-10-16763	GELC
SCI-2	548	02/08/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00092	0.011	0.031	—	pCi/L	Y	U	U	10-1696	CASA-10-9489	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0761	—	—	0.017	mg/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0436	—	—	0.017	mg/L	Y	J	J	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.174	—	—	0.017	mg/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.0535	—	—	0.017	mg/L	Y	—	U	12-1318	CASA-12-14067	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.101	—	—	0.017	mg/L	Y	—	U	12-1318	CASA-12-14066	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.0505	—	—	0.016	mg/L	Y	—	U	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.105	—	—	0.016	mg/L	Y	—	U	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	69.8	—	—	1	ug/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Barium	Ba	Y	69.2	—	—	1	ug/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	68.5	—	—	1	ug/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	66.4	—	—	1	ug/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Barium	Ba	Y	71.7	—	—	1	ug/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	65.1	—	—	1	ug/L	Y	—	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Barium	Ba	Y	65.1	—	—	1	ug/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	70	—	—	1	ug/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	19.6	—	—	15	ug/L	Y	J	J	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	22.7	—	—	15	ug/L	Y	J	J	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Boron	B	Y	23.3	—	—	15	ug/L	Y	J	J	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Boron	B	Y	20.5	—	—	15	ug/L	Y	J	J	12-1318	CASA-12-14067	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	21.8	—	—	15	ug/L	Y	J	J	12-1318	CASA-12-14066	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	20.8	—	—	15	ug/L	Y	J	J	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Boron	B	Y	20.5	—	—	15	ug/L	Y	J	J	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Boron	B	Y	21.4	—	—	15	ug/L	Y	J	J	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.639	—	—	0.067	mg/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.59	—	—	0.067	mg/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.581	—	—	0.067	mg/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.55	—	—	0.067	mg/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.577	—	—	0.067	mg/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.572	—	—	0.067	mg/L	Y	—	NQ	12-1053	CASA-12-11716	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
SCI-2	548	03/05/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.583	—	—	0.067	mg/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Bromide	Br(-1)	Y	0.546	—	—	0.066	mg/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	70.9	—	—	0.05	mg/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Calcium	Ca	Y	70.3	—	—	0.05	mg/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	69.4	—	—	0.05	mg/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	70.3	—	—	0.05	mg/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Calcium	Ca	Y	68.9	—	—	0.05	mg/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	68.3	—	—	0.05	mg/L	Y	—	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Calcium	Ca	Y	68.6	—	—	0.05	mg/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	71.7	—	—	0.05	mg/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.947	1.43	4.88	—	pCi/L	Y	U	U	2013-270	CASA-13-24216	GELC
SCI-2	548	11/14/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.04	1.6	5.3	—	pCi/L	Y	U	U	12-331	CASA-12-1376	GELC
SCI-2	548	07/15/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.15	1.9	6.5	—	pCi/L	Y	U	U	10-3718	CASA-10-22650	GELC
SCI-2	548	05/06/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.507	0.87	3	—	pCi/L	Y	U	U	10-3084	CASA-10-16763	GELC
SCI-2	548	02/08/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-2.84	1.5	4.4	—	pCi/L	Y	U	U	10-1696	CASA-10-9489	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	63.7	—	—	0.67	mg/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	59.8	—	—	0.67	mg/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	61.5	—	—	0.67	mg/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	60.5	—	—	0.67	mg/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	60.9	—	—	0.67	mg/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	65.7	—	—	0.335	mg/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	65.8	—	—	0.335	mg/L	Y	—	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	67.8	—	—	0.33	mg/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	436	—	—	2	ug/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	491	—	—	2	ug/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Chromium	Cr	Y	453	—	—	2	ug/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Chromium	Cr	Y	433	—	—	2	ug/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	440	—	—	2	ug/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	450	—	—	2	ug/L	Y	—	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Chromium	Cr	Y	446	—	—	2	ug/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	501	—	—	10	ug/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	2.39	1.57	6.69	—	pCi/L	Y	U	U	2013-270	CASA-13-24216	GELC
SCI-2	548	11/14/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.549	1.4	5.5	—	pCi/L	Y	U	U	12-331	CASA-12-1376	GELC
SCI-2	548	07/15/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.582	1.5	4.7	—	pCi/L	Y	U	U	10-3718	CASA-10-22650	GELC
SCI-2	548	05/06/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.184	1.1	3.5	—	pCi/L	Y	U	U	10-3084	CASA-10-16763	GELC
SCI-2	548	02/08/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.807	1.7	5.9	—	pCi/L	Y	U	U	10-1696	CASA-10-9489	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Copper	Cu	Y	5.09	—	—	3	ug/L	Y	J	J	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Copper	Cu	N	10	—	—	3	ug/L	Y	U	U	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Copper	Cu	N	10	—	—	3	ug/L	Y	U	U	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Copper	Cu	N	10	—	—	3	ug/L	Y	U	U	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Copper	Cu	N	10	—	—	3	ug/L	Y	U	U	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Copper	Cu	N	10	—	—	3	ug/L	Y	U	U	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Copper	Cu	N	10	—	—	3	ug/L	Y	U	U	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Copper	Cu	N	10	—	—	3	ug/L	Y	U	U	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.225	—	—	0.033	mg/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.185	—	—	0.033	mg/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.186	—	—	0.033	mg/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.201	—	—	0.033	mg/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.195	—	—	0.033	mg/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.209	—	—	0.033	mg/L	Y	—	NQ	12-1053	CASA-12-11716	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
SCI-2	548	03/05/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.207	—	—	0.033	mg/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.21	—	—	0.033	mg/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.21	0.828	2.77	—	pCi/L	Y	U	U	2013-270	CASA-13-24216	GELC
SCI-2	548	11/14/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.564	0.74	2.8	—	pCi/L	Y	U	U	12-331	CASA-12-1376	GELC
SCI-2	548	07/15/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.935	0.81	2.8	—	pCi/L	Y	U	U	10-3718	CASA-10-22650	GELC
SCI-2	548	05/06/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.21	0.49	2.8	—	pCi/L	Y	U	U	10-3084	CASA-10-16763	GELC
SCI-2	548	02/08/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.37	0.85	2.6	—	pCi/L	Y	U	U	10-1696	CASA-10-9489	GELC
SCI-2	548	11/05/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	3.82	0.916	2.38	—	pCi/L	Y	—	NQ	2013-270	CASA-13-24216	GELC
SCI-2	548	11/14/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	3.43	1	2.9	—	pCi/L	Y	—	NQ	12-331	CASA-12-1376	GELC
SCI-2	548	07/15/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	4.69	1.1	2.8	—	pCi/L	Y	—	NQ	10-3718	CASA-10-22650	GELC
SCI-2	548	05/06/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	4.64	0.94	1.9	—	pCi/L	Y	—	NQ	10-3084	CASA-10-16763	GELC
SCI-2	548	02/08/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	3.65	0.96	2.5	—	pCi/L	Y	—	NQ	10-1696	CASA-10-9489	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	246	—	—	0.453	mg/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	240	—	—	0.453	mg/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	243	—	—	0.453	mg/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	242	—	—	0.453	mg/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	237	—	—	0.453	mg/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	236	—	—	0.453	mg/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	235	—	—	0.453	mg/L	Y	—	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	247	—	—	0.45	mg/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	16.7	—	—	0.11	mg/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	16.2	—	—	0.11	mg/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	16.4	—	—	0.11	mg/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	15.9	—	—	0.11	mg/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	16.1	—	—	0.11	mg/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	15.5	—	—	0.11	mg/L	Y	—	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	15.8	—	—	0.11	mg/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	16.6	—	—	0.11	mg/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.655	—	—	0.165	ug/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.727	—	—	0.165	ug/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.676	—	—	0.165	ug/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.586	—	—	0.165	ug/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.559	—	—	0.165	ug/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.636	—	—	0.165	ug/L	Y	—	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.654	—	—	0.165	ug/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.684	—	—	0.17	ug/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-3.39	3.05	10.5	—	pCi/L	Y	U	U	2013-270	CASA-13-24216	GELC
SCI-2	548	11/14/11	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-4.65	2.8	8.7	—	pCi/L	Y	U	U	12-331	CASA-12-1376	GELC
SCI-2	548	07/15/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.02	2.7	8.5	—	pCi/L	Y	U	U	10-3718	CASA-10-22650	GELC
SCI-2	548	05/06/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	0.685	1.9	6.1	—	pCi/L	Y	U	U	10-3084	CASA-10-16763	GELC
SCI-2	548	02/08/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	21.4	13	43	—	pCi/L	Y	U	U	10-1696	CASA-10-9489	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	18.2	—	—	0.5	ug/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	17.6	—	—	0.5	ug/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Nickel	Ni	Y	15.9	—	—	0.5	ug/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	19	—	—	0.5	ug/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Nickel	Ni	Y	17.4	—	—	0.5	ug/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	16.9	—	—	0.5	ug/L	Y	—	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Nickel	Ni	Y	16.6	—	—	0.5	ug/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	17.5	—	—	2.5	ug/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	4.28	—	—	0.425	mg/L	Y	—	NQ	2013-270	CASA-13-24224	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
SCI-2	548	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	4.89	—	—	0.17	mg/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	4.78	—	—	0.17	mg/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	4.47	—	—	0.17	mg/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	4.47	—	—	0.17	mg/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	4.08	—	—	0.05	mg/L	Y	—	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	4.14	—	—	0.05	mg/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	3.9	—	—	0.05	mg/L	Y	—	J-	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.942	—	—	0.05	ug/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.02	—	—	0.1	ug/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.03	—	—	0.1	ug/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.944	—	—	0.05	ug/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	0.943	—	—	0.05	ug/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.04	—	—	0.1	ug/L	Y	—	J	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.02	—	—	0.1	ug/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate	ClO4	Y	1.07	—	—	0.1	ug/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00567	0.00567	0.0272	—	pCi/L	Y	U	U	2013-270	CASA-13-24216	GELC
SCI-2	548	11/14/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00411	0.005	0.023	—	pCi/L	Y	U	U	12-331	CASA-12-1376	GELC
SCI-2	548	07/15/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00231	0.0033	0.031	—	pCi/L	Y	U	U	10-3718	CASA-10-22650	GELC
SCI-2	548	05/06/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.0037	0.0091	0.029	—	pCi/L	Y	U	U	10-3084	CASA-10-16763	GELC
SCI-2	548	02/08/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00226	0.0051	0.038	—	pCi/L	Y	U	U	10-1696	CASA-10-9489	GELC
SCI-2	548	11/05/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00567	0.00567	0.0453	—	pCi/L	Y	U	U	2013-270	CASA-13-24216	GELC
SCI-2	548	11/14/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00822	0.0041	0.032	—	pCi/L	Y	U	U	12-331	CASA-12-1376	GELC
SCI-2	548	07/15/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0185	0.0087	0.031	—	pCi/L	Y	U	U	10-3718	CASA-10-22650	GELC
SCI-2	548	05/06/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.0074	0.0064	0.027	—	pCi/L	Y	U	U	10-3084	CASA-10-16763	GELC
SCI-2	548	02/08/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00678	0.006	0.026	—	pCi/L	Y	U	U	10-1696	CASA-10-9489	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	3.78	—	—	0.05	mg/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	3.73	—	—	0.05	mg/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Potassium	K	Y	3.73	—	—	0.05	mg/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	3.64	—	—	0.05	mg/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Potassium	K	Y	3.59	—	—	0.05	mg/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	3.8	—	—	0.05	mg/L	Y	—	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Potassium	K	Y	3.84	—	—	0.05	mg/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	4.13	—	—	0.05	mg/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	13.4	19.2	80.6	—	pCi/L	Y	U	U	2013-270	CASA-13-24216	GELC
SCI-2	548	11/14/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-0.7	19	71	—	pCi/L	Y	U	U	12-331	CASA-12-1376	GELC
SCI-2	548	07/15/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	22.8	21	78	—	pCi/L	Y	U	U	10-3718	CASA-10-22650	GELC
SCI-2	548	05/06/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	3.97	14	47	—	pCi/L	Y	U	U	10-3084	CASA-10-16763	GELC
SCI-2	548	02/08/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-7.14	22	77	—	pCi/L	Y	U	U	10-1696	CASA-10-9489	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	68.9	—	—	0.053	mg/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	66.7	—	—	0.053	mg/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	67.5	—	—	0.053	mg/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	64.4	—	—	0.053	mg/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	63.2	—	—	0.053	mg/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	66.6	—	—	0.053	mg/L	Y	—	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	66.5	—	—	0.053	mg/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	68.3	—	—	0.053	mg/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	24.2	—	—	0.1	mg/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	22.5	—	—	0.1	mg/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Sodium	Na	Y	22.5	—	—	0.1	mg/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	22.7	—	—	0.1	mg/L	Y	—	NQ	12-1318	CASA-12-14066	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
SCI-2	548	05/23/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Sodium	Na	Y	22.4	—	—	0.1	mg/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	21.7	—	—	0.1	mg/L	Y	—	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Sodium	Na	Y	21.9	—	—	0.1	mg/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	23.4	—	—	0.1	mg/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.364	1.3	5.09	—	pCi/L	Y	U	U	2013-270	CASA-13-24216	GELC
SCI-2	548	11/14/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.46	1.2	5.1	—	pCi/L	Y	U	U	12-331	CASA-12-1376	GELC
SCI-2	548	07/15/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.24	1.3	3.6	—	pCi/L	Y	U	U	10-3718	CASA-10-22650	GELC
SCI-2	548	05/06/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.794	1.1	3.8	—	pCi/L	Y	U	U	10-3084	CASA-10-16763	GELC
SCI-2	548	02/08/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.83	1.6	4.7	—	pCi/L	Y	U	U	10-1696	CASA-10-9489	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	618	—	—	1	uS/cm	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	600	—	—	1	uS/cm	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	596	—	—	1	uS/cm	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	600	—	—	1	uS/cm	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	601	—	—	1	uS/cm	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	593	—	—	1	uS/cm	Y	—	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	595	—	—	1	uS/cm	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	606	—	—	1	uS/cm	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	344	—	—	1	ug/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	336	—	—	1	ug/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Strontium	Sr	Y	338	—	—	1	ug/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Strontium	Sr	Y	329	—	—	1	ug/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	334	—	—	1	ug/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	337	—	—	1	ug/L	Y	—	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Strontium	Sr	Y	339	—	—	1	ug/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	350	—	—	1	ug/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0837	0.109	0.437	—	pCi/L	Y	U	U	2013-270	CASA-13-24216	GELC
SCI-2	548	11/14/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0583	0.14	0.49	—	pCi/L	Y	U	U	12-331	CASA-12-1376	GELC
SCI-2	548	07/15/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.181	0.15	0.49	—	pCi/L	Y	U	U	10-3718	CASA-10-22650	GELC
SCI-2	548	05/06/10	WG	UF	RE	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.303	0.15	0.49	—	pCi/L	Y	U	U	10-3084	CASA-10-16763	GELC
SCI-2	548	05/06/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	Y	4.54	0.48	0.43	—	pCi/L	N	—	R	10-3084	CASA-10-16763	GELC
SCI-2	548	02/08/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.0364	0.11	0.42	—	pCi/L	Y	U	U	10-1696	CASA-10-9489	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	91.7	—	—	1.33	mg/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	85.4	—	—	1.33	mg/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	88	—	—	1.33	mg/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	84.9	—	—	1.33	mg/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	86.2	—	—	1.33	mg/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	90.3	—	—	0.665	mg/L	Y	—	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	90.3	—	—	0.665	mg/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	92.2	—	—	0.5	mg/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	429	—	—	3.4	mg/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	396	—	—	3.4	mg/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	400	—	—	3.4	mg/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	433	—	—	3.4	mg/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	411	—	—	3.4	mg/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	416	—	—	3.4	mg/L	Y	—	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	376	—	—	3.4	mg/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	406	—	—	3.4	mg/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.088	—	—	0.035	mg/L	Y	J	J	2013-270	CASA-13-24216	GELC
SCI-2	548	08/13/12	WG	UF	INIT	FD	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.0591	—	—	0.035	mg/L	Y	J	J	12-1495	CASA-12-22309	GELC
SCI-2	548	08/13/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	U	12-1495	CASA-12-21646	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
SCI-2	548	05/23/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.111	—	—	0.035	mg/L	Y	—	NQ	12-1318	CASA-12-14061	GELC
SCI-2	548	05/23/12	WG	UF	INIT	FD	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.126	—	—	0.035	mg/L	Y	—	NQ	12-1318	CASA-12-14068	GELC
SCI-2	548	03/05/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.103	—	—	0.035	mg/L	Y	—	NQ	12-1053	CASA-12-11712	GELC
SCI-2	548	03/05/12	WG	UF	INIT	FD	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.105	—	—	0.035	mg/L	Y	—	NQ	12-1053	CASA-12-11739	GELC
SCI-2	548	11/14/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	0.0827	—	—	0.035	mg/L	Y	J	J+	12-331	CASA-12-1376	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0773	—	—	0.017	mg/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0429	—	—	0.017	mg/L	Y	J	J	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0593	—	—	0.017	mg/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0441	—	—	0.017	mg/L	Y	J	J	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0374	—	—	0.017	mg/L	Y	J	J	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0356	—	—	0.015	mg/L	Y	J	J	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.0266	—	—	0.015	mg/L	Y	J	J	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	PO4-P	Y	0.025	—	—	0.015	mg/L	Y	J	J	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	Y	398	48.1	111	—	pCi/L	Y	—	NQ	2013-270	CASA-13-24216	GELC
SCI-2	548	11/14/11	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	Y	491	87	180	—	pCi/L	Y	—	NQ	12-331	CASA-12-1376	GELC
SCI-2	548	06/02/11	WG	UF	RE	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	337.585	50.8116	4.347	—	pCi/L	Y	—	NQ	11-2626	CASA-11-10807	ARSL
SCI-2	548	06/02/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.8372	0.5474	1.8676	—	pCi/L	N	U	R	11-2626	CASA-11-10807	ARSL
SCI-2	548	06/02/11	WG	UF	INIT	FD	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	436.922	65.6558	2.9302	—	pCi/L	Y	—	NQ	11-2626	CASA-11-10809	ARSL
SCI-2	548	11/16/10	WG	UF	RE	REG	RAD	EPA:906.0	Tritium	H-3	Y	680.047	77.7339	206.996	—	pCi/L	Y	—	NQ	11-556	CASA-11-1363	ARSL
SCI-2	548	11/16/10	WG	UF	INIT	REG	RAD	EPA:906.0	Tritium	H-3	Y	680.047	77.7339	206.996	—	pCi/L	N	—	R	11-556	CASA-11-1363	ARSL
SCI-2	548	05/06/10	WG	UF	RE	REG	RAD	EPA:906.0	Tritium	H-3	Y	505.135	78.7527	229.621	—	pCi/L	Y	—	NQ	10-3122	CASA-10-16763	ARSL
SCI-2	548	05/06/10	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	505.135	78.7527	229.621	—	pCi/L	Y	—	R	10-3122	CASA-10-16763	ARSL
SCI-2	548	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	2.06	—	—	0.067	ug/L	Y	—	NQ	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.83	—	—	0.067	ug/L	Y	—	NQ	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Uranium	U	Y	1.63	—	—	0.067	ug/L	Y	—	NQ	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.96	—	—	0.067	ug/L	Y	—	NQ	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Uranium	U	Y	1.86	—	—	0.067	ug/L	Y	—	NQ	12-1318	CASA-12-14067	GELC
SCI-2	548	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.8	—	—	0.067	ug/L	Y	—	NQ	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Uranium	U	Y	1.84	—	—	0.067	ug/L	Y	—	NQ	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	1.6	—	—	0.067	ug/L	Y	—	NQ	12-331	CASA-12-1378	GELC
SCI-2	548	11/05/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	1.02	0.0545	0.0641	—	pCi/L	Y	—	NQ	2013-270	CASA-13-24216	GELC
SCI-2	548	11/14/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.97	0.1	0.13	—	pCi/L	Y	—	J+	12-331	CASA-12-1376	GELC
SCI-2	548	07/15/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.736	0.062	0.042	—	pCi/L	Y	—	NQ	10-3718	CASA-10-22650	GELC
SCI-2	548	05/06/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.771	0.075	0.05	—	pCi/L	Y	—	NQ	10-3084	CASA-10-16763	GELC
SCI-2	548	02/08/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.797	0.067	0.051	—	pCi/L	Y	—	NQ	10-1696	CASA-10-9489	GELC
SCI-2	548	11/05/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0307	0.0123	0.04	—	pCi/L	Y	U	U	2013-270	CASA-13-24216	GELC
SCI-2	548	11/14/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0325	0.017	0.07	—	pCi/L	Y	U	U	12-331	CASA-12-1376	GELC
SCI-2	548	07/15/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	Y	0.0346	0.0096	0.025	—	pCi/L	Y	—	NQ	10-3718	CASA-10-22650	GELC
SCI-2	548	05/06/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00753	0.0054	0.046	—	pCi/L	Y	U	U	10-3084	CASA-10-16763	GELC
SCI-2	548	02/08/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0135	0.0064	0.029	—	pCi/L	Y	U	U	10-1696	CASA-10-9489	GELC
SCI-2	548	11/05/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.577	0.0401	0.0435	—	pCi/L	Y	—	NQ	2013-270	CASA-13-24216	GELC
SCI-2	548	11/14/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.532	0.068	0.059	—	pCi/L	Y	—	J+	12-331	CASA-12-1376	GELC
SCI-2	548	07/15/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.429	0.04	0.029	—	pCi/L	Y	—	NQ	10-3718	CASA-10-22650	GELC
SCI-2	548	05/06/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.393	0.045	0.046	—	pCi/L	Y	—	NQ	10-3084	CASA-10-16763	GELC
SCI-2	548	02/08/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.474	0.044	0.033	—	pCi/L	Y	—	NQ	10-1696	CASA-10-9489	GELC
SCI-2	548	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	1.3	—	—	1	ug/L	Y	J	J	2013-270	CASA-13-24224	GELC
SCI-2	548	08/13/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	1.56	—	—	1	ug/L	Y	J	J	12-1495	CASA-12-21650	GELC
SCI-2	548	08/13/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Vanadium	V	Y	1.59	—	—	1	ug/L	Y	J	J	12-1495	CASA-12-22310	GELC
SCI-2	548	05/23/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	1.99	—	—	1	ug/L	Y	J	J	12-1318	CASA-12-14066	GELC
SCI-2	548	05/23/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Vanadium	V	Y	1.91	—	—	1	ug/L	Y	J	J	12-1318	CASA-12-14067	GELC

Table C-2 Chromium Investigation Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
SCI-2	548	03/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	1.76	—	—	1	ug/L	Y	J	J	12-1053	CASA-12-11716	GELC
SCI-2	548	03/05/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Vanadium	V	Y	1.62	—	—	1	ug/L	Y	J	J	12-1053	CASA-12-11740	GELC
SCI-2	548	11/14/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	N	5	—	—	1	ug/L	Y	U	U	12-331	CASA-12-1378	GELC

Appendix D

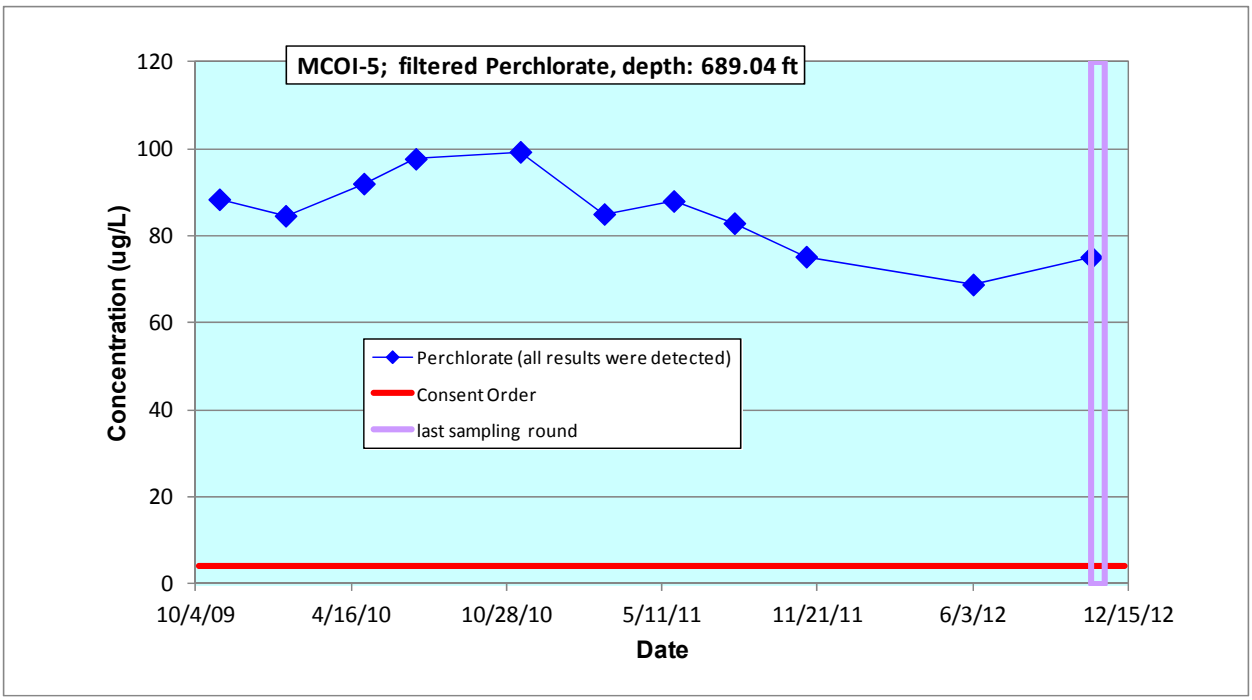
Groundwater Results Greater Than Half of Screening Levels

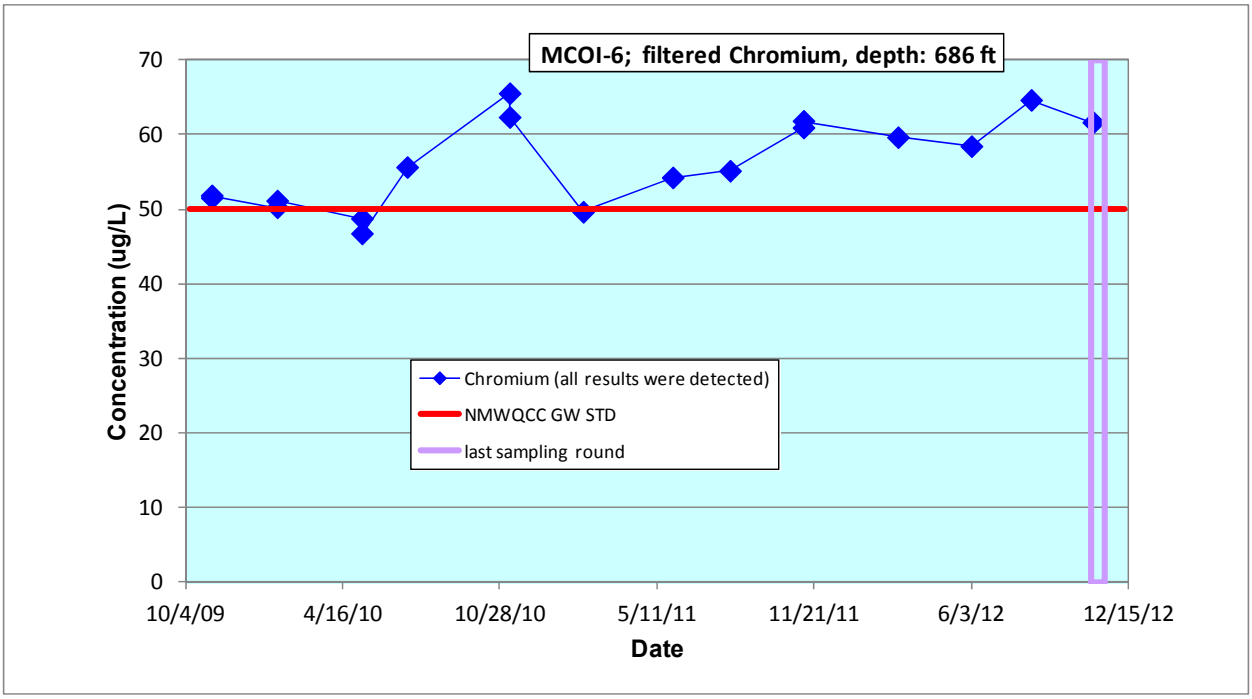
Zone	Location	Screen Top Depth (ft)	Sample Date	Analysis Suite	Parameter Name	Parameter Code	Field Prep Code	Analysis Type Code	Field Quality Control Code	Detect Flag	Report Result	Method Detection Limit	Unit	Dilution Factor	Lab Qualifier	Validation Qualifier	Validation Reason	Best Value Flag	Analytical Method	Lab ID	Screening Level	Reporting Level Code	Result/Screening Level
Intermediate	MCOI-6	686	11/02/12	General Chemistry	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	F[a]	INIT[b]	REG[c]	Y[d]	8.5	0.425	mg/L	25	—[e]	NQ[f]	NQ	Y	EPA:353.2	GELC[g]	10	EPA MCL[h]	0.85
Regional	R-11	855	11/05/12	General Chemistry	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	F	INIT	REG	Y	5.93	0.425	mg/L	25	—	NQ	NQ	Y	EPA:353.2	GELC	10	EPA MCL	0.593
Regional	R-42	931.8	10/31/12	General Chemistry	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	F	INIT	REG	Y	5.61	0.17	mg/L	10	—	NQ	NQ	Y	EPA:353.2	GELC	10	EPA MCL	0.56
Regional	R-43 S1	903.9	11/07/12	General Chemistry	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	F	INIT	REG	Y	5.35	0.085	mg/L	5	—	NQ	NQ	Y	EPA:353.2	GELC	10	EPA MCL	0.54
Intermediate	MCOI-5	689.04	10/30/12	General Chemistry	Perchlorate	ClO4	F	INIT	REG	Y	75	5	µg/L	100	—	NQ	NQ	Y	SW-846:6850	GELC	4	Consent Order	18.75
Intermediate	MCOI-6	686	11/02/12	General Chemistry	Perchlorate	ClO4	F	INIT	REG	Y	63.5	5	µg/L	100	—	NQ	NQ	Y	SW-846:6850	GELC	4	Consent Order	15.88
Regional	R-15	958.6	10/31/12	General Chemistry	Perchlorate	ClO4	F	INIT	REG	Y	7.86	0.5	µg/L	10	—	J[i]	PE12e[j]	Y	SW-846:6850	GELC	4	Consent Order	1.965
Regional	R-61 S1	1125	11/15/12	General Chemistry	Perchlorate	ClO4	F	INIT	REG	Y	6.13	0.5	µg/L	10	—	NQ	NQ	Y	SW-846:6850	GELC	4	Consent Order	1.53
Intermediate	MCOI-6	686	11/02/12	Metals	Chromium	Cr	F	INIT	REG	Y	61.6	2	µg/L	1	—	NQ	NQ	Y	SW-846:6020	GELC	50	NMWQCC GW STD[k]	1.23
Intermediate	SCI-2	548	11/05/12	Metals	Chromium	Cr	F	INIT	REG	Y	436	2	µg/L	1	—	NQ	NQ	Y	SW-846:6020	GELC	50	NMWQCC GW STD	8.72
Regional	R-28	934.3	10/31/12	Metals	Chromium	Cr	F	INIT	REG	Y	415	20	µg/L	10	—	NQ	NQ	Y	SW-846:6020	GELC	50	NMWQCC GW STD	8.3
Regional	R-42	931.8	10/31/12	Metals	Chromium	Cr	F	INIT	REG	Y	1010	40	µg/L	20	—	NQ	NQ	Y	SW-846:6020	GELC	50	NMWQCC GW STD	20.20
Regional	R-43 S1	903.9	11/07/12	Metals	Chromium	Cr	F	INIT	REG	Y	49.6	2	µg/L	1	—	NQ	NQ	Y	SW-846:6020	GELC	50	NMWQCC GW STD	0.99
Regional	R-50 S1	1077	11/09/12	Metals	Chromium	Cr	F	RE[l]	REG	Y	96.3	2	µg/L	1	—	NQ	NQ	Y	SW-846:6020	GELC	50	NMWQCC GW STD	1.93
Regional	R-62	1158.4	11/08/12	Metals	Chromium	Cr	F	INIT	REG	Y	128	10	µg/L	5	—	NQ	NQ	Y	SW-846:6020	GELC	50	NMWQCC GW STD	2.56
Regional	R-62	1158.4	11/08/12	Metals	Chromium	Cr	F	INIT	FD[m]	Y	133	10	µg/L	5	—	NQ	NQ	Y	SW-846:6020	GELC	50	NMWQCC GW STD	2.66
Intermediate	MCOI-5	689.04	10/30/12	SVOC[n]	Dioxane[1,4-]	123-91-1	UF[o]	INIT	REG	Y	5.28	3	µg/L	1	J[p]	J	J_LAB[q]	Y	SW-846:8270C	GELC	6.7	EPA TAP SCRN LVL[r]	0.79
Intermediate	MCOI-6	686	11/02/12	SVOC	Dioxane[1,4-]	123-91-1	UF	INIT	REG	Y	9.69	3.06	µg/L	1	J	J	J_LAB	Y	SW-846:8270C	GELC	6.7	EPA TAP SCRN LVL	1.45

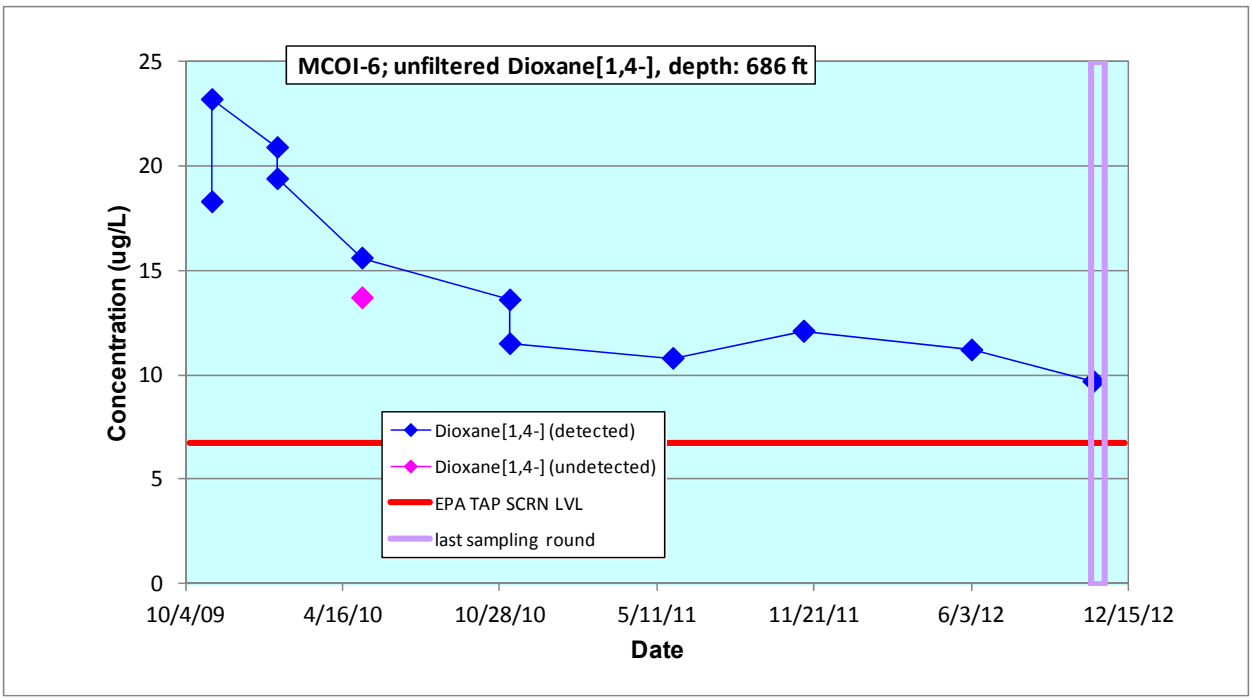
[a] F = Filtered.
[b] INIT = Initial.
[c] REG = Regular.
[d] Y = Yes.
[e] — = None.
[f] NQ = Not qualified.
[g] GELC = General Engineering Laboratories, Inc., Charleston, SC.
[h] EPA MCL = U.S. Environmental Protection Agency maximum contaminant level.
[i] In this column, J = The analyte is classified as detected, but the reported concentration value is expected to be more uncertain than usual.
[j] PE12e = The matrix spike/matrix spike duplicate percent recovery was greater than 10% but less than 75%.
[k] NMWQCC GW STD = New Mexico Water Quality Control Commission groundwater standard.
[l] RE = Reanalysis.
[m] FD = Field duplicate.
[n] SVOC = Semivolatile organic compound.
[o] UF = Unfiltered.
[p] In this column, J = The associated numerical value is an estimated quantity.
[q] J_LAB = The analytical laboratory qualified the detected result as estimated (J) because the result was less the practical quantitation limit but greater than the method detection limit.
[r] EPA TAP SCRN LVL = U.S. Environmental Protection Agency regional screening level for tap water.

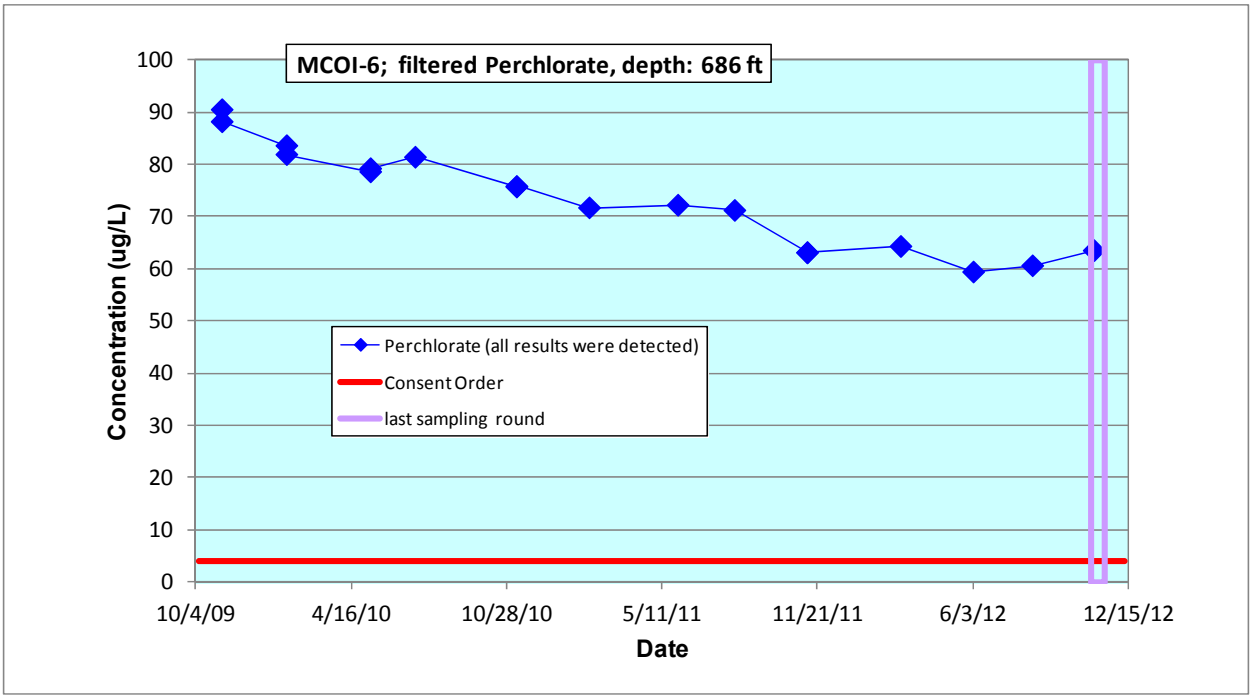
Appendix E

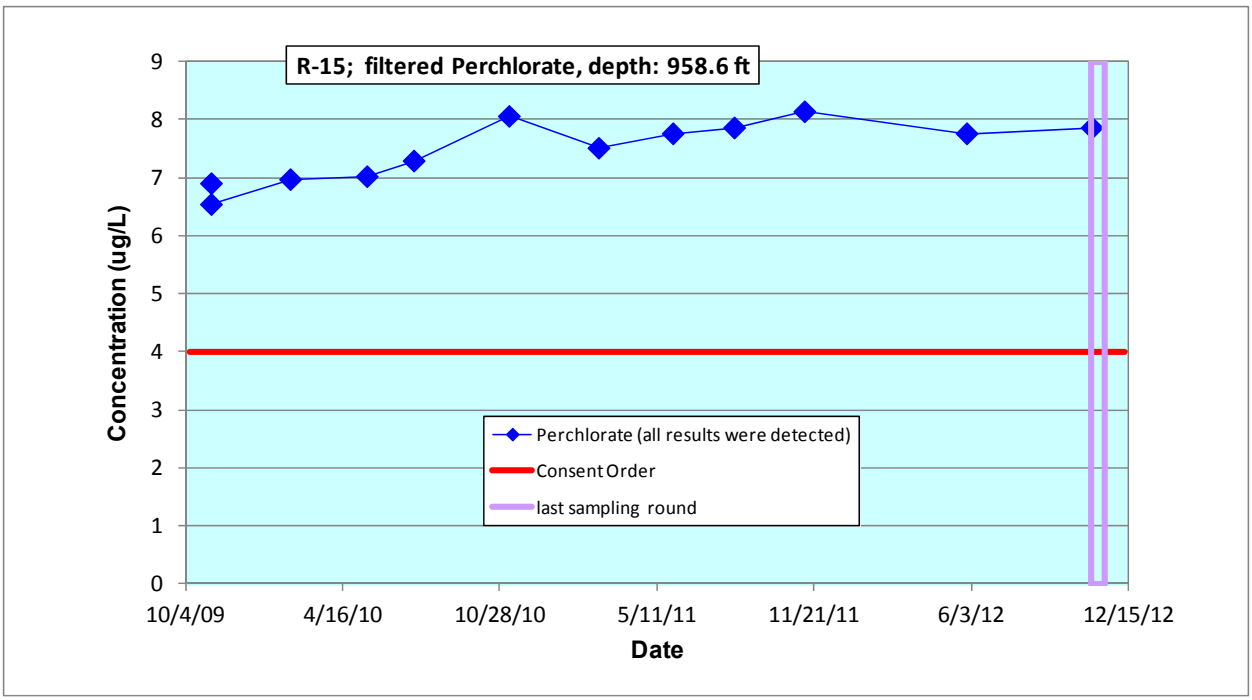
Analytical Chemistry Graphs of Screening-Level Exceedances

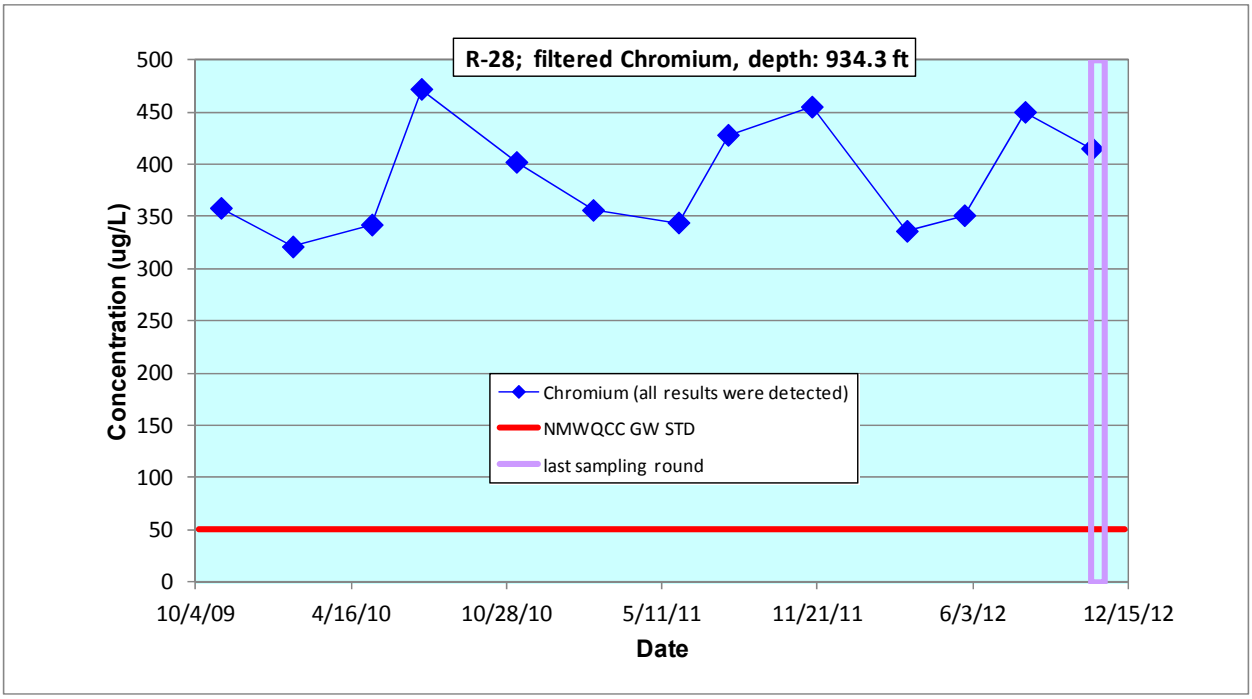

MCOI-5; filtered Perchlorate, depth: 689.04 ft
Concentration (ug/L)
120
100
80
60
40
20
0
10/4/09
4/16/10
10/28/10
5/11/11
11/21/11
6/3/12
12/15/12
Date
Perchlorate (all results were detected)
Consent Order
last sampling round

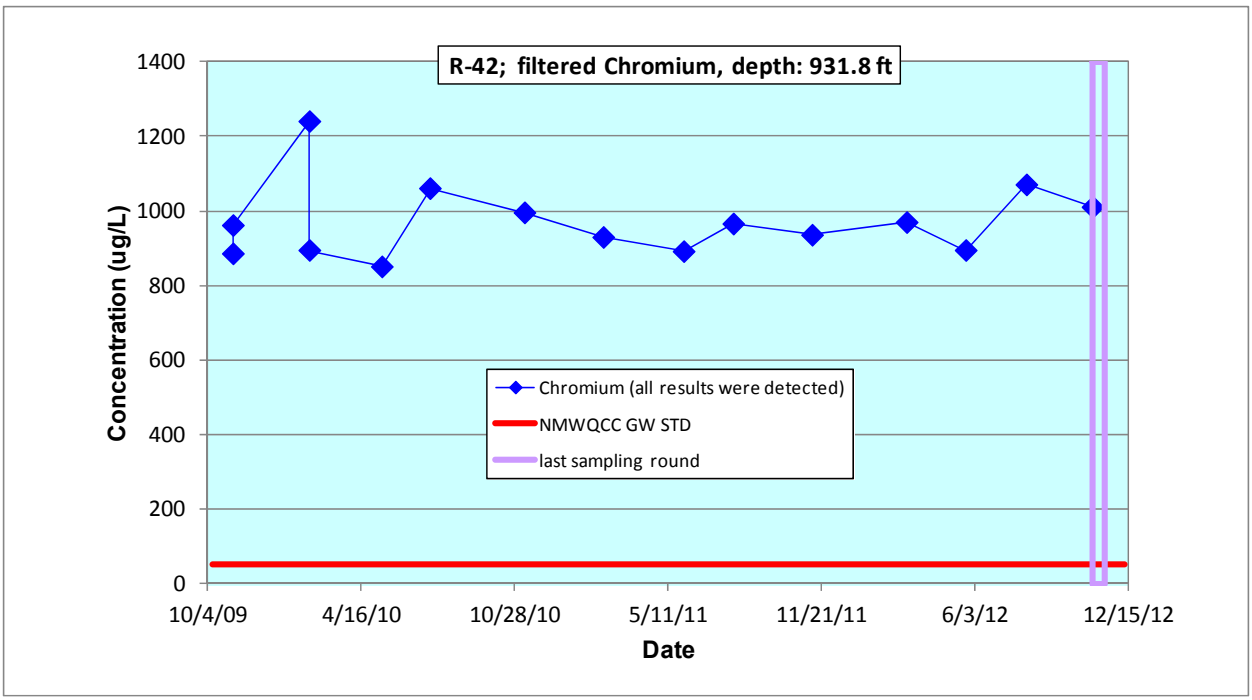

MCOI-6; filtered Chromium, depth: 686 ft
Concentration (ug/L)
70
60
50
40
30
20
10
0
10/4/09
4/16/10
10/28/10
5/11/11
11/21/11
6/3/12
12/15/12
Date
Chromium (all results were detected)
NMWQCC GW STD
last sampling round

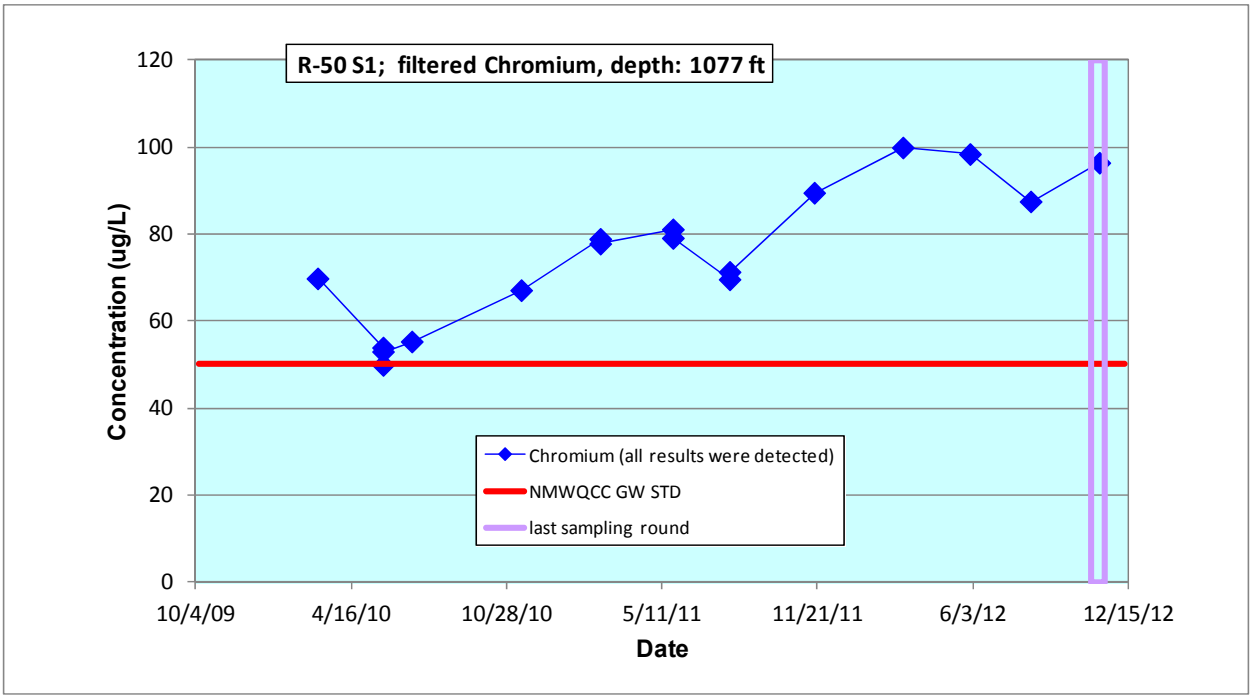

MCOI-6; unfiltered Dioxane[1,4-], depth: 686 ft
Concentration (ug/L)
25
20
15
10
5
0
10/4/09
4/16/10
10/28/10
5/11/11
11/21/11
6/3/12
12/15/12
Date
Dioxane[1,4-] (detected)
Dioxane[1,4-] (undetected)
EPA TAP SCRN LVL
last sampling round

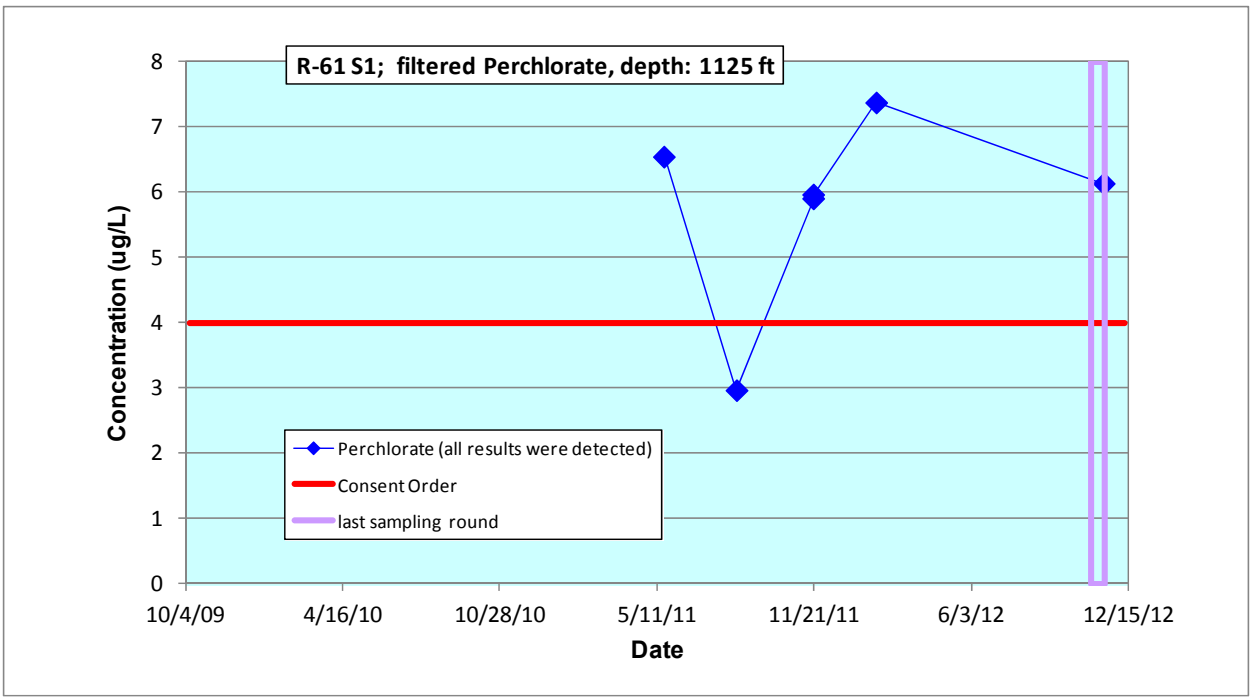

MCOI-6; filtered Perchlorate, depth: 686 ft
Concentration (ug/L)
100
90
80
70
60
50
40
30
20
10
0
10/4/09
4/16/10
10/28/10
5/11/11
11/21/11
6/3/12
12/15/12
Date
Perchlorate (all results were detected)
Consent Order
last sampling round

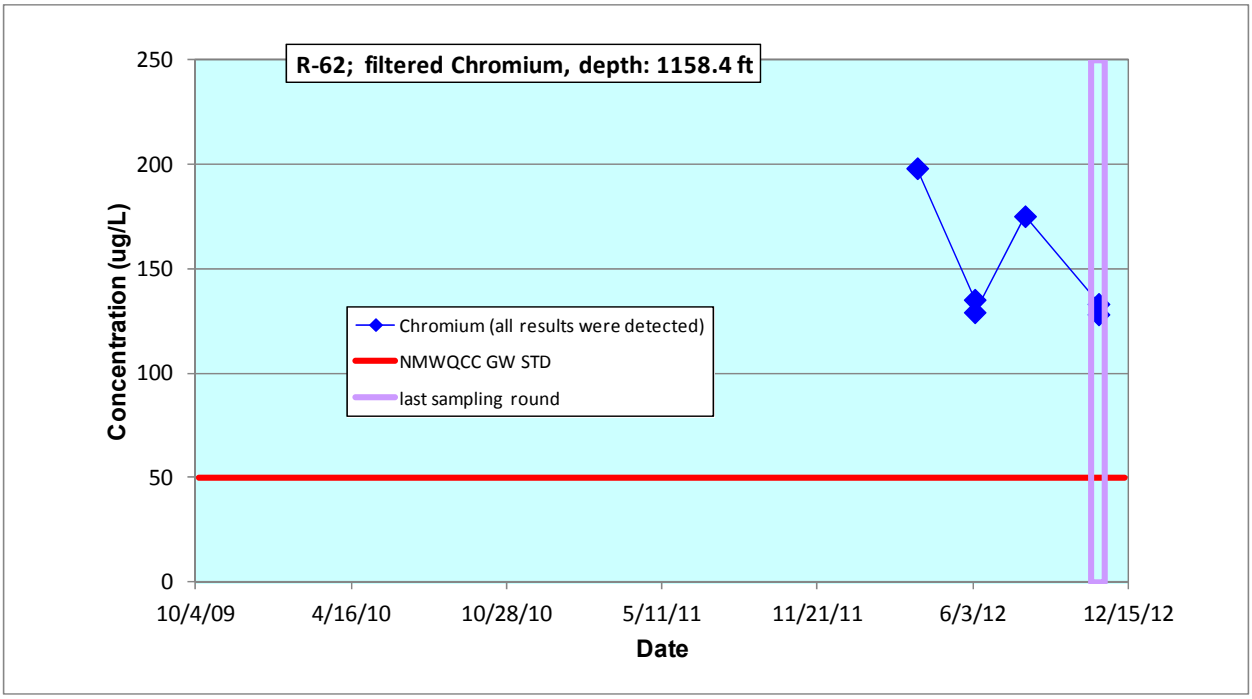

R-15; filtered Perchlorate, depth: 958.6 ft
Concentration (ug/L)
9
8
7
6
5
4
3
2
1
0
10/4/09
4/16/10
10/28/10
5/11/11
11/21/11
6/3/12
12/15/12
Date
Perchlorate (all results were detected)
Consent Order
last sampling round

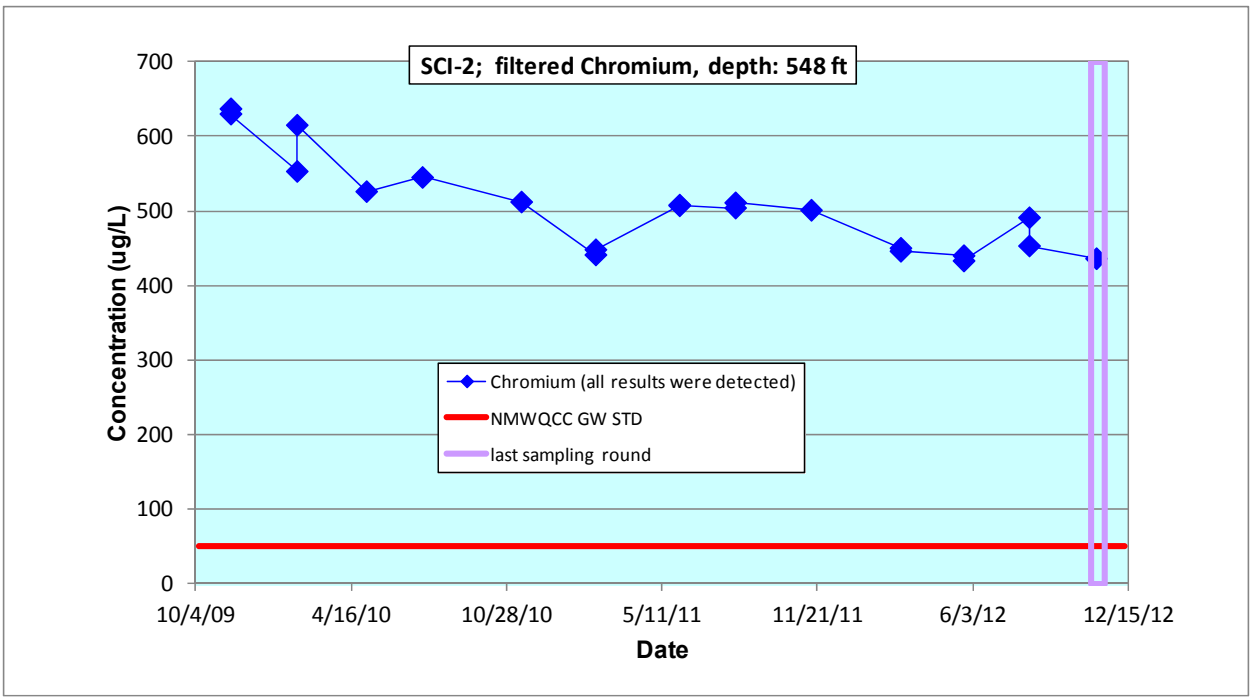

R-28; filtered Chromium, depth: 934.3 ft
Concentration (ug/L)
500
450
400
350
300
250
200
150
100
50
0
10/4/09
4/16/10
10/28/10
5/11/11
11/21/11
6/3/12
12/15/12
Date
Chromium (all results were detected)
NMWQCC GW STD
last sampling round

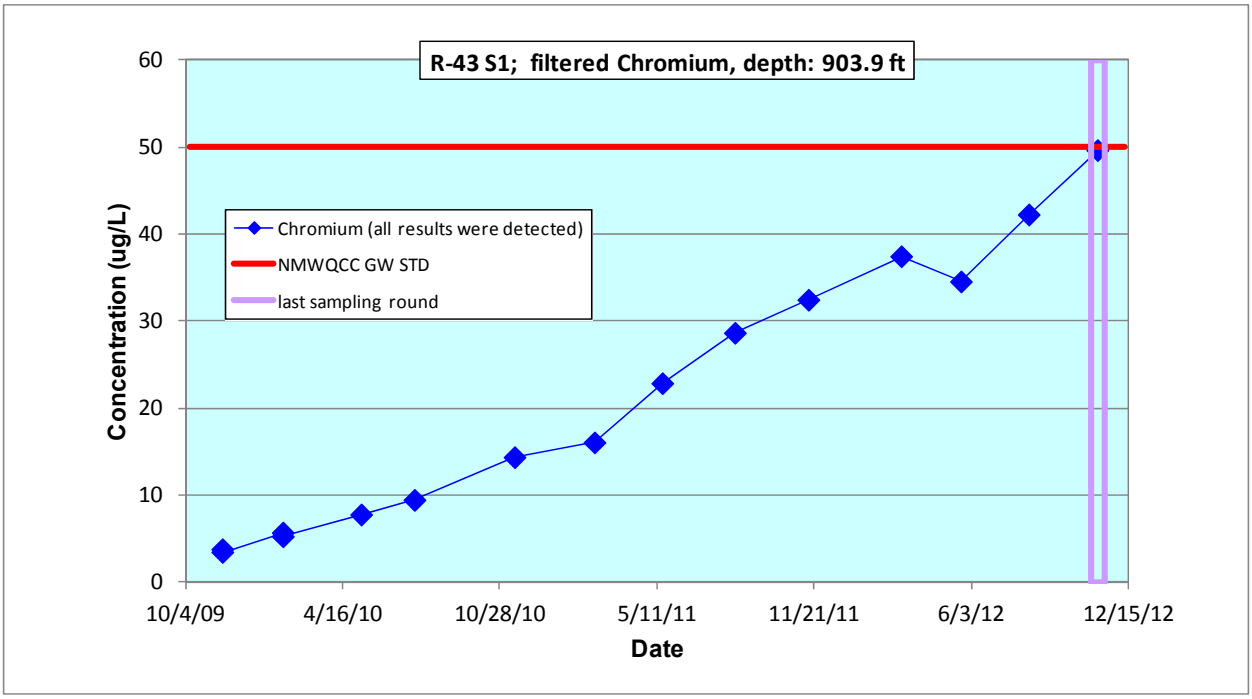

R-42; filtered Chromium, depth: 931.8 ft
Concentration (ug/L)
1400
1200
1000
800
600
400
200
0
10/4/09
4/16/10
10/28/10
5/11/11
11/21/11
6/3/12
12/15/12
Date
Chromium (all results were detected)
NMWQCC GW STD
last sampling round


R-50 S1; filtered Chromium, depth: 1077 ft
Concentration (ug/L)
120
100
80
60
40
20
0
10/4/09
4/16/10
10/28/10
5/11/11
11/21/11
6/3/12
12/15/12
Date
Chromium (all results were detected)
NMWQCC GW STD
last sampling round


R-61 S1; filtered Perchlorate, depth: 1125 ft
Concentration (ug/L)
8
7
6
5
4
3
2
1
0
10/4/09
4/16/10
10/28/10
5/11/11
11/21/11
6/3/12
12/15/12
Date
Perchlorate (all results were detected)
Consent Order
last sampling round


R-62; filtered Chromium, depth: 1158.4 ft
Concentration (ug/L)
250
200
150
100
50
0
10/4/09
4/16/10
10/28/10
5/11/11
11/21/11
6/3/12
12/15/12
Date
Chromium (all results were detected)
NMWQCC GW STD
last sampling round


SCI-2; filtered Chromium, depth: 548 ft
Concentration (ug/L)
700
600
500
400
300
200
100
0
10/4/09
4/16/10
10/28/10
5/11/11
11/21/11
6/3/12
12/15/12
Date
Chromium (all results were detected)
NMWQCC GW STD
last sampling round


R-43 S1; filtered Chromium, depth: 903.9 ft
Concentration (ug/L)
60
50
40
30
20
10
0
10/4/09
4/16/10
10/28/10
5/11/11
11/21/11
6/3/12
12/15/12
Date
Chromium (all results were detected)
NMWQCC GW STD
last sampling round

Appendix F

Analytical Reports
(on CD included with this document)

CD Table of Contents

Chain of Custody	Category	Lab	Sample	Date	Location	Screen Top Depth (ft)	Screen Bottom Depth (ft)
2013-246	INORGANIC	GELC[a]	CAMO-13-24255	10/30/12	MCOI-5	689.04	699
2013-246	INORGANIC	GELC	CAMO-13-24238	10/30/12	MCOI-5	689.04	699
2013-246	ORGANIC	GELC	CAMO-13-24238	10/30/12	MCOI-5	689.04	699
2013-246	RAD[b]	GELC	CAMO-13-24238	10/30/12	MCOI-5	689.04	699
2013-247	INORGANIC	GELC	CAMO-13-24257	10/30/12	R-1	1031.12	1057.42
2013-247	INORGANIC	GELC	CAMO-13-24240	10/30/12	R-1	1031.12	1057.42
2013-247	RAD	GELC	CAMO-13-24240	10/30/12	R-1	1031.12	1057.42
2013-251	RAD	ARSL[c]	CAMO-13-24240	10/30/12	R-1	1031.12	1057.42
2013-258	INORGANIC	GELC	CAMO-13-24258	10/31/12	R-13	958.33	1018.72
2013-258	INORGANIC	GELC	CAMO-13-24241	10/31/12	R-13	958.33	1018.72
2013-258	INORGANIC	GELC	CAMO-13-24260	10/31/12	R-28	934.3	958.1
2013-258	INORGANIC	GELC	CAMO-13-24243	10/31/12	R-28	934.3	958.1
2013-258	RAD	GELC	CAMO-13-24241	10/31/12	R-13	958.33	1018.72
2013-258	RAD	GELC	CAMO-13-24243	10/31/12	R-28	934.3	958.1
2013-259	INORGANIC	GELC	CAMO-13-24259	10/31/12	R-15	958.6	1020.3
2013-259	INORGANIC	GELC	CAMO-13-24242	10/31/12	R-15	958.6	1020.3
2013-259	INORGANIC	GELC	CAMO-13-24261	10/31/12	R-42	931.8	952.9
2013-259	INORGANIC	GELC	CAMO-13-24244	10/31/12	R-42	931.8	952.9
2013-259	RAD	GELC	CAMO-13-24244	10/31/12	R-42	931.8	952.9
2013-264	INORGANIC	GELC	CASA-13-24223	11/02/12	SCI-1	358.4	377.9
2013-264	INORGANIC	GELC	CASA-13-24215	11/02/12	SCI-1	358.4	377.9
2013-264	ORGANIC	GELC	CASA-13-24215	11/02/12	SCI-1	358.4	377.9
2013-264	RAD	GELC	CASA-13-24215	11/02/12	SCI-1	358.4	377.9
2013-267	INORGANIC	GELC	CAMO-13-24256	11/02/12	MCOI-6	686	708.3
2013-267	INORGANIC	GELC	CAMO-13-24239	11/02/12	MCOI-6	686	708.3
2013-267	ORGANIC	GELC	CAMO-13-24239	11/02/12	MCOI-6	686	708.3
2013-267	RAD	GELC	CAMO-13-24239	11/02/12	MCOI-6	686	708.3
2013-270	INORGANIC	GELC	CASA-13-24217	11/05/12	R-11	855	877.9
2013-270	INORGANIC	GELC	CASA-13-24209	11/05/12	R-11	855	877.9
2013-270	INORGANIC	GELC	CASA-13-24224	11/05/12	SCI-2	548	568
2013-270	INORGANIC	GELC	CASA-13-24216	11/05/12	SCI-2	548	568
2013-270	ORGANIC	GELC	CASA-13-24216	11/05/12	SCI-2	548	568
2013-270	RAD	GELC	CASA-13-24209	11/05/12	R-11	855	877.9
2013-270	RAD	GELC	CASA-13-24216	11/05/12	SCI-2	548	568
2013-276	INORGANIC	GELC	CAMO-13-24264	11/06/12	R-45 S1	880	890
2013-276	INORGANIC	GELC	CAMO-13-24247	11/06/12	R-45 S1	880	890
2013-276	INORGANIC	GELC	CAMO-13-24265	11/06/12	R-45 S2	974.9	994.9
2013-276	INORGANIC	GELC	CAMO-13-24248	11/06/12	R-45 S2	974.9	994.9

Chain of Custody	Category	Lab	Sample	Date	Location	Screen Top Depth (ft)	Screen Bottom Depth (ft)
2013-276	RAD	GELC	CAMO-13-24247	11/06/12	R-45 S1	880	890
2013-276	RAD	GELC	CAMO-13-24248	11/06/12	R-45 S2	974.9	994.9
2013-282	RAD	ARSL	CAMO-13-24228	11/08/12	R-62	1158.4	1179.1
2013-282	RAD	ARSL	CAMO-13-24253	11/08/12	R-62	1158.4	1179.1
2013-286	INORGANIC	GELC	CASA-13-24221	11/07/12	R-43 S1	903.9	924.6
2013-286	INORGANIC	GELC	CASA-13-24213	11/07/12	R-43 S1	903.9	924.6
2013-286	INORGANIC	GELC	CASA-13-24222	11/07/12	R-43 S2	969.1	979.1
2013-286	INORGANIC	GELC	CASA-13-24214	11/07/12	R-43 S2	969.1	979.1
2013-286	RAD	GELC	CASA-13-24213	11/07/12	R-43 S1	903.9	924.6
2013-286	RAD	GELC	CASA-13-24214	11/07/12	R-43 S2	969.1	979.1
2013-291	RAD	ARSL	CAMO-13-24241	10/31/12	R-13	958.33	1018.72
2013-291	RAD	ARSL	CAMO-13-24242	10/31/12	R-15	958.6	1020.3
2013-291	RAD	ARSL	CAMO-13-24247	11/06/12	R-45 S1	880	890
2013-291	RAD	ARSL	CAMO-13-24248	11/06/12	R-45 S2	974.9	994.9
2013-293	RAD	ARSL	CASA-13-24209	11/05/12	R-11	855	877.9
2013-293	RAD	ARSL	CASA-13-24213	11/07/12	R-43 S1	903.9	924.6
2013-293	RAD	ARSL	CASA-13-24214	11/07/12	R-43 S2	969.1	979.1
2013-297	INORGANIC	GELC	CAMO-13-24253	11/08/12	R-62	1158.4	1179.1
2013-297	INORGANIC	GELC	CAMO-13-24229	11/08/12	R-62	1158.4	1179.1
2013-297	INORGANIC	GELC	CAMO-13-24228	11/08/12	R-62	1158.4	1179.1
2013-297	INORGANIC	GELC	CAMO-13-24270	11/08/12	R-62	1158.4	1179.1
2013-297	ORGANIC	GELC	CAMO-13-24228	11/08/12	R-62	1158.4	1179.1
2013-297	ORGANIC	GELC	CAMO-13-24253	11/08/12	R-62	1158.4	1179.1
2013-297	RAD	GELC	CAMO-13-24228	11/08/12	R-62	1158.4	1179.1
2013-297	RAD	GELC	CAMO-13-24253	11/08/12	R-62	1158.4	1179.1
2013-298	ORGANIC	CFA[d]	CAMO-13-24253	11/08/12	R-62	1158.4	1179.1
2013-298	ORGANIC	CFA	CAMO-13-24228	11/08/12	R-62	1158.4	1179.1
2013-306	INORGANIC	GELC	CAMO-13-24266	11/09/12	R-50 S1	1077	1087
2013-306	INORGANIC	GELC	CAMO-13-24249	11/09/12	R-50 S1	1077	1087
2013-306	INORGANIC	GELC	CAMO-13-24267	11/09/12	R-50 S2	1185	1205.6
2013-306	INORGANIC	GELC	CAMO-13-24250	11/09/12	R-50 S2	1185	1205.6
2013-306	ORGANIC	GELC	CAMO-13-24250	11/09/12	R-50 S2	1185	1205.6
2013-306	RAD	GELC	CAMO-13-24249	11/09/12	R-50 S1	1077	1087
2013-306	RAD	GELC	CAMO-13-24250	11/09/12	R-50 S2	1185	1205.6
2013-306-1	INORGANIC	GELC	CAMO-13-24266	11/09/12	R-50 S1	1077	1087
2013-306-1	INORGANIC	GELC	CAMO-13-24267	11/09/12	R-50 S2	1185	1205.6
2013-307	INORGANIC	GELC	CAMO-13-24245	11/12/12	R-44 S1	895	905
2013-307	INORGANIC	GELC	CAMO-13-24262	11/12/12	R-44 S1	895	905
2013-307	INORGANIC	GELC	CAMO-13-24263	11/12/12	R-44 S2	985.3	995.2

Chain of Custody	Category	Lab	Sample	Date	Location	Screen Top Depth (ft)	Screen Bottom Depth (ft)
2013-307	INORGANIC	GELC	CAMO-13-24246	11/12/12	R-44 S2	985.3	995.2
2013-307	RAD	GELC	CAMO-13-24245	11/12/12	R-44 S1	895	905
2013-307	RAD	GELC	CAMO-13-24246	11/12/12	R-44 S2	985.3	995.2
2013-312	INORGANIC	GELC	CASA-13-24218	11/13/12	R-35a	1013.1	1062.2
2013-312	INORGANIC	GELC	CASA-13-24210	11/13/12	R-35a	1013.1	1062.2
2013-312	RAD	GELC	CASA-13-24210	11/13/12	R-35a	1013.1	1062.2
2013-313	RAD	ARSL	CAMO-13-24245	11/12/12	R-44 S1	895	905
2013-313	RAD	ARSL	CAMO-13-24246	11/12/12	R-44 S2	985.3	995.2
2013-313	RAD	ARSL	CAMO-13-24249	11/09/12	R-50 S1	1077	1087
2013-313	RAD	ARSL	CAMO-13-24250	11/09/12	R-50 S2	1185	1205.6
2013-315	RAD	ARSL	CASA-13-24210	11/13/12	R-35a	1013.1	1062.2
2013-320	RAD	ARSL	CASA-13-24211	11/14/12	R-35b	825.4	848.5
2013-321	INORGANIC	GELC	CASA-13-24219	11/14/12	R-35b	825.4	848.5
2013-321	INORGANIC	GELC	CASA-13-24211	11/14/12	R-35b	825.4	848.5
2013-321	RAD	GELC	CASA-13-24211	11/14/12	R-35b	825.4	848.5
2013-322	INORGANIC	GELC	CASA-13-24212	11/14/12	R-36	766.9	789.9
2013-322	INORGANIC	GELC	CASA-13-24207	11/14/12	R-36	766.9	789.9
2013-322	INORGANIC	GELC	CASA-13-24206	11/14/12	R-36	766.9	789.9
2013-322	INORGANIC	GELC	CASA-13-24220	11/14/12	R-36	766.9	789.9
2013-322	ORGANIC	GELC	CASA-13-24212	11/14/12	R-36	766.9	789.9
2013-322	ORGANIC	GELC	CASA-13-24206	11/14/12	R-36	766.9	789.9
2013-322	RAD	GELC	CASA-13-24212	11/14/12	R-36	766.9	789.9
2013-322	RAD	GELC	CASA-13-24206	11/14/12	R-36	766.9	789.9
2013-334	INORGANIC	GELC	CAMO-13-24268	11/15/12	R-61 S1	1125	1135
2013-334	INORGANIC	GELC	CAMO-13-24251	11/15/12	R-61 S1	1125	1135
2013-334	INORGANIC	GELC	CAMO-13-24269	11/15/12	R-61 S2	1220.4	1241
2013-334	INORGANIC	GELC	CAMO-13-24252	11/15/12	R-61 S2	1220.4	1241
2013-334	ORGANIC	GELC	CAMO-13-24251	11/15/12	R-61 S1	1125	1135
2013-334	ORGANIC	GELC	CAMO-13-24252	11/15/12	R-61 S2	1220.4	1241
2013-334	RAD	GELC	CAMO-13-24251	11/15/12	R-61 S1	1125	1135
2013-334	RAD	GELC	CAMO-13-24252	11/15/12	R-61 S2	1220.4	1241
2013-352	ORGANIC	CFA	CAMO-13-24251	11/15/12	R-61 S1	1125	1135
2013-352	ORGANIC	CFA	CAMO-13-24252	11/15/12	R-61 S2	1220.4	1241

Chain of Custody	Category	Lab	Sample	Date	Location	Screen Top Depth (ft)	Screen Bottom Depth (ft)
2013-360	RAD	ARSL	CAMO-13-24251	11/15/12	R-61 S1	1125	1135
2013-360	RAD	ARSL	CAMO-13-24252	11/15/12	R-61 S2	1220.4	1241
2013-362	RAD	ARSL	CASA-13-24212	11/14/12	R-36	766.9	789.9
2013-362	RAD	ARSL	CASA-13-24206	11/14/12	R-36	766.9	789.9

[a] GELC = General Engineering Laboratories, Inc., Charleston, SC.

[b] RAD = Radiochemistry (not gamma).

[c] ARSL = American Radiation Services, Inc.

[d] CFA = Cape Fear Analytical, LLC.

Chromium Investigation Monitoring Group Data Validation Summary

Location	Category	Method	Qual	Qual Reason Code	Explanation	COC	Sample	Analyte
MCOI-5	INORGANIC	EPA:300.0	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-246	CAMO-13-24255	Bromide
		EPA:351.2	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-246	CAMO-13-24238	Total Kjeldahl Nitrogen
		SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-246	CAMO-13-24255	Boron Vanadium
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-246	CAMO-13-24255	Chromium Nickel Uranium
		SW-846:9060	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-246	CAMO-13-24238	Total Organic Carbon
	ORGANIC	SW-846:8270C	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-246	CAMO-13-24238	Dioxane[1,4-]
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-246	CAMO-13-24238	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-246	CAMO-13-24238	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-246	CAMO-13-24238	Strontium-90
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-246	CAMO-13-24238	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-246	CAMO-13-24238	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-246	CAMO-13-24238	Uranium-235/236
MCOI-6	INORGANIC	EPA:350.1	J+	I6b	The associated matrix spike recovery was above the Upper Acceptance Limit (UAL). Follow the external laboratory limits located within the associated data package.	2013-267	CAMO-13-24256	Ammonia as Nitrogen
		EPA:351.2	J-	I6a	The associated matrix spike recovery was below the lower acceptance limit (LAL) but >10%. Follow the external laboratory limits located within the associated data package.	2013-267	CAMO-13-24239	Total Kjeldahl Nitrogen
		SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-267	CAMO-13-24256	Manganese

								Vanadium
			J-	I6a	The associated matrix spike recovery was below the lower acceptance limit (LAL) but >10%. Follow the external laboratory limits located within the associated data package.	2013-267	CAMO-13-24256	Calcium
		SW-846:6020	J	I10a	The sample and the duplicate sample results were >=5X the RL and the duplicate RPD was >20% for water samples and >35% for soil samples.	2013-267	CAMO-13-24256	Molybdenum
		SW-846:9060	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-267	CAMO-13-24239	Total Organic Carbon
	ORGANIC	SW-846:8260B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-267	CAMO-13-24239	Chloroform
		SW-846:8270C	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-267	CAMO-13-24239	Dioxane[1,4-]
			R	SV12	The LCS percent recovery was <10%. Follow the external laboratory limits located within the associated data package.	2013-267	CAMO-13-24239	Benzidine
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-267	CAMO-13-24239	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-267	CAMO-13-24239	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-267	CAMO-13-24239	Strontium-90
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-267	CAMO-13-24239	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-267	CAMO-13-24239	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-267	CAMO-13-24239	Uranium-235/236
R-1	INORGANIC	EPA:351.2	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-247	CAMO-13-24240	Total Kjeldahl Nitrogen
		EPA:365.4	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-247	CAMO-13-24257	Total Phosphate as Phosphorus
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-247	CAMO-13-24257	Chromium
		SW-846:9060	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-247	CAMO-13-24240	Total Organic Carbon
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-247	CAMO-13-24240	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-247	CAMO-13-24240	Cesium-137

								Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-247	CAMO-13-24240	Strontium-90
		Generic:Low_Level_Tritium	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-251	CAMO-13-24240	Tritium
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-247	CAMO-13-24240	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-247	CAMO-13-24240	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-247	CAMO-13-24240	Uranium-235/236
R-11	INORGANIC	EPA:300.0	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-270	CASA-13-24217	Bromide
		EPA:365.4	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-270	CASA-13-24217	Total Phosphate as Phosphorus
		SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-270	CASA-13-24217	Boron Copper Zinc
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-270	CASA-13-24217	Nickel Selenium
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-270	CASA-13-24209	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-270	CASA-13-24209	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-270	CASA-13-24209	Strontium-90
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-270	CASA-13-24209	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-270	CASA-13-24209	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	J	R10	Associated duplicate sample has DER or RER> the analytical laboratory's acceptance limits.	2013-270	CASA-13-24209	Uranium-234 Uranium-238

			U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-270	CASA-13-24209	Uranium-235/236
R-13	INORGANIC	EPA:300.0	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-258	CAMO-13-24258	Bromide
		EPA:350.1	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-258	CAMO-13-24258	Ammonia as Nitrogen
		EPA:351.2	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-258	CAMO-13-24241	Total Kjeldahl Nitrogen
		EPA:365.4	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-258	CAMO-13-24258	Total Phosphate as Phosphorus
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-258	CAMO-13-24258	Chromium Nickel
		SW-846:9060	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-258	CAMO-13-24241	Total Organic Carbon
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-258	CAMO-13-24241	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-258	CAMO-13-24241	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-258	CAMO-13-24241	Strontium-90
		Generic:Low_Level_Tritium	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-291	CAMO-13-24241	Tritium
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-258	CAMO-13-24241	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-258	CAMO-13-24241	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-258	CAMO-13-24241	Uranium-235/236
R-15	INORGANIC	EPA:300.0	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-259	CAMO-13-24259	Bromide
		EPA:351.2	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-259	CAMO-13-24242	Total Kjeldahl Nitrogen
		EPA:365.4	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-259	CAMO-13-24259	Total Phosphate as Phosphorus
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-259	CAMO-13-24259	Nickel
		SW-846:6850	J	PE12e	The MS/MSD percent recovery was >10% but <75%	2013-259	CAMO-13-24259	Perchlorate
		SW-846:9060	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-259	CAMO-13-24242	Total Organic Carbon

R-28	INORGANIC	EPA:351.2	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-258	CAMO-13-24243	Total Kjeldahl Nitrogen
		EPA:365.4	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-258	CAMO-13-24260	Total Phosphate as Phosphorus
		SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-258	CAMO-13-24260	Boron Zinc
		SW-846:9060	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-258	CAMO-13-24243	Total Organic Carbon
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-258	CAMO-13-24243	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-258	CAMO-13-24243	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-258	CAMO-13-24243	Strontium-90
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-258	CAMO-13-24243	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-258	CAMO-13-24243	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-258	CAMO-13-24243	Uranium-235/236
R-35a	INORGANIC	EPA:350.1	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-312	CASA-13-24218	Ammonia as Nitrogen
		EPA:351.2	UJ	I6a	The associated matrix spike recovery was below the lower acceptance limit (LAL) but >10%. Follow the external laboratory limits located within the associated data package.	2013-312	CASA-13-24210	Total Kjeldahl Nitrogen
		SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-312	CASA-13-24218	Boron Iron
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-312	CASA-13-24218	Chromium
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-312	CASA-13-24210	Gross alpha
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-312	CASA-13-24210	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-312	CASA-13-24210	Strontium-90

		Generic:Low_Level_Tritium	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-315	CASA-13-24210	Tritium
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-312	CASA-13-24210	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-312	CASA-13-24210	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-312	CASA-13-24210	Uranium-235/236
R-35b	INORGANIC	EPA:300.0	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-321	CASA-13-24219	Bromide
		EPA:351.2	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-321	CASA-13-24211	Total Kjeldahl Nitrogen
		SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-321	CASA-13-24219	Boron
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-321	CASA-13-24219	Chromium Nickel
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-321	CASA-13-24211	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-321	CASA-13-24211	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-321	CASA-13-24211	Strontium-90
		Generic:Low_Level_Tritium	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-320	CASA-13-24211	Tritium
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-321	CASA-13-24211	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-321	CASA-13-24211	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-321	CASA-13-24211	Uranium-235/236
R-36	INORGANIC	EPA:300.0	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-322	CASA-13-24207 CASA-13-24220	Bromide Bromide
		EPA:350.1	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-322	CASA-13-24207	Ammonia as Nitrogen
		EPA:351.2	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-322	CASA-13-24206	Total Kjeldahl Nitrogen

							CASA-13-24212	Total Kjeldahl Nitrogen
		EPA:365.4	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-322	CASA-13-24220	Total Phosphate as Phosphorus
		SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-322	CASA-13-24207	Boron Manganese
							CASA-13-24220	Boron Manganese
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-322	CASA-13-24207	Chromium Nickel
							CASA-13-24220	Chromium Nickel
		SW-846:9060	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-322	CASA-13-24206	Total Organic Carbon
							CASA-13-24212	Total Organic Carbon
	ORGANIC	SW-846:8260B	U	V4	The sample result is less than or equal to 5 times (10 times for acetone, methylene chloride, and 2-butanone) the concentration of the related analyte in the method blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.	2013-322	CASA-13-24212	Naphthalene
		SW-846:8270C	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-322	CASA-13-24212	Benzoic Acid
			UJ	SV12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.	2013-322	CASA-13-24206	Dioxane[1,4-] Hexachlorocyclopentadiene
							CASA-13-24212	Dioxane[1,4-] Hexachlorocyclopentadiene
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-322	CASA-13-24206	Gross alpha Gross beta
							CASA-13-24212	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-322	CASA-13-24206	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
							CASA-13-24212	Cesium-137 Cobalt-60

								Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-322	CASA-13-24206 CASA-13-24212	Strontium-90 Strontium-90
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-322	CASA-13-24206 CASA-13-24212	Americium-241 Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-322	CASA-13-24206 CASA-13-24212	Plutonium-238 Plutonium-239/240 Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-322	CASA-13-24206 CASA-13-24212	Uranium-235/236 Uranium-235/236
R-42	INORGANIC	EPA:351.2	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-259	CAMO-13-24244	Total Kjeldahl Nitrogen
		SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-259	CAMO-13-24261	Boron Zinc
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-259	CAMO-13-24261	Antimony
		SW-846:9060	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-259	CAMO-13-24244	Total Organic Carbon
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-259	CAMO-13-24244	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-259	CAMO-13-24244	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-259	CAMO-13-24244	Strontium-90
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-259	CAMO-13-24244	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-259	CAMO-13-24244	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-259	CAMO-13-24244	Uranium-235/236
R-43 S1	INORGANIC	EPA:300.0	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-286	CASA-13-24221	Bromide

		EPA:350.1	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-286	CASA-13-24221	Ammonia as Nitrogen
		SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-286	CASA-13-24221	Iron Manganese Zinc
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-286	CASA-13-24221	Selenium Uranium
		SW-846:9060	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-286	CASA-13-24213	Total Organic Carbon
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-286	CASA-13-24213	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-286	CASA-13-24213	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-286	CASA-13-24213	Strontium-90
		Generic:Low_Level_Tritium	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-293	CASA-13-24213	Tritium
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-286	CASA-13-24213	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-286	CASA-13-24213	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	J	R10	Associated duplicate sample has DER or RER> the analytical laboratory's acceptance limits.	2013-286	CASA-13-24213	Uranium-234
			U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-286	CASA-13-24213	Uranium-235/236 Uranium-238
R-43 S2	INORGANIC	EPA:300.0	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-286	CASA-13-24222	Bromide
		EPA:350.1	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-286	CASA-13-24222	Ammonia as Nitrogen
		EPA:365.4	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-286	CASA-13-24222	Total Phosphate as Phosphorus
		SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-286	CASA-13-24222	Boron

		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-286	CASA-13-24222	Chromium Nickel
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-286	CASA-13-24214	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-286	CASA-13-24214	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-286	CASA-13-24214	Strontium-90
		Generic:Low_Level_Tritium	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-293	CASA-13-24214	Tritium
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-286	CASA-13-24214	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-286	CASA-13-24214	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-286	CASA-13-24214	Uranium-235/236
R-44 S1	INORGANIC	SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-307	CAMO-13-24262	Boron Vanadium
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-307	CAMO-13-24262	Nickel
		SW-846:9060	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-307	CAMO-13-24245	Total Organic Carbon
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-307	CAMO-13-24245	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-307	CAMO-13-24245	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-307	CAMO-13-24245	Strontium-90
		Generic:Low_Level_Tritium	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-313	CAMO-13-24245	Tritium
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-307	CAMO-13-24245	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-307	CAMO-13-24245	Plutonium-238

								Plutonium-239/240
		HASL-300:ISOU	J	R10	Associated duplicate sample has DER or RER> the analytical laboratory's acceptance limits.	2013-307	CAMO-13-24245	Uranium-234 Uranium-238
			U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-307	CAMO-13-24245	Uranium-235/236
R-44 S2	INORGANIC	SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-307	CAMO-13-24263	Boron Manganese
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-307	CAMO-13-24263	Chromium Nickel
		SW-846:9060	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-307	CAMO-13-24246	Total Organic Carbon
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-307	CAMO-13-24246	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-307	CAMO-13-24246	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-307	CAMO-13-24246	Strontium-90
		Generic:Low_Level_Tritium	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-313	CAMO-13-24246	Tritium
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-307	CAMO-13-24246	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-307	CAMO-13-24246	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-307	CAMO-13-24246	Uranium-235/236
R-45 S1	INORGANIC	EPA:350.1	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-276	CAMO-13-24264	Ammonia as Nitrogen
		SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-276	CAMO-13-24264	Boron
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-276	CAMO-13-24264	Nickel
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-276	CAMO-13-24247	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-276	CAMO-13-24247	Cesium-137

								Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-276	CAMO-13-24247	Strontium-90
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-276	CAMO-13-24247	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-276	CAMO-13-24247	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-276	CAMO-13-24247	Uranium-235/236
R-45 S2	INORGANIC	SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-276	CAMO-13-24265	Boron
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-276	CAMO-13-24265	Nickel
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-276	CAMO-13-24248	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-276	CAMO-13-24248	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-276	CAMO-13-24248	Strontium-90
		Generic:Low_Level_Tritium	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-291	CAMO-13-24248	Tritium
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-276	CAMO-13-24248	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-276	CAMO-13-24248	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-276	CAMO-13-24248	Uranium-235/236
R-50 S1	INORGANIC	EPA:300.0	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-306	CAMO-13-24266	Bromide
		EPA:351.2	J+	I6b	The associated matrix spike recovery was above the Upper Acceptance Limit (UAL). Follow the external laboratory limits located within the associated data package.	2013-306	CAMO-13-24249	Total Kjeldahl Nitrogen
		EPA:365.4	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-306	CAMO-13-24266	Total Phosphate as Phosphorus
		SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-306	CAMO-13-24266	Boron

		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-306-1	CAMO-13-24266	Arsenic
			R	I19	the LANL project chemist identified quality deficiencies in the reported data that require further qualification. This code can ONLY be used under advisement by the LANL project chemist.	2013-306	CAMO-13-24266	Antimony Arsenic Cadmium Chromium Lead Molybdenum Nickel Selenium Silver Thallium Uranium
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-306	CAMO-13-24249	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-306	CAMO-13-24249	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-306	CAMO-13-24249	Strontium-90
		Generic:Low_Level_Tritium	J-	R12a	The LCS percent recovery was <the LAL but >10%. Follow the external laboratory limits located within the associated data package.	2013-313	CAMO-13-24249	Tritium
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-306	CAMO-13-24249	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-306	CAMO-13-24249	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-306	CAMO-13-24249	Uranium-235/236
R-50 S2	INORGANIC	EPA:351.2	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-306	CAMO-13-24250	Total Kjeldahl Nitrogen
		EPA:365.4	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-306	CAMO-13-24267	Total Phosphate as Phosphorus
		SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-306	CAMO-13-24267	Vanadium

		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-306-1	CAMO-13-24267	Arsenic Chromium Nickel Thallium
			R	I19	the LANL project chemist identified quality deficiencies in the reported data that require further qualification. This code can ONLY be used under advisement by the LANL project chemist.	2013-306	CAMO-13-24267	Antimony Arsenic Cadmium Chromium Lead Molybdenum Nickel Selenium Silver Thallium Uranium
		SW-846:9060	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-306	CAMO-13-24250	Total Organic Carbon
	ORGANIC	SW-846:8270C	UJ	SV12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.	2013-306	CAMO-13-24250	Dioxane[1,4-] Hexachlorocyclopentadiene
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-306	CAMO-13-24250	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-306	CAMO-13-24250	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-306	CAMO-13-24250	Strontium-90
		Generic:Low_Level_Tritium	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-313	CAMO-13-24250	Tritium
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-306	CAMO-13-24250	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-306	CAMO-13-24250	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-306	CAMO-13-24250	Uranium-235/236

R-61 S1	INORGANIC	EPA:350.1	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-334	CAMO-13-24268	Ammonia as Nitrogen
		SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-334	CAMO-13-24268	Aluminum Boron Iron Vanadium
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-334	CAMO-13-24268	Antimony
	ORGANIC	SW-846:8270C	R	SV3	The surrogate is <10%R. Follow the external laboratory limits located within the associated data package.	2013-334	CAMO-13-24251	Acenaphthene Acenaphthylene Aniline Anthracene Atrazine Azobenzene
			R	SV12	The LCS percent recovery was <10%. Follow the external laboratory limits located within the associated data package.	2013-334	CAMO-13-24251	Benzidine
			R	SV3	The surrogate is <10%R. Follow the external laboratory limits located within the associated data package.	2013-334	CAMO-13-24251	Benzidine Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(k)fluoranthene Benzoic Acid Benzyl Alcohol Bis(2-chloroethoxy)methane Bis(2-chloroethyl)ether Bis(2-ethylhexyl)phthalate Bromophenyl-phenylether[4-] Butylbenzylphthalate Chloro-3-methylphenol[4-] Chloroaniline[4-] Chloronaphthalene[2-] Chlorophenol[2-] Chlorophenyl-phenyl[4-] Ether Chrysene Dibenz(a,h)anthracene Dibenzofuran Dichlorobenzene[1,2-]

								Dichlorobenzene[1,3-]
								Dichlorobenzene[1,4-]
								Dichlorobenzidine[3,3'-]
								Dichlorophenol[2,4-]
								Diethylphthalate
								Dimethyl Phthalate
								Dimethylphenol[2,4-]
								Di-n-butylphthalate
								Dinitro-2-methylphenol[4,6-]
								Dinitrophenol[2,4-]
								Dinitrotoluene[2,4-]
								Dinitrotoluene[2,6-]
								Di-n-octylphthalate
								Dinoseb
								Dioxane[1,4-]
								Diphenylamine
								Fluoranthene
								Fluorene
								Hexachlorobenzene
								Hexachlorobutadiene
								Hexachlorocyclopentadiene
								Hexachloroethane
								Indeno(1,2,3-cd)pyrene
								Isophorone
								Methylnaphthalene[1-]
								Methylnaphthalene[2-]
								Methylphenol[2-]
								Methylphenol[4-]
								Naphthalene
								Nitroaniline[2-]
								Nitroaniline[3-]
								Nitroaniline[4-]
								Nitrobenzene
								Nitrophenol[2-]
								Nitrophenol[4-]
								Nitrosodiethylamine[N-]
								Nitrosodimethylamine[N-]
								Nitroso-di-n-butylamine[N-]
								Nitroso-di-n-propylamine[N-]
								Nitrosopyrrolidine[N-]
								Oxybis(1-chloropropane)[2,2'-]
								Pentachlorobenzene
								Pentachlorophenol

								Phenanthrene Phenol Pyrene Pyridine Tetrachlorobenzene[1,2,4,5] Tetrachlorophenol[2,3,4,6-] Trichlorobenzene[1,2,4-] Trichlorophenol[2,4,5-] Trichlorophenol[2,4,6-]
			UJ	SV12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.	2013-334	CAMO-13-24251	Hexachlorocyclopentadiene
	RAD	EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-334	CAMO-13-24251	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-334	CAMO-13-24251	Strontium-90
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-334	CAMO-13-24251	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-334	CAMO-13-24251	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-334	CAMO-13-24251	Uranium-235/236
R-61 S2	INORGANIC	SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-334	CAMO-13-24269	Aluminum Boron
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-334	CAMO-13-24269	Arsenic Chromium Lead Nickel
	ORGANIC	SW-846:8270C	UJ	SV12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.	2013-334	CAMO-13-24252	Dioxane[1,4-] Hexachlorocyclopentadiene
	RAD	EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-334	CAMO-13-24252	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-334	CAMO-13-24252	Strontium-90

		Generic:Low_Level_Tritium	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-360	CAMO-13-24252	Tritium
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-334	CAMO-13-24252	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-334	CAMO-13-24252	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-334	CAMO-13-24252	Uranium-235/236
R-62	INORGANIC	EPA:300.0	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-297	CAMO-13-24229 CAMO-13-24270	Bromide Bromide
		EPA:350.1	J-	I6a	The associated matrix spike recovery was below the lower acceptance limit (LAL) but >10%. Follow the external laboratory limits located within the associated data package.	2013-297	CAMO-13-24229	Ammonia as Nitrogen
		SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-297	CAMO-13-24229 CAMO-13-24270	Vanadium Zinc Boron Vanadium Zinc
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-297	CAMO-13-24270	Nickel
		SW-846:9060	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-297	CAMO-13-24228 CAMO-13-24253	Total Organic Carbon Total Organic Carbon
	ORGANIC	SW-846:8270C	UJ	SV12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.	2013-297	CAMO-13-24228 CAMO-13-24253	Dioxane[1,4-] Hexachlorocyclopentadiene Dioxane[1,4-] Hexachlorocyclopentadiene
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-297	CAMO-13-24228 CAMO-13-24253	Gross alpha Gross beta Gross alpha
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-297	CAMO-13-24228 CAMO-13-24253	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22 Cesium-137 Cobalt-60 Neptunium-237

								Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-297	CAMO-13-24228 CAMO-13-24253	Strontium-90 Strontium-90
		Generic:Low_Level_Tritium	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-282	CAMO-13-24228	Tritium
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-297	CAMO-13-24228 CAMO-13-24253	Americium-241 Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-297	CAMO-13-24228 CAMO-13-24253	Plutonium-238 Plutonium-239/240 Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-297	CAMO-13-24228 CAMO-13-24253	Uranium-235/236 Uranium-235/236
SCI-1	INORGANIC	EPA:350.1	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-264	CASA-13-24223	Ammonia as Nitrogen
		SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-264	CASA-13-24223	Vanadium
		SW-846:9060	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-264	CASA-13-24215	Total Organic Carbon
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-264	CASA-13-24215	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-264	CASA-13-24215	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-264	CASA-13-24215	Strontium-90
		EPA:906.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-264	CASA-13-24215	Tritium
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-264	CASA-13-24215	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-264	CASA-13-24215	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-264	CASA-13-24215	Uranium-235/236
SCI-2	INORGANIC	EPA:351.2	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-270	CASA-13-24216	Total Kjeldahl Nitrogen

		SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-270	CASA-13-24224	Boron Copper Vanadium
		SW-846:9060	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-270	CASA-13-24216	Total Organic Carbon
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-270	CASA-13-24216	Gross alpha
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-270	CASA-13-24216	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-270	CASA-13-24216	Strontium-90
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-270	CASA-13-24216	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-270	CASA-13-24216	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-270	CASA-13-24216	Uranium-235/236

Table F-1: Chromium Investigation Monitoring Group, Previous Unreported DVD TOC

COC	Category	Lab	Sample	Date	Location	Screen Top Depth (ft)	Screen Bottom Depth (ft)
12-1564	INORGANIC	UIL	CAMO-12-14078	6/6/2012	R-62	1158.4	1179.1
12-1565	INORGANIC	UIL	CASA-12-14081	5/22/2012	R-43 S1	903.9	924.6
12-1565	INORGANIC	UIL	CASA-12-14082	5/22/2012	R-43 S2	969.1	979.1

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-251

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

- 24 Hour - ☐ Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3	Special Instructions:
CAMO-13-24240	Oct 30 2012	11:51	W	1	

Special Instructions:

Relinquished by:		Date/Time: 10/31/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24240 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/30/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1151	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSI
LOCATION ID:	R-1		FIELD PREP:	UF	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 50 feet of a running diesel generator.

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 5.53 mg/L Oxidation-Reduction Potential -13.3 MV pH 7.76 SU

Specific Conductance 146 uS/cm Temperature 21.26 deg C Turbidity 0.54 NTU

COLLECTED BY (PRINT) W Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	10/30/12 1305	(Printed Name) A. Martyn (Signature)	10/30/12 1305
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-251

1. Distribution Of Samples In EDD.

	Analytical	Regular	Field	Trip	Field	Equipment
SDG	Method	Samples	Duplicates	Blanks	Blanks	Blanks
ARS1-12-02207	Generic:Low_Level_Tritium	1				

	Analytical	Analysis	Prep	Regular	Field	Trip	Field	Equipment	Method	Matrix	Matrix
SDG	Method	Lot ID	Lot ID	Samples	Duplicates	Blanks	Blanks	Blanks	Blanks	Spikes	Spike Dups
ARS1-12-02207	Generic:Low_Level_Tritium	ARS1-B12-02616	ARS1-B12-02616	1					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
Generic:Low_Level_Tritium	RAD							
LCS	ARS1-B12-02616-01	LCS	0	0	1	0		
Generic:Low_Level_Tritium	RAD	CAMO-13-24240	ARS1-B12-02616-04	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	LCSD	ARS1-B12-02616-02	LCSD	0	0	1	0
Generic:Low_Level_Tritium	RAD	MB	ARS1-B12-02616-03	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

No.

Any samples affected by the presence of contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

No.

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

Data Validation Report for:

Chain Of Custody No. 2013-251

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1	1						

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-1	2013-251	CAMO-13-24240	REG	INIT	RAD	Generic:Low_Level_Tritium	Tritium	U	U	R5	N

Reason Code	Description
R5	Analyte is not detected because the amount reported is less than the MDC.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24240	R-1	REG	Generic:Low_Level_Tritium	0	1

Data Validation Report for:

Chain Of Custody No. 2013-251

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
1.785	pCi/L	1.785	pCi/L	2.41	0.791	W	10/30/2012		ARS1-B12-02616	VAL	Y

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Request Number: 2013-251

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-251

Original COC

American Radiation Services - Primary

1726 Wooddale Court

Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-251

Client Contact:

Lab Agreement # : 63641-001-10

Site Name: Los Alamos National Laboratory

Project Number :

Analysis Turnaround Time:

- 24 Hour - ☐
- Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3	Special Instructions:
CAMO-13-24240	Oct 30 2012	11:51	W	1	

Special Instructions:

Relinquished by: Melissa Martinez		Date/Time: 10/31/12 3:00	Received by: Christiany	11/1/12 1030
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-251

Case Narrative

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

November 30, 2012

LANL
Keith Greene
PO Box 1663 MS M992
Los Alamos, NM 87545

Request Number: **2013-251**
LANL Sample ID: **CAMO-13-24240.**

Dear Mr. Greene;

On November 1, 2012, ARS International received one (1) water sample to be analyzed for Low Level Tritium.

The sample underwent enrichment and was counted using the appropriate counting equipment and QA/QC for this type of analysis. Results of the analysis and QA/QC are attached in the data package.

The client and QA/QC samples were counted with a count time sufficient to meet quality control parameters for counting equipment and were within acceptance criteria and statistical sound detection limits.

If you have any questions please do not hesitate to call at 225.381.2991 or email LANL@amrad.com.

Sincerely,

Virgene Mulligan

Laboratory Management
ARS International

ARS INTERNATIONAL
2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

COVER PAGE

PROJECT SAMPLE IDENTIFICATION
CROSS-REFERENCE
TO ARS SAMPLE LABORATORY IDs
Subcontract (LANL Agreement Number) 63641-001-10

Request Number	LANL PROJECT SAMPLE ID NUMBER	American Radiation Services SAMPLE ID NUMBER(S)
2013-251	CAMO-13-24240	ARS1-12-02207-001

ANALYTICAL METHODS
Tritium analyses were performed using **ARS-040 Tritium Assay in Water Samples Using Electrolytic Enrichment.**

ANALYTICAL RESULTS
The result data that are flagged with "U" indicate that the activity is below the MDC.

American Radiation Services Project Manager/Laboratory Director's Comments:
"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

"I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the LANL specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."

Signature	Title	Date
Eugene Mulligan	Laboratory Management, ARS International	12-3-12

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02207	**Request or PO Number:**	2013-251
Client Sample ID:	CAMO-13-24240	**ARS Sample ID:**	ARS1-12-02207-001
Sample Collection Date:	10/30/12	**Date Received:**	11/01/12
Sample Matrix:	Aqueous	**Report Date:**	11/30/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	1.785	0.791	2.410	1.165	U	pCi/L	ARS-040	11/22/12 09:11	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

QC Results Report

Sample Delivery Group: ARS1-12-02207
Date Received: 11/1/2012

Laboratory Control Sample Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Percent Recovery (%)	LCS Acceptance Range
ARS1-B12-02616	LCS	H3	26.722	8.138	2.244	25.850		pCi/L	ARS-040	11/21/12 18:37	RJU	103	80%-120%

Blank Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician
ARS1-B12-02616	MBL	H3	1.814	1.554	2.410	NA	U	pCi/L	ARS-040	11/21/12 18:37	RJU

Sample RER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (2s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	RER	RER AcceptanceRange
ARS1-B12-02616	LCSD	H3	26.722	8.138	26.714	8.137		pCi/L	ARS-040	11/21/12 18:37	RJU	0.00	< 1

Sample DER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (2s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	DER	DER AcceptanceRange
ARS1-B12-02616	LCSD	H3	26.722	8.138	26.714	8.137		pCi/L	ARS-040	11/21/12 18:37	RJU	0.00	< 3

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of ARS International.

LELAP Certificate# 01949 NELAP Certificate # E87558

QC Evaluation

EPA Method: ARS-040
Batch ID: ARS1-B12-02616
SDG's: ARS1-12-02207; 2208; 2209

LCS	26.7220	**CSU (2s)**	8.1380
LCSD	26.7140	**CSU-D (2s)**	8.1370

DER = $\frac{\text{abs(LSC-LSCD)}}{\text{sqr((2s CSU/2)^2)+((2s CSU-D/2)^2)}}$ = **< 3**

at 1 sigma

DER $\frac{0.008}{5.754081}$ = 0.00139 **< 3**

% RPD= $\frac{\text{ABS(LCS - LSCD)}}{\text{(LCS+LCSD)/2}}$ * 100 = **< 25%**

%RPD $\frac{0.008}{26.718}$ *100 = 0.029942 **< 25%**

The *RPD* shall be less than 25% or other client-applied criteria

RER= $\frac{\text{abs((LCS-LCSD))}}{\text{(CSU)+(CSD)}}$ = **<1** ***<--LANL Requirement***

at 2 sigma

RER = $\frac{0.008}{16.2750}$ 0.000491551 **<1**

Blank Information

	Act	CSU(2s)	MDA	Act>MDA
AM-241				
U-234				
U-235				
U-238				
Pu-238				
Pu-239/240				
Th-228				
Th-230				
Th-232				
H3	1.814	1.554	2.41	
Ra-226				
Ra-228				
Total U				
Pb-210				
Po-209				
Sr-90				
TC-99				
NI-63				

*MDA should be below RDL
*Blank activity must be below MDA
*Blank activity must be < 1.65*CSU (DOE only)

ACT = 1.814
CSU = 1.554
Is ACT<1.65*CSU? **YES**

ARS Batch Number: ARS1-B12 - 02616

Enter these Values for LCS

		Report Name	Field Name on the Report
Current ACT	5.6597	Standards Report	ACT at Date Above (dpm/g)
NetWt	5.0790	LCS Report	NetWt
Aliquot	0.5009	Tritium Enrichment Data	Gross Sample Added/1000

Enter these Values for LCSD

		Report Name	Field Name on the Report
Current ACT	5.6597	Standards Report	ACT at Date Above (dpm/g)
NetWt	5.0580	LCS Report	NetWt
Aliquot	0.5007	Tritium Enrichment Data	Gross Sample Added/1000

Expected Value Calculations

ARS Batch Number: ARS1-B11 - 02616

LCS	**CALCULATED EXPECTED VALUE**	=	25.850			
			Range	20.680	-	31.020
LCSD	**CALCULATED EXPECTED VALUE**	=	25.756			
			Range	20.605	-	30.908

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

ARS INTERNATIONAL

Analysis Batch ID **ARS1-B12-02616**

Method **ARS-040** **Analysis** **LSC-A-022** **Matrix** **AQ**

Description **Low Level Tritium by Electrolytic Enrichment**

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02616-01	LCS	B-14741								
ARS1-B12-02616-02	LCSD	B-14742								
ARS1-B12-02616-03	MBL									
ARS1-B12-02616-04	TRG				**ARS1-12-02207**	001	1	CAMO-13-24240	STD	11/26/12
ARS1-B12-02616-05	TRG				**ARS1-12-02208**	001	1	CAPA-12-23808	STD	11/26/12
ARS1-B12-02616-06	TRG				**ARS1-12-02208**	002	1	CAPA-12-23815	STD	11/26/12
ARS1-B12-02616-07	TRG				**ARS1-12-02208**	003	1	CAPA-12-23816	STD	11/26/12
ARS1-B12-02616-08	TRG				**ARS1-12-02209**	001	1	CAMO-12-23862	STD	11/26/12
ARS1-B12-02616-09	TRG				**ARS1-12-02209**	002	1	CAMO-12-23863	STD	11/26/12
ARS1-B12-02616-10	TRG				**ARS1-12-02209**	003	1	CAMO-12-23864	STD	11/26/12

127027
12-02207-001-1
WRAD

127029
12-02208-001-1
WRAD

127033
12-02208-002-1
WRAD

127035
12-02208-003-1
WRAD

127039
12-02209-001-1
WRAD

127041
12-02209-002-1
WRAD

127043
12-02209-003-1
WRAD

American Radiation Services
Baton Rouge Laboratory

LCS Report
Analytical Batch: ARS1-B12-02616

BlindID	ABatch	ABatchSampleID	BlindGroup	StdID	Isotope	ExpectedAddition	ExpectedValue	EmptyWt	GrossWt	NetWt	UserID	ModDate	ExpectedValue_CT	MidPointCountDate	KnownValue
B-14741	ARS1-B12-02616	ARS1-B12-02616-01	B-H3	S-0279	H-3	5	2.556888942	13.336	18.415	5.079	AMRAD\BSTEFFENS	11/2/2012	2.549416506	11/21/2012	12.94848643
B-14742	ARS1-B12-02616	ARS1-B12-02616-02	B-H3	S-0279	H-3	5	2.556888942	13.207	18.265	5.058	AMRAD\BSTEFFENS	11/2/2012	2.549416506	11/21/2012	12.89494869

ARS-040 Calculation Results

ARS1-B12-02616

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Total_Bkg_Count_Duration_min	DF	Sample_Activity_Conc	Standard_Counting_Uncertainty	CU_1	CSU_1	CU_1_96	CSU_1_96	MDC	DLC	ActivityReportUnits
LSC-A-022	ARS1-B12-02616-01	240.000	0.98851	26.722	1.083	1.083	4.152	2.122	8.138	2.244	1.084	pCi
LSC-A-022	ARS1-B12-02616-02	240.000	0.98836	26.714	1.084	1.084	4.151	2.126	8.137	2.250	1.087	pCi
LSC-A-022	ARS1-B12-02616-03	240.000	0.99969	1.814	0.745	0.745	0.793	1.460	1.554	2.410	1.165	pCi
LSC-A-022	ARS1-B12-02616-04	240.000	0.99646	1.785	0.745	0.745	0.791	1.459	1.551	2.410	1.165	pCi
LSC-A-022	ARS1-B12-02616-05	240.000	0.99570	1.569	0.790	0.790	0.825	1.549	1.616	2.581	1.247	pCi
LSC-A-022	ARS1-B12-02616-06	240.000	0.99554	0.932	0.682	0.682	0.696	1.337	1.365	2.256	1.090	pCi
LSC-A-022	ARS1-B12-02616-07	240.000	0.99554	0.514	0.753	0.753	0.757	1.475	1.483	2.525	1.221	pCi
LSC-A-022	ARS1-B12-02616-08	240.000	0.99539	0.914	0.730	0.730	0.742	1.430	1.455	2.419	1.169	pCi
LSC-A-022	ARS1-B12-02616-09	240.000	0.99539	7.023	0.864	0.864	1.362	1.693	2.670	2.481	1.199	pCi
LSC-A-022	ARS1-B12-02616-10	240.000	0.99554	2.370	0.694	0.694	0.780	1.360	1.528	2.200	1.063	pCi

ARS-040 Calculation Results

ARS1-B12-02616

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	AliquotReportUnits	UserID	ModDate
LSC-A-022	ARS1-B12-02616-01	L	AMRAD\RUSEY	11/26/2012
LSC-A-022	ARS1-B12-02616-02	L	AMRAD\RUSEY	11/26/2012
LSC-A-022	ARS1-B12-02616-03	L	AMRAD\RUSEY	11/26/2012
LSC-A-022	ARS1-B12-02616-04	L	AMRAD\RUSEY	11/26/2012
LSC-A-022	ARS1-B12-02616-05	L	AMRAD\RUSEY	11/26/2012
LSC-A-022	ARS1-B12-02616-06	L	AMRAD\RUSEY	11/26/2012
LSC-A-022	ARS1-B12-02616-07	L	AMRAD\RUSEY	11/26/2012
LSC-A-022	ARS1-B12-02616-08	L	AMRAD\RUSEY	11/26/2012
LSC-A-022	ARS1-B12-02616-09	L	AMRAD\RUSEY	11/26/2012
LSC-A-022	ARS1-B12-02616-10	L	AMRAD\RUSEY	11/26/2012

ARS-040 Calculation Results

ARS1-B12-02616

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Initial_Mass_sample_g	Mass_Na2O2_added_g	Final_mass_electrolyzed_sample_NaOH_g	Mass_equivalent_NaOH_g	Final_Mass_Electrolyzed_sample_g	VolumeFactor_X	Enrichment_Factor_Y
LSC-A-022	ARS1-B12-02616-01	500.910	2.070	15.740	2.124	13.616	0.027	28.706
LSC-A-022	ARS1-B12-02616-02	500.650	2.050	15.210	2.103	13.107	0.026	29.763
LSC-A-022	ARS1-B12-02616-03	501.120	2.020	17.080	2.073	15.007	0.030	26.154
LSC-A-022	ARS1-B12-02616-04	501.400	2.000	16.740	2.052	14.688	0.029	26.715
LSC-A-022	ARS1-B12-02616-05	503.090	2.080	17.660	2.134	15.526	0.031	25.410
LSC-A-022	ARS1-B12-02616-06	503.820	2.060	16.140	2.114	14.026	0.028	28.055
LSC-A-022	ARS1-B12-02616-07	500.020	2.070	17.490	2.124	15.366	0.031	25.513
LSC-A-022	ARS1-B12-02616-08	500.990	2.100	17.010	2.155	14.855	0.030	26.405
LSC-A-022	ARS1-B12-02616-09	501.040	2.070	17.130	2.124	15.006	0.030	26.153
LSC-A-022	ARS1-B12-02616-10	500.930	2.020	15.680	2.073	13.607	0.027	28.725

ARS-040 Calculation Results

ARS1-B12-02616

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Average_Sample_CPM	Bkg_CPM	tSIE	Detector_Eff_decimal	Aliquot	AliqUnits	Activity_reference_date	Start_Date_of_Count	Sample_Count_Duration_min
LSC-A-022	ARS1-B12-02616-01	5.224	1.189	362.080	0.240	0.01000	L	9/7/2012	11/21/2012	240.000
LSC-A-022	ARS1-B12-02616-02	5.212	1.189	338.480	0.231	0.01000	L	9/7/2012	11/21/2012	240.000
LSC-A-022	ARS1-B12-02616-03	1.444	1.189	366.670	0.242	0.01003	L	11/20/2012	11/22/2012	240.000
LSC-A-022	ARS1-B12-02616-04	1.440	1.189	356.200	0.237	0.01002	L	10/30/2012	11/22/2012	240.000
LSC-A-022	ARS1-B12-02616-05	1.395	1.189	344.110	0.233	0.01004	L	10/25/2012	11/22/2012	240.000
LSC-A-022	ARS1-B12-02616-06	1.329	1.189	365.460	0.241	0.01005	L	10/24/2012	11/22/2012	240.000
LSC-A-022	ARS1-B12-02616-07	1.258	1.189	357.370	0.238	0.01000	L	10/24/2012	11/22/2012	240.000
LSC-A-022	ARS1-B12-02616-08	1.317	1.189	359.280	0.239	0.01006	L	10/24/2012	11/22/2012	240.000
LSC-A-022	ARS1-B12-02616-09	2.148	1.189	351.960	0.236	0.01002	L	10/24/2012	11/23/2012	240.000
LSC-A-022	ARS1-B12-02616-10	1.554	1.189	366.460	0.241	0.01005	L	10/25/2012	11/23/2012	240.000

ID_31001_040	ABatch	AnalysisCode	ABatchSampleID	ClientID	IC_ID	S01_1_EnrichCellNo	S01_2_TareCell	S01_3_TareResv	S02_GrossWtResv	S03_1_WtNa2O2	C_GrossSampleAdded
434	ARS1-B12-02616	LSC-A-022	ARS1-B12-02616-01			59	332.89	205.24	706.15	2.07	500.91
435	ARS1-B12-02616	LSC-A-022	ARS1-B12-02616-02			67	334.69	215.9	716.55	2.05	500.65
436	ARS1-B12-02616	LSC-A-022	ARS1-B12-02616-03			72	337.36	196.08	697.2	2.02	501.12
437	ARS1-B12-02616	LSC-A-022	ARS1-B12-02616-04	CAMO-13-24240		7	333.51	199.99	701.39	2	501.4
438	ARS1-B12-02616	LSC-A-022	ARS1-B12-02616-05	CAPA-12-23808		28	330.25	202.89	705.98	2.08	503.09
439	ARS1-B12-02616	LSC-A-022	ARS1-B12-02616-06	CAPA-12-23815		83	335.87	201.38	705.2	2.06	503.82
440	ARS1-B12-02616	LSC-A-022	ARS1-B12-02616-07	CAPA-12-23816		80	320.12	197.35	697.37	2.07	500.02
441	ARS1-B12-02616	LSC-A-022	ARS1-B12-02616-08	CAMO-12-23862		25	336.04	215.06	716.05	2.1	500.99
442	ARS1-B12-02616	LSC-A-022	ARS1-B12-02616-09	CAMO-12-23863		73	325.97	205.6	706.64	2.07	501.04
443	ARS1-B12-02616	LSC-A-022	ARS1-B12-02616-10	CAMO-12-23864		85	326.95	181.25	682.18	2.02	500.93

11-21-12

S04_1_ElectrolSD	S04_2_StartAmp	S04_3_StartBathC	S05_1_ElectrolED	S05_2_EndBathC	S05_3_EndCellWt	C_GrossSmplRec	C_EnrichmentF	S06_TareWt	S07_GrossWt	C_RecoveredWa
11/05/2012 15:00:00	5	2	11/20/2012 07:37:00	2	553.87	15.74	31.82401525	112.38	122.57	10.19
11/05/2012 15:00:00	5	2	11/20/2012 07:38:00	2	565.8	15.21	32.91584484	97.5	108.13	10.63
11/05/2012 15:00:00	5	2	11/20/2012 07:39:00	2	550.52	17.08	29.33957845	122.08	134.56	12.48
11/05/2012 15:00:00	5	2	11/20/2012 07:40:00	2	550.24	16.74	29.95221027	109.3	121.83	12.53
11/05/2012 15:00:00	5	2	11/20/2012 07:41:00	2	550.8	17.66	28.48754247	108.68	121.15	12.47
11/05/2012 15:00:00	5	2	11/20/2012 07:43:00	2	553.39	16.14	31.21561338	101.14	111.37	10.23
11/05/2012 15:00:00	5	2	11/20/2012 07:44:00	2	534.96	17.49	28.58890795	104.27	118.21	13.94
11/05/2012 15:00:00	5	2	11/20/2012 07:45:00	2	568.11	17.01	29.4526749	110.67	122.4	11.73
11/05/2012 15:00:00	5	2	11/20/2012 07:46:00	2	548.7	17.13	29.24927029	101.78	117.58	15.8
11/05/2012 15:00:00	5	2	11/21/2012 07:42:00	2	523.88	15.68	31.94706633	111.74	123.9	12.16

11-21-12

S08_TearWtLSCVial	S09_VialPlusSmpl	C_NetSample	S10_1_WtVislSmplDrWatFill	C_NetDeadWaterAdded	C_TareWtBFCocktail	S10_2_GrossWtVSC	C_NetWtCocktailAdded	UserID	ModDate
6.49	16.49	10	0	0	16.49	26.9	10.41	AMRAD\RUSEY	11/20/2012 09:42:43
6.66	16.66	10	0	0	16.66	27.1	10.44	AMRAD\RUSEY	11/20/2012 09:43:16
6.5	16.53	10.03	0	0	16.53	26.87	10.34	AMRAD\RUSEY	11/20/2012 09:46:28
6.44	16.46	10.02	0	0	16.46	26.79	10.33	AMRAD\RUSEY	11/20/2012 09:50:00
6.54	16.58	10.04	0	0	16.58	26.86	10.28	AMRAD\RUSEY	11/20/2012 14:33:25
6.6	16.65	10.05	0	0	16.65	27	10.35	AMRAD\RUSEY	11/20/2012 14:34:54
6.46	16.46	10	0	0	16.46	26.79	10.33	AMRAD\RUSEY	11/20/2012 14:36:42
6.49	16.55	10.06	0	0	16.55	26.85	10.3	AMRAD\RUSEY	11/20/2012 14:38:14
6.53	16.55	10.02	0	0	16.55	26.89	10.34	AMRAD\RUSEY	11/21/2012 10:40:13
6.48	16.53	10.05	0	0	16.53	26.81	10.28	AMRAD\RUSEY	11/21/2012 10:42:08

11-21-12

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121121_1417
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121121_1417\20121121_1417.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121121_1417\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121121_1417\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

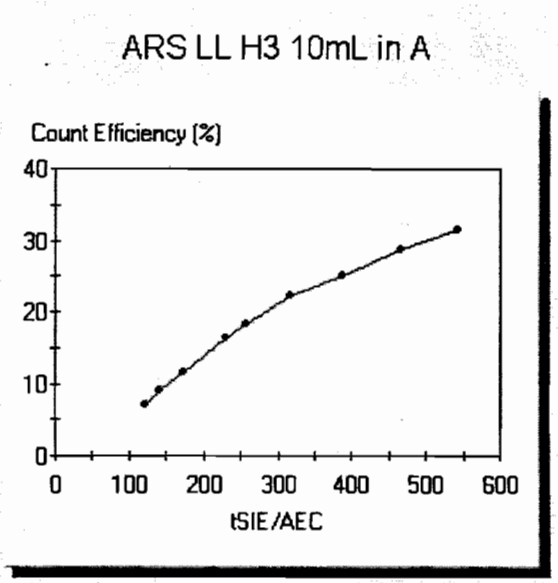
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	BACKGROUND	1.189	5.15	339.41	23.09	240.00	11/21/2012	2:26:36 PM	
2	2	B12-02616-01	5.224	21.80	362.08	23.97	240.00	11/21/2012	6:37:36 PM	
2	3	B12-02616-02	5.212	22.60	338.48	23.06	240.00	11/21/2012	10:48:34 PM	
2	4	B12-02616-03	1.444	5.98	366.67	24.15	240.00	11/22/2012	2:59:36 AM	
2	5	B12-02616-04	1.440	6.06	356.20	23.74	240.00	11/22/2012	7:10:34 AM	
2	6	B12-02616-05	1.395	5.99	344.11	23.28	240.00	11/22/2012	11:21:35 AM	
2	7	B12-02616-06	1.329	5.51	365.46	24.10	240.00	11/22/2012	3:32:29 PM	
2	8	B12-02616-07	1.258	5.29	357.37	23.79	240.00	11/22/2012	7:43:28 PM	
2	9	B12-02616-08	1.317	5.52	359.28	23.86	240.00	11/22/2012	11:54:27 PM	
2	10	B12-02616-09	2.148	9.11	351.96	23.58	240.00	11/23/2012	4:05:25 AM	
2	11	B12-02616-10	1.554	6.44	366.46	24.14	240.00	11/23/2012	8:16:25 AM	*

AMRAD
AMERICAN RADIATION SERVICES, LLC

LSC Instrument Data Transfer Report

\\Packard3170\Results\H3 Low Level\Low Level H3\2

Batch Sample ID	Non-BKG Samples Transferred	Samples Eligible To Save	
ARS1-B12-02616	10	10	LSC 1

LIMS Batch Sample ID	LSC P#	LSC PID	LSC S#	LSC SMPL_ID	LSC Count Date	LSC CPMA	LSC tSIE	LSC EFF	LSC Count Dur	Analysis Batch	LIMS SDG	LIMS Run
BKG	2		1	BACKGROUND	11/21/12 14:26	1.19	339.41	23.0900	240.00	ARS1-B12-02616		
ARS1-B12-02616-01	2		2	B12-02616-01	11/21/12 18:37	5.22	362.08	23.9700	240.00	ARS1-B12-02616		
ARS1-B12-02616-02	2		3	B12-02616-02	11/21/12 22:48	5.21	338.48	23.0600	240.00	ARS1-B12-02616		
ARS1-B12-02616-03	2		4	B12-02616-03	11/22/12 02:59	1.44	366.67	24.1500	240.00	ARS1-B12-02616		
ARS1-B12-02616-04	2		5	B12-02616-04	11/22/12 07:10	1.44	356.20	23.7400	240.00	ARS1-B12-02616	ARS1-12-02207	1
ARS1-B12-02616-05	2		6	B12-02616-05	11/22/12 11:21	1.40	344.11	23.2800	240.00	ARS1-B12-02616	ARS1-12-02208	1
ARS1-B12-02616-06	2		7	B12-02616-06	11/22/12 15:32	1.33	365.46	24.1000	240.00	ARS1-B12-02616	ARS1-12-02208	1
ARS1-B12-02616-07	2		8	B12-02616-07	11/22/12 19:43	1.26	357.37	23.7900	240.00	ARS1-B12-02616	ARS1-12-02208	1
ARS1-B12-02616-08	2		9	B12-02616-08	11/22/12 23:54	1.32	359.28	23.8600	240.00	ARS1-B12-02616	ARS1-12-02209	1
ARS1-B12-02616-09	2		10	B12-02616-09	11/23/12 04:05	2.15	351.96	23.5800	240.00	ARS1-B12-02616	ARS1-12-02209	1
ARS1-B12-02616-10	2		11	B12-02616-10	11/23/12 08:16	1.55	366.46	24.1400	240.00	ARS1-B12-02616	ARS1-12-02209	1

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
11-21-12	0702	SNC-16	QA	QA	[illegible]
11-21-12	1136	Background	B12 02616	1417	[illegible]
↓	↓	B12-02616-01	↓	↓	[illegible]
↓	↓	B12-02616-02	↓	↓	[illegible]
↓	↓	B12-02616-03	↓	↓	[illegible]
↓	↓	B12-02616-04	↓	↓	[illegible]
↓	↓	B12-02616-05	↓	↓	[illegible]
↓	↓	B12-02616-06	↓	↓	[illegible]
↓	↓	B12-02616-07	↓	↓	[illegible]
↓	↓	B12-02616-08	↓	↓	[illegible]
↓	↓	B12-02616-09	↓	↓	[illegible]
↓	↓	B12-02616-10	↓	↓	[illegible]
11-21-12	1200	SNC-16	QA	QA	[illegible]

11-26-12

Reviewed By: [illegible] Date: 11-30-12
Initials

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

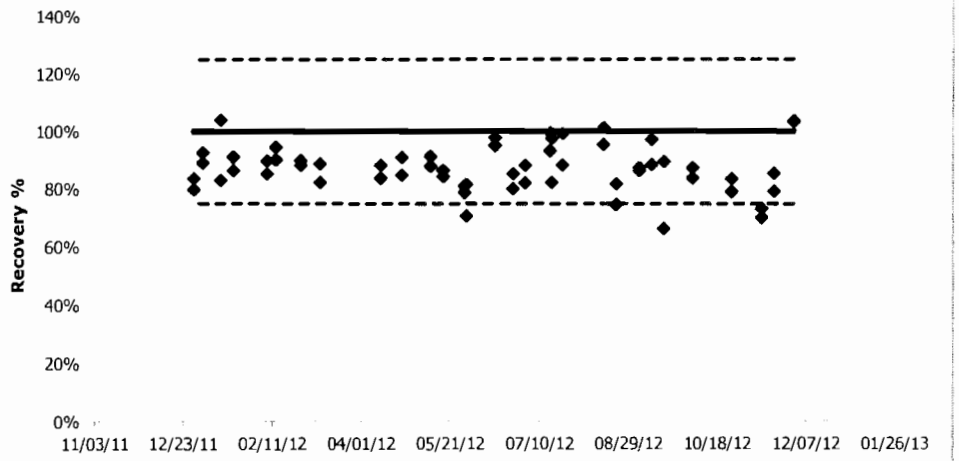
Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Control Charts

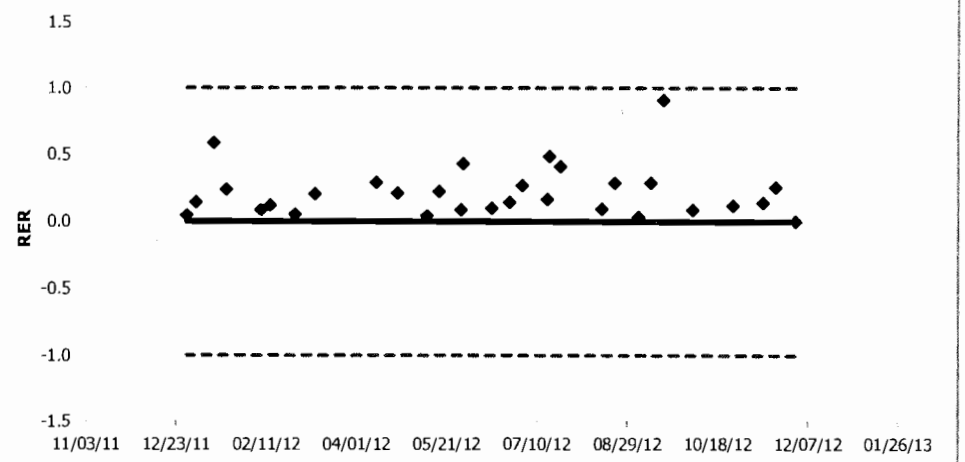
QC Chart

LLH-3 LCS



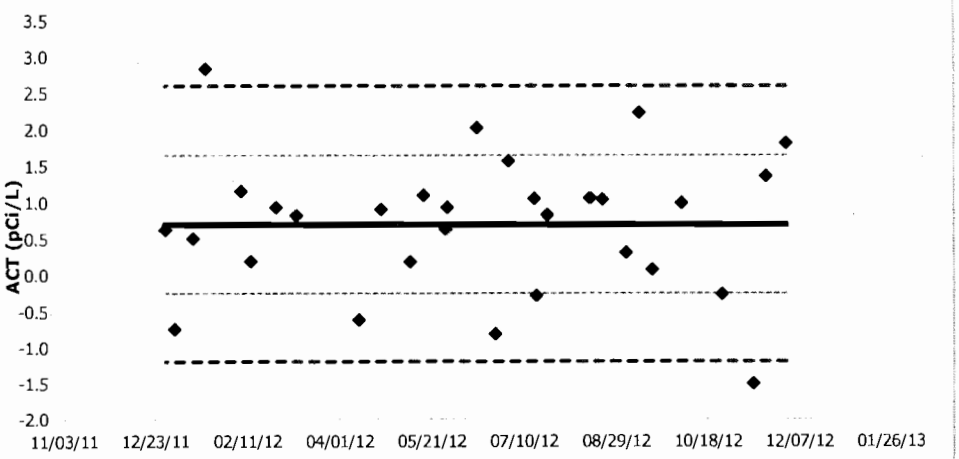
Average	STDEV	n	UCL	LCL
0.8723	0.0809	30	1.2500	0.7500

LLH-3 RER



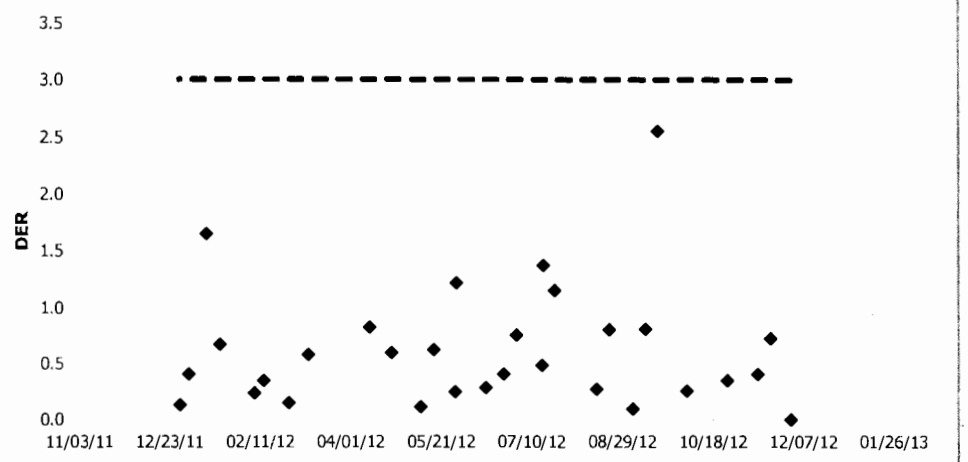
		n	UCL	LCL
		30	1.0000	-1.0000

LLH-3 Blank



Average	STDEV	n	UCL	LCL
0.6999	0.9468	30	2.5935	-1.1937

LLH-3 DER



		n	UCL	
		30	3.0000	

3H Efficiency

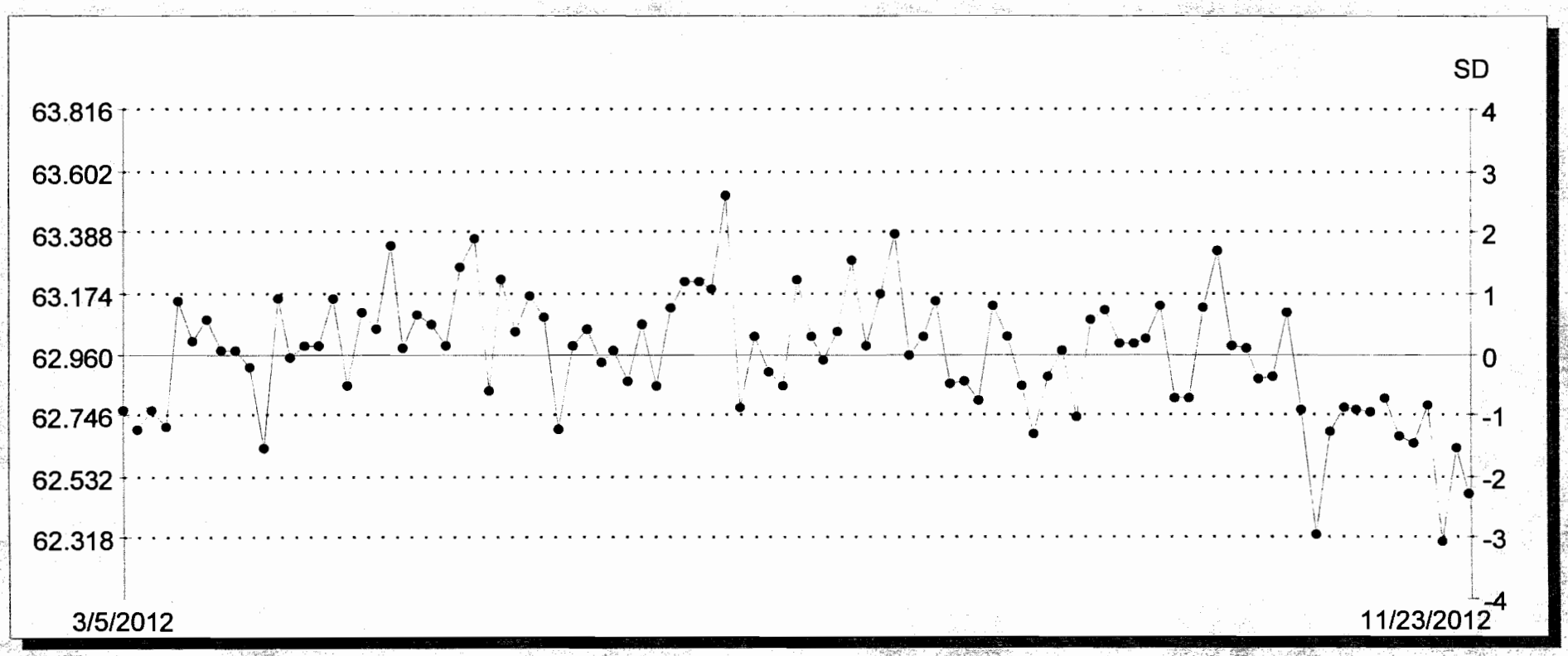
Total # pts : 5551
Valid # pts : 97
Mean : 62.96
SD : 0.21

Date	Value	Valid Pt
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X
Jun 30, 2012	62.97	X
Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X
Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 22, 2012	63.22	X

Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X
Nov 12, 2012	62.77	X
Nov 13, 2012	62.76	X
Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X
Nov 18, 2012	62.68	X
Nov 19, 2012	62.65	X
Nov 19, 2012	62.78	X

Nov 21, 2012	62.63	X
Nov 23, 2012	62.47	X

3H Efficiency
Total # pts : 5551
Valid # pts : 97
Mean : 62.96
SD : 0.21



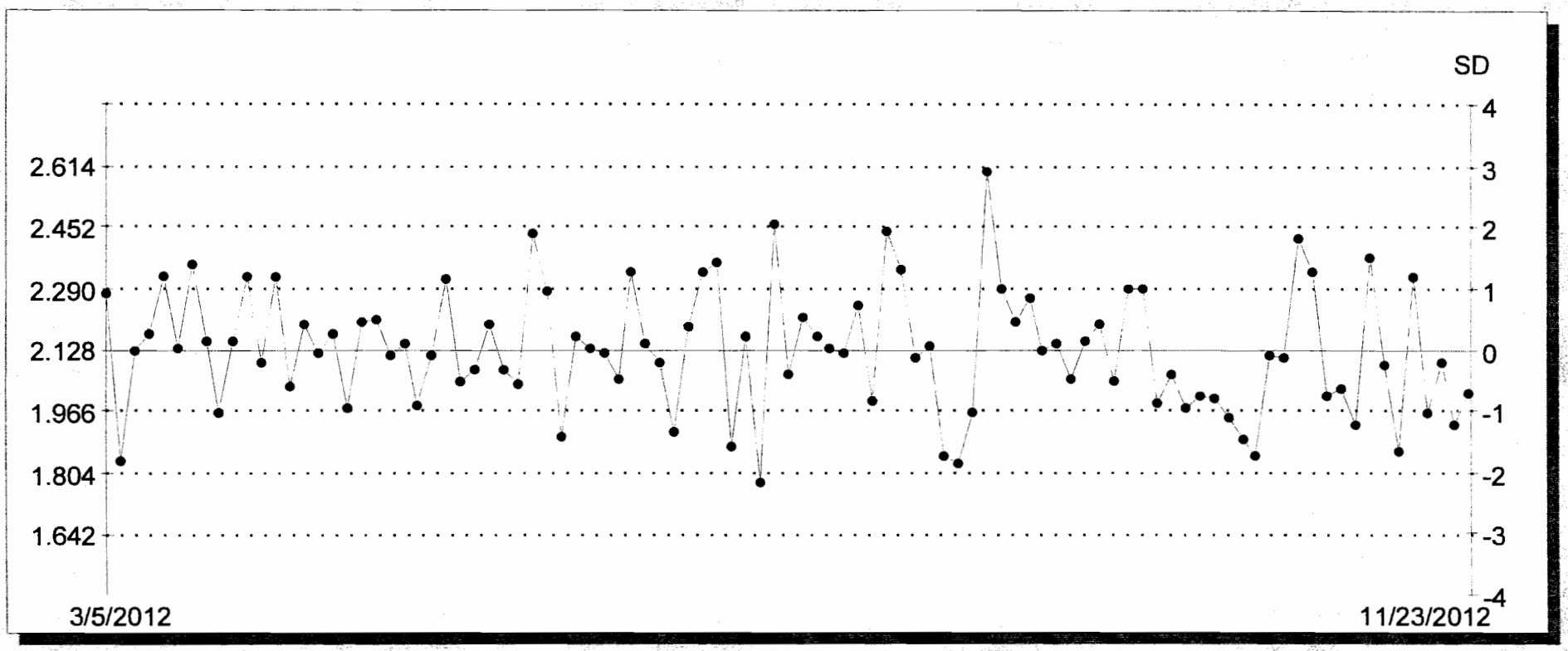
3H Background
Total # pts : 5477
Valid # pts : 97
Mean : 2.13
SD : 0.16

Date	Value	Valid Pt
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X
Jun 30, 2012	2.12	X
Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X
Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 22, 2012	2.19	X

Jul 26, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 09, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X
Nov 12, 2012	2.02	X
Nov 13, 2012	1.93	X
Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X
Nov 18, 2012	1.86	X
Nov 19, 2012	2.32	X
Nov 19, 2012	1.96	X

Nov 21, 2012	1.93	X
Nov 23, 2012	2.01	X

3H Background
Total # pts : 5477
Valid # pts : 97
Mean : 2.13
SD : 0.16



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium- Screening by Low Level Liquid Scintillation Counting

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Samples

Procedures: **ARS-060** **ARS-040** *Section 14.1 Tritium Screen in Clean Water without Distillation*

ARS File ID Numbers: ARS1-1202207; 2208; 2209
ARS Batch ID: ARS1-B12-02599

	Sample ID:	COUNT TIME	CPMA	Background CPMA	Eff Nucl In A	Aliquot (grams)	ACTIVITY	units	MDA	Sample Must be analyzed as LSC-A-001
1	ARS1-B12-02599-04	120	1.619	1.143	26.34	10.09	80.676	pCi/L	98.2346	NO
2	ARS1-B12-02599-05	120	1.547	1.143	26.51	10.27	66.842	pCi/L	95.89396	NO
3	ARS1-B12-02599-06	120	2.518	1.143	26.66	10.13	229.340	pCi/L	96.67225	YES, analyze by LSC-A-001.
4	ARS1-B12-02599-07	120	1.426	1.143	26.54	10.07	47.698	pCi/L	97.68796	NO
5	ARS1-B12-02599-08	120	1.246	1.143	26.47	10.17	17.235	pCi/L	96.9832	NO
6	ARS1-B12-02599-09	120	2.156	1.143	26.92	10.10	167.826	pCi/L	96.02294	YES, analyze by LSC-A-001.
7	ARS1-B12-02599-10	120	1.368	1.143	26.75	10.00	37.888	pCi/L	97.59951	NO
8							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
9	B12-02599-06 rescreen	120	1.512	1.334	26.62	10.13	29.734	pCi/L	104.2914	NO
10	B12-02599-09 rescreen	120	1 133	1.334	26.55	10.10	-33.764	pCi/L	104.877	NO
11							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
12							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
13							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
14							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
15							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
16							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
17							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
18							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
19							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
20							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
21							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
22							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
23							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

ARS INTERNATIONAL

Analysis Batch ID **ARS1-B12-02599**

Method **ARS-054** **Analysis** **LSC-A-021** **Matrix** **AQ**

Description **Low Level Tritium Screening**

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02599-01	LCS									
ARS1-B12-02599-02	LCSD									
ARS1-B12-02599-03	MBL									
ARS1-B12-02599-04	TRG				**ARS1-12-02207**	001	1	CAMO-13-24240	STD	11/26/12
ARS1-B12-02599-05	TRG				**ARS1-12-02208**	001	1	CAPA-12-23808	STD	11/26/12
ARS1-B12-02599-06	TRG				**ARS1-12-02208**	002	1	CAPA-12-23815	STD	11/26/12
ARS1-B12-02599-07	TRG				**ARS1-12-02208**	003	1	CAPA-12-23816	STD	11/26/12
ARS1-B12-02599-08	TRG				**ARS1-12-02209**	001	1	CAMO-12-23862	STD	11/26/12
ARS1-B12-02599-09	TRG				**ARS1-12-02209**	002	1	CAMO-12-23863	STD	11/26/12
ARS1-B12-02599-10	TRG				**ARS1-12-02209**	003	1	CAMO-12-23864	STD	11/26/12

125908
12-02207-001-1
WRAD

125909
12-02208-001-1
WRAD

125910
12-02208-002-1
WRAD

125911
12-02208-003-1
WRAD

125912
12-02209-001-1
WRAD

125913
12-02209-002-1
WRAD

125914
12-02209-003-1
WRAD

ARS-054

ID_31001_054	ABatch	ABatchSampleID	ClientID	Aliquot1	AliquotUnits1	IC_ID1	Aliquot2	AliquotUnits2	IC_ID2	UserID	ModDate
11928	ARS1-B12-02599	ARS1-B12-02599-01		1	g					AMRAD\RUSEY	11/02/2012 13:32:43
11929	ARS1-B12-02599	ARS1-B12-02599-02		1	g					AMRAD\RUSEY	11/02/2012 13:32:43
11930	ARS1-B12-02599	ARS1-B12-02599-03		1	g					AMRAD\RUSEY	11/02/2012 13:32:43
11931	ARS1-B12-02599	ARS1-B12-02599-04	CAMO-13-24240	10.09	g	125908				AMRAD\RUSEY	11/02/2012 13:32:43
11932	ARS1-B12-02599	ARS1-B12-02599-05	CAPA-12-23808	10.27	g	125909				AMRAD\RUSEY	11/02/2012 13:32:43
11933	ARS1-B12-02599	ARS1-B12-02599-06	CAPA-12-23815	10.13	g	125910				AMRAD\RUSEY	11/02/2012 13:32:43
11934	ARS1-B12-02599	ARS1-B12-02599-07	CAPA-12-23816	10.07	g	125911				AMRAD\RUSEY	11/02/2012 13:32:43
11935	ARS1-B12-02599	ARS1-B12-02599-08	CAMO-12-23862	10.17	g	125912				AMRAD\RUSEY	11/02/2012 13:32:43
11936	ARS1-B12-02599	ARS1-B12-02599-09	CAMO-12-23863	10.1	g	125913				AMRAD\RUSEY	11/02/2012 13:32:44
11937	ARS1-B12-02599	ARS1-B12-02599-10	CAMO-12-23864	10	g	125914				AMRAD\RUSEY	11/02/2012 13:32:44

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\Low Level H3_4\20121105_1705
Raw Results Path: C:\Packard\Tricarb\Results\ARS\Low Level H3_4\20121105_1705\20121105_1705.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\Low Level H3_4\20121105_1705\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\Low Level H3_4\20121105_1705\LLH3 Resuts.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_4.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

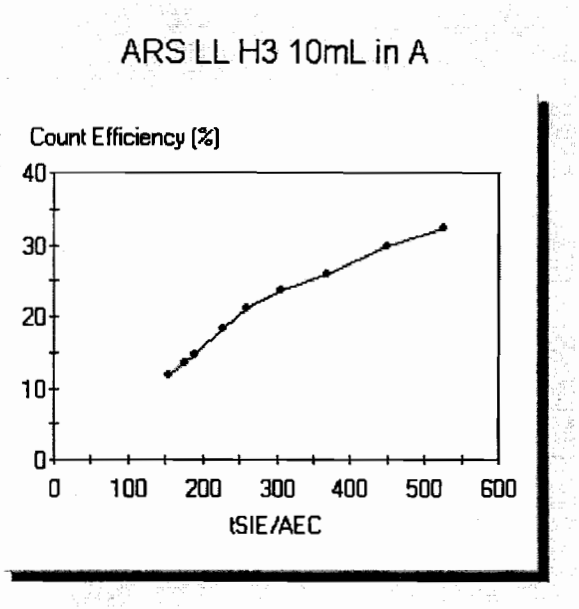
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/18/2011
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
526.29	32.47
450.16	29.90
370.15	25.92
306.68	23.60
260.68	20.99
228.69	18.21
189.46	14.53
177.14	13.64
155.73	11.73

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
28	1	BACKGROUND	1.334	5.28	351.82	25.25	120.00	11/5/2012	5:14:30 PM	
28	2	B12-02599-06	1.512	5.68	384.15	26.62	120.00	11/5/2012	7:24:29 PM	
28	3	B12-02599-09	1.133	4.27	382.66	26.55	120.00	11/5/2012	9:34:27 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\Low Level H3_4\20121103_0713
Raw Results Path: C:\Packard\Tricarb\Results\ARS\Low Level H3_4\20121103_0713\20121103_0713.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\Low Level H3_4\20121103_0713\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\Low Level H3_4\20121103_0713\LLH3 Resuts.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_4.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

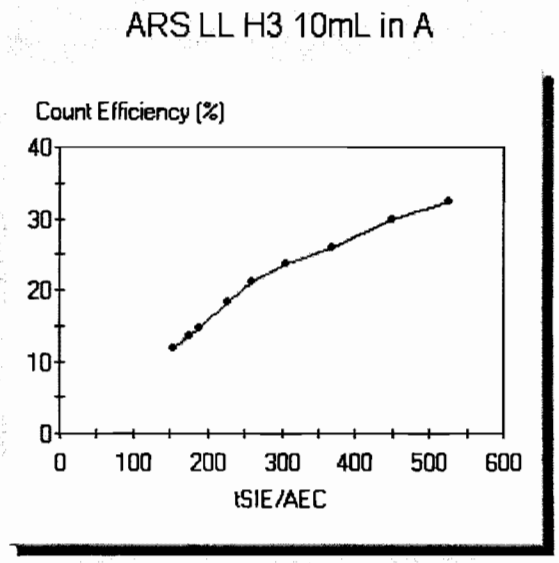
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/18/2011
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
526.29	32.47
450.16	29.90
370.15	25.92
306.68	23.60
260.68	20.99
228.69	18.21
189.46	14.53
177.14	13.64
155.73	11.73

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
28	1	BACKGROUND	1.143	4.31	382.55	26.54	120.00	11/3/2012	7:21:51 AM	
28	2	B12-02599-04	1.619	6.15	378.52	26.34	120.00	11/3/2012	9:31:48 AM	
28	3	B12-02599-05	1.547	5.84	381.90	26.51	120.00	11/3/2012	11:41:43 AM	
28	4	B12-02599-06	2.518	9.45	384.93	26.66	120.00	11/3/2012	1:51:39 PM	
28	5	B12-02599-07	1.426	5.37	382.57	26.54	120.00	11/3/2012	4:01:33 PM	
28	6	B12-02599-08	1.246	4.71	381.11	26.47	120.00	11/3/2012	6:11:28 PM	
28	7	B12-02599-09	2.156	8.01	390.31	26.92	120.00	11/3/2012	8:21:23 PM	
28	8	B12-02599-10	1.368	5.11	386.85	26.75	120.00	11/3/2012	10:31:18 PM	

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technicia Initials
10-26-12	0550	SNC-16	QA	QA	[illegible]
10-31-12	0854	SNC-16	QA	QA	[illegible]
10-31-12	1106	Background	B12-02425	~~1107~~ 1225 [illegible] 10-31-12	[illegible]
↓	↓	B12-02425-02	↓	↓	[illegible]
↓	↓	B12-02425-03	↓	↓	[illegible]
↓	↓	B12-02425-04	↓	↓	[illegible]
↓	↓	B12-02425-05	↓	↓	[illegible]
↓	↓	B12-02425-06	↓	↓	[illegible]
↓	↓	B12-02425-07	↓	↓	[illegible]
↓	↓	B12-02425-08	↓	↓	[illegible]
↓	↓	B12-02425-09	↓	↓	[illegible]
10-31-12	1107	SNC-16	QA	QA	[illegible]
11-2-12	0830	SNC-16	QA	QA	[illegible]
11-2-12	1502	Background	B12-02599	0713	[illegible]
↓	↓	B12-02599-04	↓	↓	[illegible]
↓	↓	B12-02599-05	↓	↓	[illegible]
↓	↓	B12-02599-06	↓	↓	[illegible]
↓	↓	B12-02599-07	↓	↓	[illegible]
↓	↓	B12-02599-08	↓	↓	[illegible]
↓	↓	B12-02599-09	↓	↓	[illegible]

Reviewed By: [illegible] Date: 11-30-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
2-12	1502	B12-02599-10	B12-02599	0713	[illegible]
2-12	1530	SNC-16	QA	QA	[illegible]
5-12	0854	Background	B12-02599	0855	[illegible]
↓	↓	B12-02599-06	↓	↓	[illegible]
↓	↓	B12-02599-09	↓	↓	[illegible]
5-12	0900	SNC-16	QA	QA	[illegible]

11-5-12

Reviewed By: [illegible] Date: 11-30-12
Initials

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Control Charts

3H Efficiency

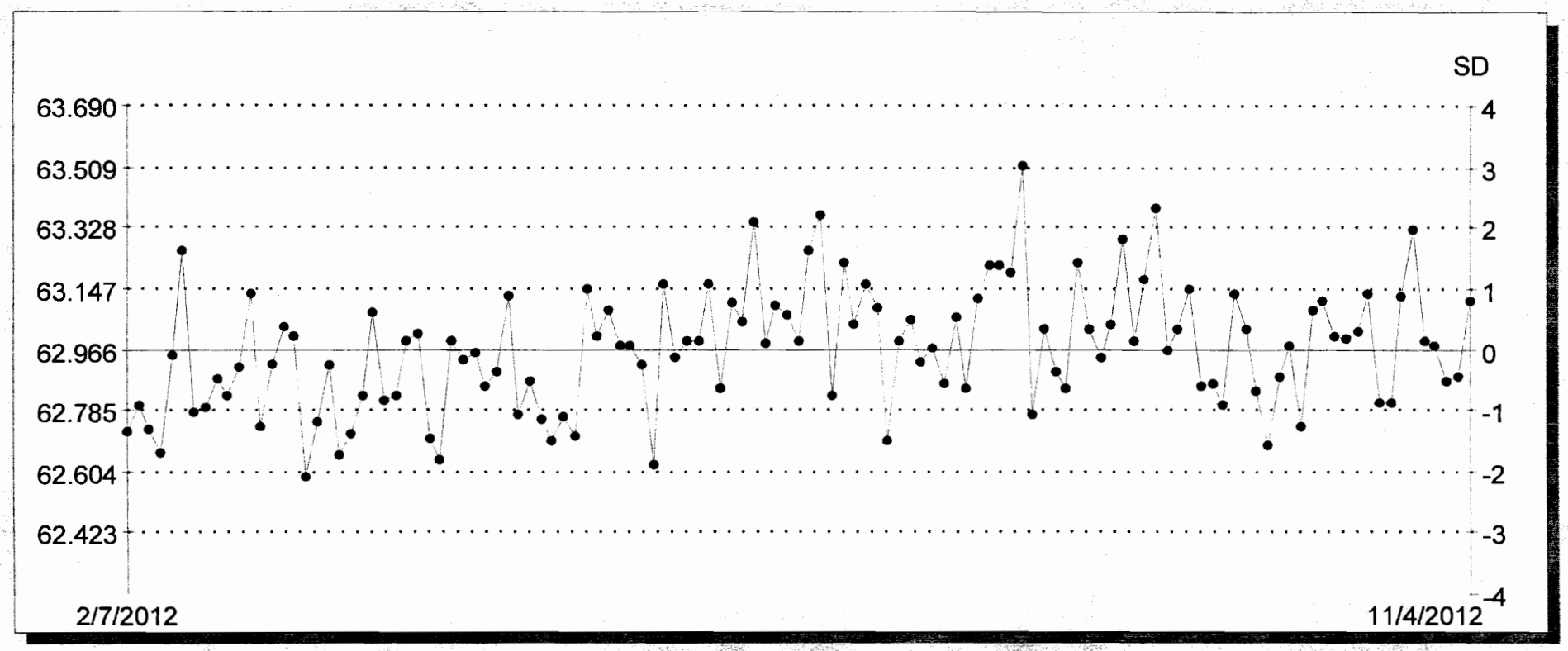
Total # pts : 5538
Valid # pts : 121
Mean : 62.97
SD : 0.18

Date	Value	Valid Pt
Feb 07, 2012	62.72	X
Feb 07, 2012	62.80	X
Feb 07, 2012	62.73	X
Feb 07, 2012	62.66	X
Feb 07, 2012	62.95	X
Feb 08, 2012	63.26	X
Feb 08, 2012	62.78	X
Feb 08, 2012	62.79	X
Feb 08, 2012	62.88	X
Feb 08, 2012	62.83	X
Feb 08, 2012	62.91	X
Feb 08, 2012	63.13	X
Feb 08, 2012	62.74	X
Feb 08, 2012	62.92	X
Feb 08, 2012	63.04	X
Feb 08, 2012	63.00	X
Feb 08, 2012	62.59	X
Feb 08, 2012	62.75	X
Feb 08, 2012	62.92	X
Feb 08, 2012	62.65	X
Feb 09, 2012	62.72	X
Feb 09, 2012	62.83	X
Feb 09, 2012	63.08	X
Feb 09, 2012	62.81	X
Feb 09, 2012	62.83	X
Feb 09, 2012	62.99	X
Feb 09, 2012	63.02	X
Feb 09, 2012	62.70	X
Feb 09, 2012	62.64	X
Feb 09, 2012	62.99	X
Feb 10, 2012	62.94	X
Feb 15, 2012	62.96	X
Feb 16, 2012	62.86	X
Feb 17, 2012	62.90	X
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X

Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X
Jun 30, 2012	62.97	X
Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X
Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 22, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X

Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X

3H Efficiency
Total # pts : 5538
Valid # pts : 121
Mean : 62.97
SD : 0.18



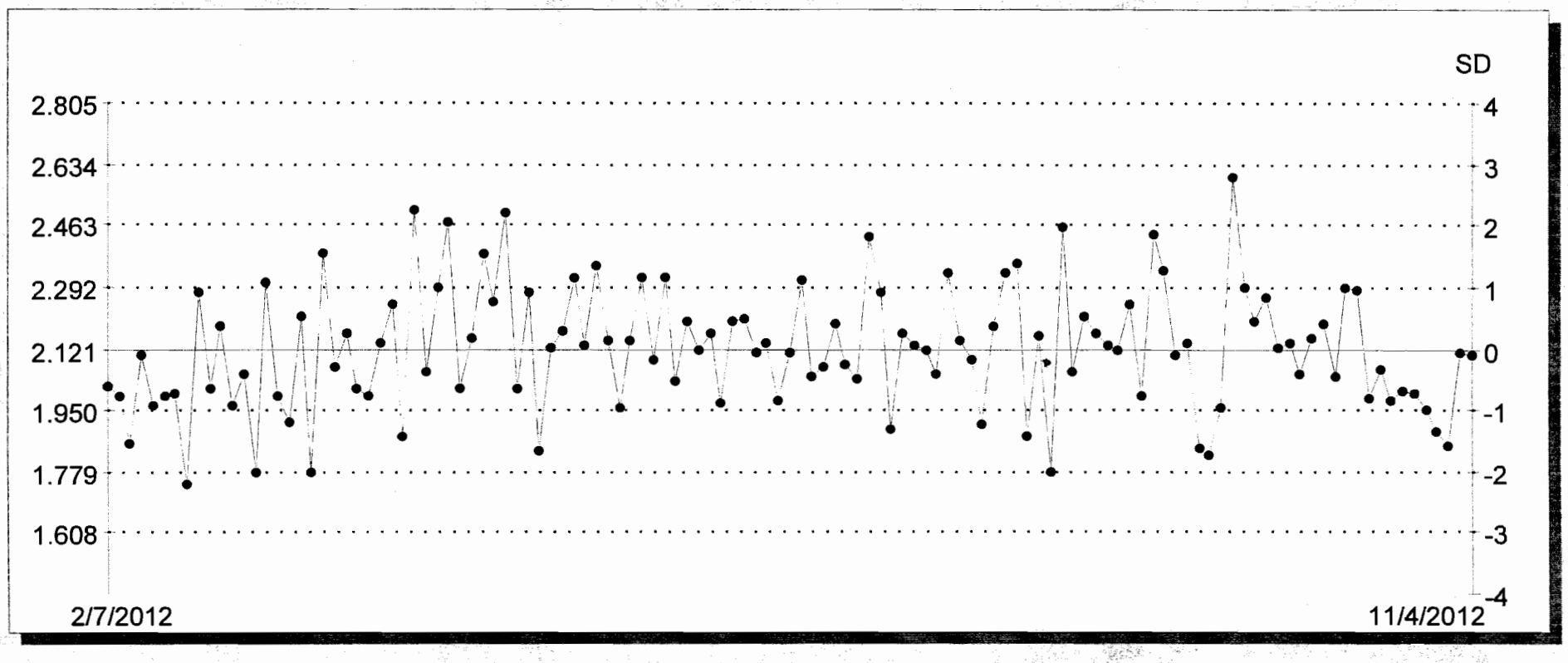
3H Background
Total # pts : 5464
Valid # pts : 121
Mean : 2.12
SD : 0.17

Date	Value	Valid Pt
Feb 07, 2012	2.02	X
Feb 07, 2012	1.99	X
Feb 07, 2012	1.86	X
Feb 07, 2012	2.10	X
Feb 07, 2012	1.97	X
Feb 08, 2012	1.99	X
Feb 08, 2012	2.00	X
Feb 08, 2012	1.74	X
Feb 08, 2012	2.28	X
Feb 08, 2012	2.01	X
Feb 08, 2012	2.19	X
Feb 08, 2012	1.97	X
Feb 08, 2012	2.05	X
Feb 08, 2012	1.78	X
Feb 08, 2012	2.30	X
Feb 08, 2012	1.99	X
Feb 08, 2012	1.92	X
Feb 08, 2012	2.21	X
Feb 08, 2012	1.77	X
Feb 08, 2012	2.39	X
Feb 09, 2012	2.07	X
Feb 09, 2012	2.16	X
Feb 09, 2012	2.01	X
Feb 09, 2012	1.99	X
Feb 09, 2012	2.14	X
Feb 09, 2012	2.24	X
Feb 09, 2012	1.88	X
Feb 09, 2012	2.50	X
Feb 09, 2012	2.06	X
Feb 09, 2012	2.29	X
Feb 10, 2012	2.47	X
Feb 15, 2012	2.01	X
Feb 16, 2012	2.15	X
Feb 17, 2012	2.39	X
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X

Mar 23,	2012	2.13	X
Mar 28,	2012	2.35	X
Apr 05,	2012	2.15	X
Apr 10,	2012	1.96	X
Apr 12,	2012	2.15	X
Apr 19,	2012	2.32	X
Apr 20,	2012	2.09	X
Apr 23,	2012	2.32	X
Apr 26,	2012	2.03	X
Apr 27,	2012	2.20	X
Apr 30,	2012	2.12	X
May 01,	2012	2.17	X
May 03,	2012	1.97	X
May 07,	2012	2.20	X
May 09,	2012	2.20	X
May 14,	2012	2.11	X
May 17,	2012	2.14	X
May 17,	2012	1.98	X
May 23,	2012	2.11	X
May 30,	2012	2.31	X
May 31,	2012	2.04	X
Jun 06,	2012	2.07	X
Jun 13,	2012	2.19	X
Jun 21,	2012	2.08	X
Jun 22,	2012	2.04	X
Jun 25,	2012	2.43	X
Jun 27,	2012	2.28	X
Jun 27,	2012	1.90	X
Jun 28,	2012	2.16	X
Jun 29,	2012	2.13	X
Jun 30,	2012	2.12	X
Jul 05,	2012	2.05	X
Jul 11,	2012	2.33	X
Jul 12,	2012	2.15	X
Jul 16,	2012	2.09	X
Jul 20,	2012	1.91	X
Jul 22,	2012	2.19	X
Jul 26,	2012	2.33	X
Jul 27,	2012	2.36	X
Aug 09,	2012	1.88	X
Aug 13,	2012	2.16	X
Aug 14,	2012	1.78	X
Aug 16,	2012	2.46	X
Aug 17,	2012	2.06	X
Aug 18,	2012	2.21	X
Aug 21,	2012	2.16	X
Aug 22,	2012	2.13	X
Aug 26,	2012	2.12	X
Aug 27,	2012	2.25	X
Aug 27,	2012	1.99	X
Sep 05,	2012	2.44	X
Sep 09,	2012	2.34	X

Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 02, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X

3H Background
Total # pts : 5464
Valid # pts : 121
Mean : 2.12
SD : 0.17



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Liquid Scintillation Counting

Calibration Information

ARS INTERNATIONAL

QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS

ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE: 9/10/2012 20:16 *date counted*
STANDARD REFERENCE #: S-0279

Principal Radionuclide		Half Life, Years		Half Life, Days
H-3	*ENTER -->*		*OR -->*	4.4998E+03
		1.232E+01		4.4998E+03

Radionuclide: H-3 Dilution Reference Date: 9/7/2012 10:40

Dilution Activity	2.58	pCi per gram ===> dpm/g	5.73
Verif. Date Decay Corrected	2.58	pCi per gram ===> dpm/g	5.72

Minimum of 3 Required

Trial ID	Sample Counts	Count Time (min)	Detector	Efficiency	Bkg. (cpm)	Net Weight	Decay Corrected Activity Result (dpm/g)	Decay Corrected Activity Result (pCi/g)
S-0279-V1	15.91	1	LSC	0.3302	6.49	5.019	5.68	2.56
S-0279-V2	16.21	1	LSC	0.3291	6.49	5.018	5.89	2.65
S-0279-V3	15.76	1	LSC	0.3290	6.49	5.018	5.62	2.53
S-0279-V4	15.62	1	LSC	0.3293	6.49	5.008	5.54	2.49
S-0279-V5	15.76	1	LSC	0.3280	6.49	5.018	5.63	2.54

	Average	5.67	2.55
	Two Sigma Uncertainty	0.26	0.12
10% Max *PASS*	Standard Deviation percent of known concentration	2.30%	2.30%
	Target Activity	5.72	2.58
5% Max *PASS*	% Diff	-0.91%	-0.91%

Verification Expiration Date: ##############

Prepared & Counted By: [signature] Date: 9/10/2012 20:16

Verified & Approved By: [signature] Date: 9-11-12 0817

QC Approval: [signature] Date: 9-11-12 0817

S-0279		
H-3	Verified	*9/10/12*
SL	**Expires**	**9/10/13**
Manufactuer	**NIST SRM 4927F**	
Sol Matrix	H2O	
Ref No	NIST SRM 4927F	
Tech	Unknown	
Parent ID	S-0237	

ARS INTERNATIONAL

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

H-3 Standard Verification

Verifier's Name: Brian Steffens **Date:** 9/7/2012

Pipettor ID: FJ40469

Pipettor ID: Auto-pipettor

Pipettor ID: na

Standard ID: S-0279

Standard ID: N/A

Standards brought up to ~5g with distilled dead water.
Standards made in glass vials.

15mL of Ultima Gold added to standard

	Weight of Standard
S-0279-V1	5.019 **g**
S-0279-V2	5.018 **g**
S-0279-V3	5.018 **g**
S-0279-V4	5.008 **g**
S-0279-V5	5.018 **g**

Balance ID: H1331122173560P

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931
Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\20120910_0931.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\H-3 Normal 3.lsa

Count Conditions-

Nuclide: H-3 Normal
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: UG STD H-3
Count Time (min): 120.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

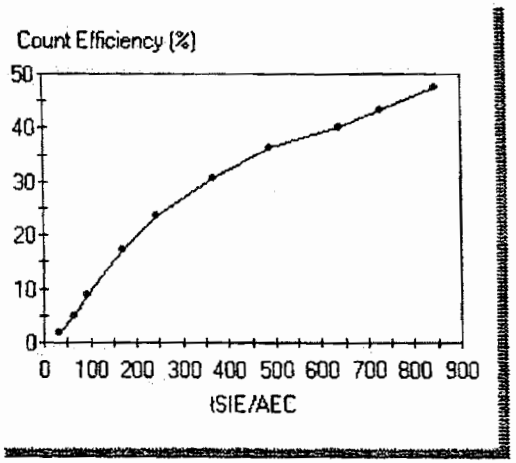
Half Life

Half Life Correction: Off
Regions Half Life Units Reference Date Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data

UG STD H-3 in A



Date Acquired: 06/27/2012
Date Modified:
UG STD H-3 in A

tSIE/AEC	Count Efficiency (%)
846.90	47.58
730.85	43.21
639.47	40.08
487.78	36.36
365.41	30.73
244.81	23.69
169.28	17.31
95.01	8.79
64.60	4.97
34.32	.64

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
54	1	BACKGROUND	6.49	19.81	409.74	32.77	120.00	9/10/2012	9:36:46 AM	
54	2	S-0279-V1	15.91	48.18	415.20	33.02	120.00	9/10/2012	11:44:40 AM	
54	3	S-0279-V2	16.21	49.25	412.72	32.91	120.00	9/10/2012	1:52:36 PM	
54	4	S-0279-V3	15.76	47.89	412.56	32.90	120.00	9/10/2012	4:00:32 PM	
54	5	S-0279-V4	15.62	47.44	413.22	32.93	120.00	9/10/2012	6:08:27 PM	
54	6	S-0279-V5	15.76	48.04	410.40	32.80	120.00	9/10/2012	8:16:20 PM	

STD ID: S-0279

ARS INTERNATIONAL

Add/Edit *Secondary Stds*

Planning

Planning Comments	Create a H3 LCS standard.
Target dpm/g (on dil. date)	5.5
Target Final volume mL	2000
Appx mass g of Parent Sol'n	3.606433954
Appx vol ml of Parent Sol'n	3.612937241
Expected Addition for Analysis g	5

Standards Preparation / Dilution

Secondary Solution #	S-0279
Dilution Date (New Ref Date)	09/07/2012 10:40
Ampoule, Empty (g)	
Ampoule /Solution Gross (g)	
Net Wt Removed (g)	
Transfer Container, empty (g)	13.144
Container Plus Solution (g)	16.89
Net Wt Transferred (g)	3.746
DPM Xferred on 09/07/2012 10:40	11425.69101
Diluent/matrix	DI H2O
Diluent Density Cont, empty (g)	
Test Mass of 5 ml of Diluent (g)	
Diluent Density Test - (g/mL)	
Dilution Empty Container Mass (g)	473.93
Dilution Full Cont g (if measured)	2469.52
Dilution Final Volume ml (if measured)	2000
Final Dilution Density (g/mL)	0.997795
Final Dilution Measured Mass g	1995.59

Comments: H3 LCS standard. Dilution performed as stated above by B Steffens. -BJS 9/7/12

Final Dilution dpm/g	5.725470166
Final Dil New Ref Date/Time	09/07/2012 10:40

Parent Standard Data

Parent Solution Reference #	NIST SRM 4927F			
Parent Solution #	S-0237			
Parent Principal Radionuclide	H-3	Half Life (Days)	4499.8000000	
Parent Reference Date	03/22/2010 10:10			
Parent Certified Act	3503.682716	Certl Act/Vol Units	dpm	g
Parent Cert Act Uncert 1 Sigma	0.0036			
Parent Sp. Gravity G/Ml	0.9982			
Parent Supplier	NIST SRM 4927F			
Parent Date Recvd	01/02/00			
Parent Received By	Unknown			
Parent Cert Exp Date				
Parent Matrix	H2O			
Certified dpm/g At Ref Date	3503.682716			
Certified dpm/g on 09/07/2012 10:40	3050.10438			
Parent Comments	Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Steffens. -BJS 3/22/10			
Parent Tech	Unknown			
Is_Primary	FALSE			
Is_LCS	TRUE			
Is_Tracer	FALSE			
Is_Calib	FALSE			

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Folder Duplicate

Report Compilation Checklist

ARS SDG:	12-02207	Client Name:	LANL	Sample Matrix:	AQ

LEVEL 1 COMPONENTS	1st Reviewer	
1) Cover Page Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
2) Technical Review Checklist(s) Complete and Accurate?	~~Yes~~ No N/A	
3) Case Narrative Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
4) Form 1s Present for all Samples and Tests?	~~Yes~~ No N/A	
5) Client Specific Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 2 COMPONENTS	1st Reviewer	
6) Batch Quality Control Report is Present and Accurate?	~~Yes~~ No N/A	
7) DQO Report is Present and Accurate?	~~Yes~~ No N/A	
8) Client Specific Batch QC Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 3 COMPONENTS	1st Reviewer	
9) Efficiencies are Present?	~~Yes~~ No N/A	
10) Calibrations are Present?	~~Yes~~ No N/A	
11) Backgrounds are Present?	~~Yes~~ No N/A	
12) Spectrum Analysis is Present?	~~Yes~~ No N/A	
13) Spectral Plots are Present?	~~Yes~~ No N/A	
14) Plateaus are Present?	~~Yes~~ No N/A	
15) Control Charts are Present?	~~Yes~~ No N/A	
16) Other:	Yes No ~~N/A~~	

LEVEL 4 COMPONENTS	1st Reviewer	
17) Preparation Raw Data Present, Signed and Complete?	~~Yes~~ No N/A	
18) Instrument Raw Data Present and Complete?	~~Yes~~ No N/A	
19) Calibration Certificates Present?	~~Yes~~ No N/A	
20) Copies of Log Book Pages Present?	~~Yes~~ No N/A	
21) Sample Receiving Documentation Present?	~~Yes~~ No N/A	
22) LIMS Reports Present?	~~Yes~~ No N/A	
23) Applicable Correspondence Present?	~~Yes~~ No N/A	
24) Other:	Yes No ~~N/A~~	

Report Generator Signature	Date	Management Review Signature	Date
[illegible]	11-30-12	[illegible]	12-3-12

LSC
Technical Review Checklist

ARS SDG ARS1-12-02207

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-1-B12-02616 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-022 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) **Sample Prep Anomaly?** ☑ **No** ☐ **Yes** (See Tech Notes) **NCR #** (If initiated): _____

Chemist Signature 11-21-12 Date Verifier Review Signature 11-21-12 Date

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature 12-3-12 Date

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) **Test/Sample Specific Parameters** (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) **Analysis Anomaly?** ☑ **No** ☐ **Yes** (See Comments) **NCR #** (If initiated): _____

Analyst Signature 11-26-12 Date Technicial Reviewer Signature 11-26-12 Date

Batch A: ARS1-1-B12-02616

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes ~~No~~ N/A	Yes ~~No~~ N/A
2) RDL Criteria are Met?	~~Yes~~ No N/A	~~Yes~~ No N/A
3) Method Blank Criterion Met?	~~Yes~~ No N/A	~~Yes~~ No N/A
4) LCS/LCD Criteria Met?	~~Yes~~ No N/A	~~Yes~~ No N/A
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	~~Yes~~ No N/A	~~Yes~~ No N/A
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No ~~N/A~~

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
SDL	11-30-12	DHM	12-3-12

GENERAL COMMENTS

LSC
Technical Review Checklist

ARS SDG ARS1-12-02207

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s):	**Batch A:** ARS1-12-02599	**Batch B:** N/A	**Batch C:** N/A
Test Method(s):	LSC-A-021	N/A	N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) Sample Prep Anomaly? ☑ **No** ☐ **Yes** (See Tech Notes) **NCR #** (If initiated): _____

Chemist Signature	Date 11-2-12	Verifier Review Signature	Date 11-2-12

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature	Date 12-3-12

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) Analysis Anomaly? ☑ **No** ☐ **Yes** (See Comments) **NCR #** (If initiated): _____

Analyst Signature	Date 11-5-12	Technicial Reviewer Signature	Date N/A

Batch A: ARS1-12-02599

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes No ~~N/A~~	Yes No ~~N/A~~
2) RDL Criteria are Met?	Yes No ~~N/A~~	Yes No ~~N/A~~
3) Method Blank Criterion Met?	Yes No ~~N/A~~	Yes No ~~N/A~~
4) LCS/LCD Criteria Met?	Yes No ~~N/A~~	Yes No ~~N/A~~
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	Yes No ~~N/A~~	Yes No ~~N/A~~
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No ~~N/A~~

7) Batch QC Anomaly? ☒ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
SDR	11-30-12	OHM	12-3-12

GENERAL COMMENTS

DQO Report for SDG
ARS1-12-02207

73 of 74

Analysis Code	Group	Isotope	Activity Units	Aliquot Units	ProcedureNo	RDL	LCS_LL	LCS_UL	MS_LL	MS_UL	RadY_LL	RadY_UL	GravY_LL	GravY_LL	RER	RPD	DiltionReq	RoughPrepReq	BlankCorrectionMDA	BlankCorrectionAll	CountTimeReq	AliquotRequired
LSC-A-021	STD	H-3	pCi	L	ARS-054	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		
LSC-A-022	STD	Enriched H-3	pCi	L	ARS-040	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		

SDG Report - Samples and Containers

SDG Specific Data

SDG	ARS1-12-02207	TAT Days	28	Project Type	Environmental
Sample Count	1 Rpt Level 4	Date Received	11/1/2012	COC Number	2013-251
Client	Los Alamos National Laboratory	Client Deadline	11/29/2012	PO Number	63641-001-10
Client Code	114	Internal Deadline	11/28/2012	Job Number	
Profile Number	PN-00094	Lab Deadline	11/26/2012	Job Location	
Comments					

Samples and Containers (➔) Checked In Thus Far

FR	ClientID	Matrix	SampleStartDate	SampleEndDate	Disp	Hold	Arch	Storage	X	Units	Y	Units	Z	Units	Comments
001	CAMO-13-24240	AQ	10/30/12 11:51 AM	10/30/12 11:51 AM	H	90	5	O4							
➔	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	125769	1	1000.00				90	22		N	N/A				

SDG Report - Analysis Assignments

Temp SDG	ARS1-12-02207	Sample Count	1
Client	Los Alamos National Laboratory	Analysis Count	2-2

Samples Count Totals per Analysis

Analysis Code	Analysis Description	Samples Count
LSC-A-021	Low Level Tritium Screen in (Aqueous)	1
LSC-A-022	Low Level Tritium by Enrichment Process in (Aqueous [AQ])	1

Analyses Assigned Per Fraction

Fraction	Analysis Code	X = Assigned
001	LSC-A-021	X
001	LSC-A-022	X

ARS FILE TRACKING SHEET

SDG: ARS1-12-02207

Task	Date / Time	Initials
Date & Time Samples Received	11/1/12 10:30	cad
ICOC Initiated / Storage Location: 04	11/1/12 12:36	cad
Technical Checks Performed	See Matrix	
Report Written / EDD Generated: 11-30-12/1356 | SDh (Date/Time, Initials)	11-30-12/1351	SDh
Quality Assurance Checks Performed on Report	12-3-12 0750	zym
Management Check Performed on Report		
Preliminary Report Sent		
Report E-mailed		
Report Faxed		
Report Reviewed		
Report Mailed		
Invoice Completed Invoice #:		
Report Imaged		

SPECIAL REQUIREMENTS

Requirement	Yes	No
3 Hour Rush		✓
24 Hour Rush		✓
48 Hour Rush		✓
3 Day TAT		✓
5 Day TAT		✓

NOTES:

COMPANY NAME: LANL

SDG: ARS1-12-02207

SHIPPING CONTAINER

Good Condition	☑ Yes	☐ No
Radioactive	☐ Yes	☑ No
UN2910	☐ Yes	☑ No
Sec. Seals	☑ Yes	☐ No
Seals Intact	☑ Yes ☐ No	☑ N/A
Air Bill	☐ Yes	☑ No

COC PRESENT WITH SAMPLES

COC	☑ Yes	☐ No

SAMPLE CONTAINER(S)

Good Condition	☑ Yes	☐ No
Sec. Seals	☑ Yes	☐ No
Seal Intact	☑ Yes ☐ No	☐ N/A
Marked Radioactive	☐ Yes	☑ No

Samples Rcv 7

Matrix [AF , AQ , BI , FE , LT , SI , SO , UR , VG]

External and Internal Surveys

Exposure Rate Meter:	N3242861	Serial No.:	PR 264266	Calibration Due Date:	4-18-13
Count Rate Meter:	M2 154859	Serial No.	PR 184559	Calibration Due Date:	4-18-13

Background Exposure Rate (µR/hr)	22	Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd)	28	µR/hr
Background Count Rate (cpm)	80	Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd)	90	cpm
		Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd)	80	cpm

pH ≤ 2 is Acceptable

Acceptance Limits <500 µR/hr <100 cpm/cm²

Sample Label/Comments/Notes	pH Orig	pH Final	Mark if Preserve	Acid Lot #	Weight(g) / Volume(mL)	µR/hr	cpm
* CAMO-13-24240			☐		1000 mL	22	90
			☐				
CAMA-12-23808			☐		1000 mL	22	90
23815			☐		↓	22	90
23816			☐		↓	22	90
			☐				
CAMO-12-23862			☐		1000 mL	22	80
23863			☐		↓	22	80
23864			☐		↓	22	80
			☐				
			☐				
			☐				
			☐				
			☐				
			☐				
			☐				
			☐				
			☐				
			☐				

Surveyors' Name: [signature]

Date/Time Surveyed: 10 11/1/12 1030

* this sample only in this SDG.

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-247

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

- 24 Hour - ☐ Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CAMO-13-24240	Oct 30 2012	11:51	W			1			1	1	
CAMO-13-24257	Oct 30 2012	11:51	W	1	1		1	1			

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 10/31/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24240 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/30/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1151	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSI
LOCATION ID:	R-1		FIELD PREP:	UF	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 50 feet of a running diesel generator.

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 5.53 mg/L Oxidation-Reduction Potential -13.3 MV pH 7.76 SU

Specific Conductance 146 uS/cm Temperature 21.26 deg C Turbidity 0.54 NTU

COLLECTED BY (PRINT) W Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	10/30/12 1305	(Printed Name) M. Martyn (Signature)	10/30/12 1305
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24257 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/30/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1151	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-1	↓	FIELD PREP:	F	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
↓	WSP-GENINORG	1 LITER POLY	1	ICE	↓	↓
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

See CAMO-13-24240

COLLECTED BY (PRINT) W Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Wooly (Signature) David Wooly	10/30/12 1305	(Printed Name) M. Martinez (Signature)	10/30/12 1305
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-247

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
314341	EPA:120.1	1				
314341	EPA:150.1	1				
314341	EPA:160.1	1				
314341	EPA:245.2	1				
314341	EPA:300.0	1				
314341	EPA:310.1	1				
314341	EPA:350.1	1				
314341	EPA:351.2	1				
314341	EPA:353.2	1				
314341	EPA:365.4	1				
314341	EPA:900	1				
314341	EPA:901.1	1				
314341	EPA:905.0	1				
314341	HASL-300:AM-241	1				
314341	HASL-300:ISOPU	1				
314341	HASL-300:ISOU	1				
314341	SM:A2340B	1				
314341	SW-846:6010B	1				
314341	SW-846:6020	1				
314341	SW-846:6850	1				
314341	SW-846:9060	1				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
314341	EPA:120.1	1265081	1265081	1							
314341	EPA:150.1	1259755	1259755	1							
314341	EPA:160.1	1259753	1259753	1					1		
314341	EPA:245.2	1264600	1264596	1					1	2	
314341	EPA:300.0	1259659	1259659	1					1		
314341	EPA:310.1	1262572	1262572	1					2	1	
314341	EPA:350.1	1260275	1260272	1					1	2	2
314341	EPA:351.2	1260284	1260283	1					1	1	1
314341	EPA:353.2	1260239	1260239	1					1		
314341	EPA:365.4	1260281	1260280	1					1	1	1
314341	EPA:900	1260898	1260898	1					1	1	1
314341	EPA:901.1	1260199	1260199	1					1		
314341	EPA:905.0	1260884	1260884	1					1	1	
314341	HASL-300:AM-241	1259852	1259852	1					1		
314341	HASL-300:ISOPU	1259851	1259851	1					1		
314341	HASL-300:ISOU	1259850	1259850	1					1		
314341	SM:A2340B	1265920	1265920	1							
314341	SW-846:6010B	1259557	1259556	1					1	1	
314341	SW-846:6020	1259559	1259558	1					1	1	
314341	SW-846:6850	1260140	1260138	1					1	1	1
314341	SW-846:9060	1259029	1259029	1					1		

2. Distribution Of Analytes In EDD.

Data Validation Report for: Chain Of Custody No. 2013-247

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				2			
		1				1			
		1				1			
		1				2			
		1				1			
		2				1			
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1							
		1				2			

Data Validation Report for: Chain Of Custody No. 2013-247

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24255	1202784135	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24257	314341002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24258	1202784136	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202784137	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24255	1202771488	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24257	314341002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202771490	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24255	1202771480	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24257	314341002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202771481	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202771477	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783063	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783067	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24257	314341002	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783064	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783068	MS	0	0	1	0
EPA:245.2	INORGANIC	LCS	1202783069	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202783062	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24255	1202771232	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24257	314341002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202771234	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202771231	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24255	1202778371	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24255	1202778372	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24257	314341002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202778366	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202778927	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202778365	MB	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202778926	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	1202772677	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	1202772679	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	1202772681	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	1202772678	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	1202772680	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	1202772682	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	314341002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202772683	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202772676	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	1202772708	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	1202772709	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	1202772710	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24240	314341001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202772711	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202772707	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24255	1202772608	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24257	314341002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202772612	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202772605	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	1202772696	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	1202772698	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	1202772700	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24257	314341002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202772701	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202772694	MB	1	0	0	0
EPA:900	RAD	CAMO-13-24240	314341001	REG	2	0	0	0

EPA:900	RAD	CAPA-12-23808	1202774276	DUP	2	0	0	0
EPA:900	RAD	CAPA-12-23808	1202774277	MS	0	0	2	0
EPA:900	RAD	CAPA-12-23808	1202774278	MSD	0	0	2	0
EPA:900	RAD	LCS	1202774279	LCS	0	0	2	0
EPA:900	RAD	MB	1202774275	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24240	314341001	REG	5	0	0	0
EPA:901.1	RAD	CAMO-13-24279	1202772495	DUP	6	0	0	0
EPA:901.1	RAD	LCS	1202772496	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202772494	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24240	314341001	REG	1	0	0	0
EPA:905.0	RAD	CAMO-13-24241	1202774231	DUP	1	0	0	0
EPA:905.0	RAD	CAMO-13-24241	1202774232	MS	0	0	1	0
EPA:905.0	RAD	LCS	1202774233	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202774230	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24225	1202771691	DUP	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24240	314341001	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202771693	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202771689	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24225	1202771686	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24240	314341001	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202771688	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202771684	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24225	1202771682	DUP	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24240	314341001	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202771683	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202771681	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24257	314341002	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24257	1202771016	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24257	1202771017	MS	0	0	17	0
SW-846:6010B	INORGANIC	CAMO-13-24257	314341002	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202771015	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202771014	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24257	1202771021	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24257	1202771022	MS	0	0	11	0
SW-846:6020	INORGANIC	CAMO-13-24257	314341002	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202771020	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202771019	MB	11	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24257	314341002	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24259	1202772360	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24259	1202772361	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202772359	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202772358	MB	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24240	314341001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAPA-12-23808	1202769810	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAPA-12-23811	1202769809	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202769813	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202769808	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202772694	METHOD BLANK	EPA:365.4	W	Total Phosphate as Phosphorus	0.0459	J	mg/L	0.05
MB	1202772707	METHOD BLANK	EPA:351.2	W	Total Kjeldahl Nitrogen	0.0602	J	mg/L	0.1

Any samples affected by the presence of contaminants in blanks?

Field Sample ID	Blank Field Sample ID	Blank Lab Sample ID	Blank Type	Analytical Method	Parameter Name	Units	Blank Result	Sample Result	Lab Qualifier	Detect Limit	Detected
CAMO-13-24240	MB	1202772707	METHOD BLANK	EPA:351.2	Total Kjeldahl Nitrogen	mg/L	0.0602	0.082	J	0.1	Y
CAMO-13-24257	MB	1202772694	METHOD BLANK	EPA:365.4	Total Phosphate as Phosphorus	mg/L	0.0459	0.0314	J	0.05	Y

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CAMO-13-24238	1202772709	1202772710	EPA:351.2	Total Kjeldahl Nitrogen	1260283	11/6/2012	W	84.8	96	110	90

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Data Validation Report for:

Chain Of Custody No. 2013-247

Correction Factor (ND)	Correction Factor (J)	Use Factors
5		Y
5		Y

Rejection Limit	RPD	RPD Limit
10	11.6	20

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-1	2013-247	CAMO-13-24240	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-1	2013-247	CAMO-13-24240	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-1	2013-247	CAMO-13-24240	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-1	2013-247	CAMO-13-24240	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-1	2013-247	CAMO-13-24240	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-1	2013-247	CAMO-13-24240	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-1	2013-247	CAMO-13-24240	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-1	2013-247	CAMO-13-24240	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-1	2013-247	CAMO-13-24240	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-1	2013-247	CAMO-13-24240	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-1	2013-247	CAMO-13-24240	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-1	2013-247	CAMO-13-24240	REG	INIT	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	J	U	I4	N
R-1	2013-247	CAMO-13-24240	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-1	2013-247	CAMO-13-24257	REG	INIT	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	J	U	I4	N

Reason Code	Description
I4	the sample result is =<5x the concentration of related analyte in the method blank.
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24240	R-1	REG	EPA:351.2	0	1
CAMO-13-24240	R-1	REG	EPA:900	0	2
CAMO-13-24240	R-1	REG	EPA:901.1	0	5
CAMO-13-24240	R-1	REG	EPA:905.0	0	1
CAMO-13-24240	R-1	REG	HASL-300:AM-241	0	1
CAMO-13-24240	R-1	REG	HASL-300:ISOPU	0	2
CAMO-13-24240	R-1	REG	HASL-300:ISOU	0	3
CAMO-13-24240	R-1	REG	SW-846:9060	0	1
CAMO-13-24257	R-1	REG	EPA:120.1	0	1
CAMO-13-24257	R-1	REG	EPA:150.1	0	1
CAMO-13-24257	R-1	REG	EPA:160.1	0	1
CAMO-13-24257	R-1	REG	EPA:245.2	0	1
CAMO-13-24257	R-1	REG	EPA:300.0	0	4
CAMO-13-24257	R-1	REG	EPA:310.1	0	2
CAMO-13-24257	R-1	REG	EPA:350.1	0	1
CAMO-13-24257	R-1	REG	EPA:353.2	0	1
CAMO-13-24257	R-1	REG	EPA:365.4	0	1
CAMO-13-24257	R-1	REG	SM:A2340B	0	1
CAMO-13-24257	R-1	REG	SW-846:6010B	0	17
CAMO-13-24257	R-1	REG	SW-846:6020	0	11
CAMO-13-24257	R-1	REG	SW-846:6850	0	1

Data Validation Report for: Chain Of Custody No. 2013-247

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
-0.00259	pCi/L	-0.00259	pCi/L	0.0295	0.00449	W	10/30/2012		1259852	VAL	Y
-0.788	pCi/L	-0.788	pCi/L	5.03	1.43	W	10/30/2012		1260199	VAL	Y
1.11	pCi/L	1.11	pCi/L	5.36	1.28	W	10/30/2012		1260199	VAL	Y
-0.0647	pCi/L	-0.0647	pCi/L	2.65	0.579	W	10/30/2012		1260898	VAL	Y
2.61	pCi/L	2.61	pCi/L	2.92	0.947	W	10/30/2012		1260898	VAL	Y
-1.29	pCi/L	-1.29	pCi/L	9.74	2.85	W	10/30/2012		1260199	VAL	Y
-0.00545	pCi/L	-0.00545	pCi/L	0.0262	0.00545	W	10/30/2012		1259851	VAL	Y
0.00272	pCi/L	0.00272	pCi/L	0.0435	0.00721	W	10/30/2012		1259851	VAL	Y
1.81	pCi/L	1.81	pCi/L	69.6	19.6	W	10/30/2012		1260199	VAL	Y
1.15	pCi/L	1.15	pCi/L	5.98	1.49	W	10/30/2012		1260199	VAL	Y
0.225	pCi/L	0.225	pCi/L	0.49	0.147	W	10/30/2012		1260884	VAL	Y
0.082	mg/L	0.082	mg/L			W	10/30/2012		1260284	VAL	Y
0.0115	pCi/L	0.0115	pCi/L	0.0449	0.0101	W	10/30/2012		1259850	VAL	Y
0.0314	mg/L	0.0314	mg/L			W	10/30/2012		1260281	VAL	Y

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

November 27, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 314341
SDG: 2013-247

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 01, 2012, and analyzed for General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-247
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 314341
SDG: 2013-247

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....9

Perchlorates by LCMSMS Analysis.....11

Case Narrative.....12

Sample Data Summary.....18

Quality Control Summary.....20

Quality Control Data.....23

Miscellaneous.....29

Metals Analysis.....31

Case Narrative.....32

Sample Data Summary.....38

Quality Control Summary.....42

General Chem Analysis.....56

Case Narrative.....57

Sample Data Summary.....85

Quality Control Summary.....90

Miscellaneous.....95

Radiological Analysis.....98

Sample Data Summary.....110

Quality Control Data.....113

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 314341
SDG # : 2013-247

November 27, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 01, 2012 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. The container for Gross A/B was preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
314341001	CAMO-13-24240
314341002	CAMO-13-24257

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Hope Taylor for
Valerie Davis
Project Manager

List of current GEL Certifications as of 27 November 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

34341

COC/Lab Request #: 2013-247

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAMO-13-24240	Oct 30 2012	11:51	W			1			1	1
CAMO-13-24257	Oct 30 2012	11:51	W	1	1		1	1		

Special Instructions:

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
Melissa Montoya		10/31/12 3:00		110112@0855
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/AR/COC/Work Order:** 2013-247
Received By: H. Taylor	**Date Received:** 110112

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) 4 *all temperatures are recorded in Celsius
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: 61524646 Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			✓	Sample ID's, containers affected and observed pH: CAMW-13-24240 If Preservation added, Lot#: L03022
6	VOA vials free of headspace (defined as < 6mm bubble)?	✓			Sample ID's and containers affected:
7	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			
14	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 5462 9832 4749-4 5462 9832 4750-4

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials HT Date 110512 Page 1 of 1

Subject: Fwd: Sample Receipt for 110112
From: Hope Taylor <Hope.Taylor@gel.com>
Date: 11/1/2012 4:11 PM
To: "Keith R. Greene" <kgreene@lanl.gov>
CC: "team.davis" <team.davis@gel.com>

ID correction CAMO-13-24226

-------- Original Message --------
Subject: Sample Receipt for 110112
Date: Thu, 01 Nov 2012 15:59:40 -0400
From: Hope Taylor <Hope.Taylor@gel.com>
To: Keith R. Greene <kgreene@lanl.gov>
CC:LANL@amrad.com, "team.davis" <team.davis@gel.com>

Good afternoon Keith

The containers for Gross A/B were preserved prior to analysis.

RN 2013-246
lab received one container each for SVOA and PCB for ID CAMO-4524226, chain indicates three.
lab received one container for 8260 for ID CAMO-13-24231, chain indicates two.

--
Hope Taylor
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Direct: 843.769.7376 ext. 4778
Main: 843.556.8171
Fax: 843.766.1178
E-mail: hop01200@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 31OCT12
ACTWGT: 45.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

4

50DC1/9CCB/108C

FedEx Express

J111311060125

1 of 2

TRK# 0201 5462 9832 4749

MASTER

THU - 01 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RITZ 08/10 ©

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 31OCT12
ACTWGT: 48.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

4

50DC1/9CCB/108C

FedEx Express

J111311060125

2 of 2

MPS# 0263 5462 9832 4750

Mstr# 5462 9832 4749

0201

THU - 01 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RITZ 08/10 ©

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC/MSMS
ARS International (ARSL)
SDG 2013-247

Method/Analysis Information

Procedure:	**Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method:	SW846 6850 Modified
Prep Method:	SW846 6850 Modified
Analytical Batch Number:	1260140
Prep Batch Number:	1260138

Sample Analysis

Sample ID	Client ID
314341002	CAMO-13-24257
1202772362	Interference Check Sample (ICS)
1202772358	Method Blank (MB)
1202772359	Laboratory Control Sample (LCS)
1202772360	314443002(CAMO-13-24259) Matrix Spike (MS)
1202772361	314443002(CAMO-13-24259) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 9.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

ICV Requirements
All associated initial calibration verification standard(s) (ICV) met the acceptance criteria.

CCB Requirements
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

CCV Requirements
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

Low Level Standard (CRI) Requirements
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Interference Check Sample (ICS)
The interference check sample (ICS) met all recovery acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Client sample 314443002 (CAMO-13-24259) from SDG 2013-259 was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
A negative recovery of -28.4% was observed for Perchlorate-101 in MS (1202772360). The acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

Matrix Spike Duplicate (MSD) Recovery Statement
Low recoveries were observed for Perchlorate and Perchlorate-101 in MSD (1202772361). The recoveries were 63% and 3.9% respectively and the acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits.

Retention Time Standard Area Acceptance
The retention time standard areas were within the required acceptance criteria for all samples and QC.

Retention Time
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
QC samples 1202772360 (CAMO-13-24259MS) and 1202772361 (CAMO-13-24259MSD) were diluted to bring the over range concentrations within the calibration range.

Sample Re-extraction/Re-analysis
Sample 314341002 (CAMO-13-24257) was re-analyzed to confirm the potential of carryover from the previous sample. The re-analysis data are reported.

Miscellaneous Information

Data Exception (DER) Documentation
Data Exception Report 1138672 was generated for this SDG.

A negative recovery of -28.4% was observed for Perchlorate-101 in MS (1202772360). The acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

Low recoveries were observed for Perchlorate and Perchlorate-101 in MSD (1202772361). The recoveries were 63% and 3.9% respectively and the acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

Additional Comments
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples.

Please see the isotope ratio criteria in the Miscellaneous Section.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-247 GEL Work Order: 314341

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 12 NOV 2012 **Title: Group Leader**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24257

Date Received: 01-NOV-12

GEL Job No (SDG): 2013-247

GEL Sample ID: 314341002

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.340	ug/L		1	09-NOV-12 13:15	per1109013a
	Perchlorate Isotope Ratio			3.04			1	09-NOV-12 13:15	per1109013a
14797-73-0	Perchlorate-101	.05	.2	0.367	ug/L		1	09-NOV-12 13:15	per1109013a
	Perchlorate-O(18)			0.491	ug/L		1	09-NOV-12 13:15	per1109013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2013-247

Extract Batch Code: 1260138

Date Filtered: 07-NOV-12

Matrix: WATER

Sample ID: 1202772359

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.213	ug/L	107		85 - 115
Perchlorate Isotope Ratio		3.25				-
Perchlorate-101	0.200	.212	ug/L	106		85 - 115
Perchlorate-O(18)		.479	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2013-247

Extract Batch Code: 1260138

Date Extracted: 07-NOV-12

GEL MS/PS ID: 1202772360

Client ID: CAMO-13-24259

GEL MSD/PSD ID: 1202772361

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Recovery Limit
Perchlorate	0.200	7.86	ug/L	8.04	93.3		7.98	62.6	*	.766		30	75 - 125
Perchlorate Isotope Ratio	0	3.18		3.28			3.23			1.57			-
Perchlorate-101	0.200	8.09	ug/L	8.03	-28.4	*	8.09	3.89	*	.802		30	75 - 125
Perchlorate-O(18)	0	4.99	ug/L	4.97			4.95			.302			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-247

GEL Sample ID: 1202772358

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	08-NOV-12 16:16	per1108012a
	Perchlorate Isotope Ratio						1	08-NOV-12 16:16	per1108012a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	08-NOV-12 16:16	per1108012a
	Perchlorate-O(18)			0.471	ug/L		1	08-NOV-12 16:16	per1108012a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-247

GEL Sample ID: 1202772359

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.213	ug/L		1	08-NOV-12 16:24	per1108013a
	Perchlorate Isotope Ratio			3.25			1	08-NOV-12 16:24	per1108013a
14797-73-0	Perchlorate-101	.05	.2	0.212	ug/L		1	08-NOV-12 16:24	per1108013a
	Perchlorate-O(18)			0.479	ug/L		1	08-NOV-12 16:24	per1108013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2013-247

GEL Sample ID: 1202772362

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.202	ug/L		1	08-NOV-12 16:33	per1108014a
	Perchlorate Isotope Ratio			3.12			1	08-NOV-12 16:33	per1108014a
14797-73-0	Perchlorate-101	.05	.2	0.209	ug/L		1	08-NOV-12 16:33	per1108014a
	Perchlorate-O(18)			0.502	ug/L		1	08-NOV-12 16:33	per1108014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24259MS

Date Received: 02-NOV-12

GEL Job No (SDG): 2013-247

GEL Sample ID: 1202772360

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	8.04	ug/L		10	09-NOV-12 13:31	per1109015a
	Perchlorate Isotope Ratio			3.28			10	09-NOV-12 13:31	per1109015a
14797-73-0	Perchlorate-101	.5	2	8.03	ug/L		10	09-NOV-12 13:31	per1109015a
	Perchlorate-O(18)			4.97	ug/L		10	09-NOV-12 13:31	per1109015a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24259MSD

Date Received: 02-NOV-12

GEL Job No (SDG): 2013-247

GEL Sample ID: 1202772361

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	7.98	ug/L		10	09-NOV-12 13:39	per1109016a
	Perchlorate Isotope Ratio			3.23			10	09-NOV-12 13:39	per1109016a
14797-73-0	Perchlorate-101	.5	2	8.09	ug/L		10	09-NOV-12 13:39	per1109016a
	Perchlorate-O(18)			4.95	ug/L		10	09-NOV-12 13:39	per1109016a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
10-NOV-12	Federal	Others	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LC-MS/MS	SW846-6850 Modified	Liquid	ARSL001
Batch ID:	**Sample Numbers:**		
1260140	See below		

Potentially affected work order(s)(SDG): 314340(2013-246),314341(2013-247),314443(2013-259),314445(2013-258),314529(2013-264)

Application Issues:

Failed Recovery for MS/PS

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. A negative recovery was observed for Perchlorate-101 at -28.4% in the MS (1202772360). The acceptance range is 75-125%. 2. Low recoveries were observed for Perchlorate and Perchlorate-101 in the MSD (1202772361). The recoveries were 63% and 3.9% respectively and the acceptance range is 75-125% for both.	1. & 2. The low and negative recoveries observed in the matrix spikes may be the result of the background concentration present in the parent sample, 314443002, and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER.

Originator's Name:

Charles Wilson 10-NOV-12

Data Validator/Group Leader:

Michael Penny 10-NOV-12

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-247

Sample Analysis

Sample ID	Client ID
314341002	CAMO-13-24257
1202771014	Method Blank (MB) **ICP**
1202771015	Laboratory Control Sample (LCS)
1202771018	314341002(CAMO-13-24257L) Serial Dilution (SD)
1202771016	314341002(CAMO-13-24257D) Sample Duplicate (DUP)
1202771017	314341002(CAMO-13-24257S) Matrix Spike (MS)
1202771019	Method Blank (MB) **ICP-MS**
1202771020	Laboratory Control Sample (LCS)
1202771023	314341002(CAMO-13-24257L) Serial Dilution (SD)
1202771021	314341002(CAMO-13-24257D) Sample Duplicate (DUP)
1202771022	314341002(CAMO-13-24257S) Matrix Spike (MS)
1202783062	Method Blank (MB) **CVAA**
1202783069	Laboratory Control Sample (LCS)
1202783065	314340002(CAMO-13-24255L) Serial Dilution (SD)
1202783063	314340002(CAMO-13-24255D) Sample Duplicate (DUP)
1202783067	314340002(CAMO-13-24255S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1259557, 1259559, 1264600 and 1265920
Prep Batch :	1259556, 1259558 and 1264596
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 7
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B
Prep Method :	SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 314341002 (CAMO-13-24257)-ICP and ICP-MS and 314340002 (CAMO-13-24255)-CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight

on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 11.28.12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-247 GEL Work Order: 314341

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 11-28-12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-247 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314341002 **BASIS:** As Received **DATE COLLECTED** 30-OCT-12

CLIENT ID: CAMO-13-24257 **LEVEL:** Low **DATE RECEIVED** 01-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/17/12 14:57	111712-1	1259557
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/12/12 20:06	121112-3	1259559
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/13/12 14:39	121113-4	1259559
7440-39-3	Barium	13.7	ug/L		1	5	5	1	P	HSC	11/17/12 14:57	111712-1	1259557
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 14:57	111712-1	1259557
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	11/17/12 14:57	111712-1	1259557
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/12/12 20:06	121112-3	1259559
7440-70-2	Calcium	11300	ug/L		50	200	200	1	P	HSC	11/17/12 14:57	111712-1	1259557
7440-47-3	Chromium	4.27	ug/L	J	2	10	10	1	MS	BAJ	11/13/12 14:39	121113-4	1259559
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 14:57	111712-1	1259557
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/19/12 07:29	111912-2	1259557
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/17/12 14:57	111712-1	1259557
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/12/12 20:06	121112-3	1259559
7439-95-4	Magnesium	4110	ug/L		110	300	300	1	P	HSC	11/17/12 14:57	111712-1	1259557
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/17/12 14:57	111712-1	1259557
7439-98-7	Molybdenum	1.24	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/12/12 20:06	121112-3	1259559
7440-02-0	Nickel	11	ug/L		0.5	2	2	1	MS	BAJ	11/13/12 14:39	121113-4	1259559
7440-09-7	Potassium	1690	ug/L		50	150	150	1	P	HSC	11/19/12 07:29	111912-2	1259557
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/13/12 14:39	121113-4	1259559
7631-86-9	Silica	80300	ug/L		53	213	213	1	P	HSC	11/17/12 14:57	111712-1	1259557
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/12/12 20:06	121112-3	1259559
7440-23-5	Sodium	13300	ug/L		100	300	300	1	P	HSC	11/17/12 14:57	111712-1	1259557
7440-24-6	Strontium	51.8	ug/L		1	5	5	1	P	HSC	11/17/12 14:57	111712-1	1259557
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/12/12 20:06	121112-3	1259559
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/19/12 07:29	111912-2	1259557
7440-61-1	Uranium	0.933	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/12/12 20:06	121112-3	1259559
7440-62-2	Vanadium	8.1	ug/L		1	5	5	1	P	HSC	11/17/12 14:57	111712-1	1259557
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	11/17/12 14:57	111712-1	1259557

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-247 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314341002 **BASIS:** As Received **DATE COLLECTED** 30-OCT-12

CLIENT ID: CAMO-13-24257 **LEVEL:** Low **DATE RECEIVED** 01-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/20/12 09:28	112012W1-5	1264600

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-247 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314341002 **BASIS:** As Received **DATE COLLECTED** 30-OCT-12

CLIENT ID: CAMO-13-24257 **LEVEL:** Low **DATE RECEIVED** 01-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	45.1	mg/L		0.453	1.24	1.24	1		JJ2	11/26/12 09:25		1265920

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1259557	1259556	SW846 3005A	50	mL	50	mL	11/07/12	AXG2
1259559	1259558	SW846 3005A	50	mL	50	mL	11/07/12	AXG2
1264600	1264596	EPA 245.1/245.2 Prep	20	mL	20	mL	11/19/12	AXS5

***Analytical Methods:**

MS	**SW846 3005/6020 DOE-AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−247

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202771014								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	50	ug/L	+/−150	U	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202771019								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202783062								
	Mercury	0.067	ug/L	+/−0.2	U	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−247 **Client ID** CAMO−13−24257S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314341002 **Spike ID:** 1202771017

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5150		68	U	5000	102		P
Barium	ug/L	75−125	513		13.7		500	99.8		P
Beryllium	ug/L	75−125	514		1	U	500	103		P
Boron	ug/L	75−125	515		15	U	500	101		P
Calcium	ug/L	75−125	16400		11300		5000	102		P
Cobalt	ug/L	75−125	503		1	U	500	101		P
Copper	ug/L	75−125	501		3	U	500	99.8		P
Iron	ug/L	75−125	5090		30	U	5000	101		P
Magnesium	ug/L	75−125	9230		4110		5000	102		P
Manganese	ug/L	75−125	488		2	U	500	97.4		P
Potassium	ug/L	75−125	6680		1690		5000	99.9		P
Silica	ug/L		93300		80300		10700	121	N/A	P
Sodium	ug/L	75−125	19100		13300		5000	116		P
Strontium	ug/L	75−125	548		51.8		500	99.1		P
Tin	ug/L	75−125	486		2.5	U	500	97.1		P
Vanadium	ug/L	75−125	502		8.1		500	98.9		P
Zinc	ug/L	75−125	480		3.3	U	500	96		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−247 **Client ID** CAMO−13−24257S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314341002 **Spike ID:** 1202771022

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	193		1	U	200	96.5		MS
Arsenic	ug/L	75−125	75.3		1.7	U	80	93		MS
Cadmium	ug/L	75−125	10.1		0.11	U	10	101		MS
Chromium	ug/L	75−125	52.1		4.27	J	50	95.6		MS
Lead	ug/L	75−125	42.1		0.5	U	40	105		MS
Molybdenum	ug/L	75−125	52.2		1.24		50	102		MS
Nickel	ug/L	75−125	55		11		50	87.9		MS
Selenium	ug/L	75−125	19.9		1.5	U	20	94.2		MS
Silver	ug/L	75−125	49.9		0.2	U	50	99.8		MS
Thallium	ug/L	75−125	97.9		0.45	U	100	97.9		MS
Uranium	ug/L	75−125	49.8		0.933		50	97.8		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−247 **Client ID:** CAMO−13−24255S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314340002 **Spike ID:** 1202783067

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.05		0.067	U	2	103		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−247 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24257D

Matrix: LIQUID **Level:** Low

Sample ID: 314341002 **Duplicate ID:** 1202771016 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−5	13.7		13.6		.417		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	15	U			P
Calcium	ug/L	+/−20%	11300		11200		.978		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L		3	U	3	U			P
Iron	ug/L		30	U	30	U			P
Magnesium	ug/L	+/−20%	4110		4020		2.22		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	1690		1710		1.35		P
Silica	ug/L	+/−20%	80300		80100		.258		P
Sodium	ug/L	+/−20%	13300		13300		.248		P
Strontium	ug/L	+/−20%	51.8		52.2		.875		P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L	+/−5	8.1		8.3		2.47		P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−247 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24257D

Matrix: LIQUID **Level:** Low

Sample ID: 314341002 **Duplicate ID:** 1202771021 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	4.27	J	4.08	J	4.52		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.24		1.18		4.79		MS
Nickel	ug/L	+/−20%	11		10		9.54		MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.933		0.897		3.93		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−247 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24255D

Matrix: LIQUID **Level:** Low

Sample ID: 314340002 **Duplicate ID:** 1202783063 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−247

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202771015								
	Aluminum	ug/L	5000	5190		104	80−120	P
	Barium	ug/L	500	495		99.1	80−120	P
	Beryllium	ug/L	500	502		100	80−120	P
	Boron	ug/L	500	490		98	80−120	P
	Calcium	ug/L	5000	5050		101	80−120	P
	Cobalt	ug/L	500	502		100	80−120	P
	Copper	ug/L	500	477		95.5	80−120	P
	Iron	ug/L	5000	5010		100	80−120	P
	Magnesium	ug/L	5000	5120		102	80−120	P
	Manganese	ug/L	500	490		97.9	80−120	P
	Potassium	ug/L	5000	4880		97.6	80−120	P
	Silica	ug/L	10700	10300		96.5	80−120	P
	Sodium	ug/L	5000	5330		107	80−120	P
	Strontium	ug/L	500	497		99.4	80−120	P
	Tin	ug/L	500	470		94.1	80−120	P
	Vanadium	ug/L	500	491		98.2	80−120	P
	Zinc	ug/L	500	475		95	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−247

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202771020								
	Antimony	ug/L	50	50.7		101	80−120	MS
	Arsenic	ug/L	50	47.4		94.8	80−120	MS
	Cadmium	ug/L	50	51.1		102	80−120	MS
	Chromium	ug/L	50	47.7		95.4	80−120	MS
	Lead	ug/L	50	51.9		104	80−120	MS
	Molybdenum	ug/L	50	48.5		97.1	80−120	MS
	Nickel	ug/L	50	50.6		101	80−120	MS
	Selenium	ug/L	50	51		102	80−120	MS
	Silver	ug/L	50	53.1		106	80−120	MS
	Thallium	ug/L	50	50		100	80−120	MS
	Uranium	ug/L	50	53.1		106	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−247

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783069								
	Mercury	ug/L	2	2.08		104	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−247 **Client ID** CAMO−13−24257L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314341002 **Serial Dilution ID:** 1202771018

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	13.7		13.9	J	1.63			P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	11300		11100		1.64		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	4110		4220		2.66			P
Manganese	2	U	10	U				P
Potassium	1690		1990		17.9			P
Silica	80300		80100		.229		10	P
Sodium	13300		13800		4.1		10	P
Strontium	51.8		50.2		2.96		10	P
Tin	2.5	U	12.5	U				P
Vanadium	8.1		7.8	J	3.62			P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−247 **Client ID** CAMO−13−24257L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314341002 **Serial Dilution ID:** 1202771023

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	4.27	J	10	U	100			MS
Lead	.5	U	2.5	U				MS
Molybdenum	1.24		1.5	J	20.9			MS
Nickel	11		10.8		2			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.933		.92	J	1.39			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−247 **Client ID** CAMO−13−24255L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314340002 **Serial Dilution ID:** 1202783065

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-247

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1259029 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
314341001	CAMO-13-24240
1202769808	Method Blank (MB)
1202769809	313643004(CAPA-12-23811) Sample Duplicate (DUP)
1202769810	314136001(CAPA-12-23808) Sample Duplicate (DUP)
1202769811	313643004(CAPA-12-23811) Post Spike (PS)
1202769812	314136001(CAPA-12-23808) Post Spike (PS)
1202769813	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 313643004 (CAPA-12-23811) and 314136001 (CAPA-12-23808).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1265081	**Method:**	EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
314341002	CAMO-13-24257
1202784135	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202784136	314445002(CAMO-13-24258) Sample Duplicate (DUP)
1202784137	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314340002 (CAMO-13-24255) and 314445002 (CAMO-13-24258).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1259755 **Method:** EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
314341002	CAMO-13-24257
1202771488	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202771490	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following sample from this sample group was received by the lab outside of the method specified holding time: 314341002 (CAMO-13-24257).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1139374 314341002 (CAMO-13-24257).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1259659	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
314341002	CAMO-13-24257
1202771231	Method Blank (MB)
1202771232	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202771233	314340002(CAMO-13-24255) Post Spike (PS)
1202771234	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following samples were re-analyzed due to CCV failure: 1202771231 (MB), 1202771232 (CAMO-13-24255), 1202771233 (CAMO-13-24255), 1202771234 (LCS) and 314341002 (CAMO-13-24257).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202771232 (CAMO-13-24255), 1202771233 (CAMO-13-24255) and 314341002 (CAMO-13-24257).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1260275	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1260272	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
314341002	CAMO-13-24257
1202772676	Method Blank (MB)
1202772677	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202772678	314341002(CAMO-13-24257) Sample Duplicate (DUP)
1202772679	314340002(CAMO-13-24255) Matrix Spike (MS)
1202772680	314341002(CAMO-13-24257) Matrix Spike (MS)
1202772681	314340002(CAMO-13-24255) Matrix Spike Duplicate (MSD)
1202772682	314341002(CAMO-13-24257) Matrix Spike Duplicate (MSD)
1202772683	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314340002 (CAMO-13-24255) and 314341002 (CAMO-13-24257).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries for this sample set were within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202772677 (CAMO-13-24255).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following sample was re-analyzed due to instrument failure: 314341002 (CAMO-13-24257).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1260284	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1260283	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
314341001	CAMO-13-24240
1202772707	Method Blank (MB)
1202772708	314340001(CAMO-13-24238) Sample Duplicate (DUP)
1202772709	314340001(CAMO-13-24238) Matrix Spike (MS)
1202772710	314340001(CAMO-13-24238) Matrix Spike Duplicate (MSD)
1202772711	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340001 (CAMO-13-24238).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1202772709 (CAMO-13-24238).

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202772708 (CAMO-13-24238).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1137073 1202772709 (CAMO-13-24238).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1260239	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
314341002	CAMO-13-24257
1202772605	Method Blank (MB)
1202772608	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202772611	314340002(CAMO-13-24255) Post Spike (PS)
1202772612	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202772608 (CAMO-13-24255) and 1202772611 (CAMO-13-24255).

Sample Re-analysis
The following samples were re-analyzed due to CCV failure: 1202772608 (CAMO-13-24255), 1202772611 (CAMO-13-24255) and 314341002 (CAMO-13-24257).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1260281	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1260280	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
314341002	CAMO-13-24257
1202772694	Method Blank (MB)
1202772696	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202772698	314340002(CAMO-13-24255) Matrix Spike (MS)
1202772700	314340002(CAMO-13-24255) Matrix Spike Duplicate (MSD)
1202772701	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Solids, Total Dissolved**		
Analytical Batch:	1259753	**Method:**	EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
314341002	CAMO-13-24257
1202771477	Method Blank (MB)
1202771480	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202771481	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Alkalinity**

Analytical Batch: 1262572 **Method:** EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
314341002	CAMO-13-24257
1202778366	Laboratory Control Sample (LCS)
1202778371	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202778372	314340002(CAMO-13-24255) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____28Nov12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-247 GEL Work Order: 314341

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-247

Client Sample ID:	CAMO-13-24240	Project:	ESHL00210
Sample ID:	314341001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	30-OCT-12 11:51		
Receive Date:	01-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.774	0.330	1.00	mg/L	1	TSM	11/03/12	0200	1259029	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	J	0.082	0.035	0.100	mg/L	1	KLP1	11/06/12	1416	1260284	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/05/12	1700	1260283

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-247

Client Sample ID: CAMO-13-24257
Sample ID: 314341002
Matrix: W
Collect Date: 30-OCT-12 11:51
Receive Date: 01-NOV-12
Collector: Client
Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		141	1.00	1.00	umhos/cm	1	TXT1	11/20/12	1115	1265081	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 11.4C	H	7.92	0.010	0.100	SU	1	LYG1	11/02/12	0902	1259755	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Chloride		2.02	0.067	0.200	mg/L	1	MAR1	11/12/12	2358	1259659	3
Fluoride		0.187	0.033	0.100	mg/L	1					
Sulfate		2.39	0.133	0.400	mg/L	1					
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	11/13/12	1954	1259659	4
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	U	ND	0.017	0.050	mg/L	1	KLP1	11/06/12	0941	1260275	5
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.316	0.017	0.050	mg/L	1	AXH3	11/05/12	1333	1260239	6
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	J	0.0314	0.017	0.050	mg/L	1	KLP1	11/06/12	1634	1260281	7
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		143	3.40	14.3	mg/L		LYG1	11/02/12	0738	1259753	8
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		66.0	0.725	1.00	mg/L		LXA1	11/12/12	1439	1262572	9
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/05/12	1600	1260272
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/05/12	1700	1260280

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-247
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24257	Project:	ESHL00210
Sample ID:	314341002	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 300.0	
5	EPA 350.1	
6	EPA 353.2	
7	EPA 365.4	
8	EPA 160.1	
9	EPA 310.1	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 28, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **314341**

Parmname	NOM		Sample	Qual	QC	Units	RPD%		REC%	Range	Anlst	Date Time
Carbon Analysis												
Batch 1259029												
QC1202769809 313643004 DUP												
Total Organic Carbon Average		J	0.503	J	0.457	mg/L	9.58	^		(+/-1.00)	TSM	11/02/12 14:55
QC1202769810 314136001 DUP												
Total Organic Carbon Average		J	0.891	J	0.775	mg/L	13.9	^		(+/-1.00)		11/03/12 00:58
QC1202769813 LCS												
Total Organic Carbon Average	10.0				10.6	mg/L			106	(85%-115%)		11/02/12 14:13
QC1202769808 MB												
Total Organic Carbon Average				U	ND	mg/L						11/02/12 14:04
QC1202769811 313643004 PS												
Total Organic Carbon Average	10.0	J	0.503		10.7	mg/L			102	(65%-120%)		11/02/12 15:15
QC1202769812 314136001 PS												
Total Organic Carbon Average	10.0	J	0.891		10.8	mg/L			99.3	(65%-120%)		11/03/12 01:18
Conductivity Analysis												
Batch 1265081												
QC1202784135 314340002 DUP												
Conductivity			195		196	umhos/cm	0.307			(0%-10%)	TXT1	11/20/12 11:15
QC1202784136 314445002 DUP												
Conductivity			141		140	umhos/cm	0.142			(0%-10%)		11/20/12 11:23
QC1202784137 LCS												
Conductivity	1410				1420	umhos/cm			101	(95%-105%)		11/20/12 10:55
Electrode Analysis												
Batch 1259755												
QC1202771488 314340002 DUP												
pH		H	8.44	H	8.41	SU	0.356			(0%-10%)	LYG1	11/02/12 09:00
QC1202771490 LCS												
pH	7.00				7.02	SU			100	(99%-101%)		11/02/12 08:44
Ion Chromatography												
Batch 1259659												
QC1202771232 314340002 DUP												
Bromide		J	0.143	J	0.143	mg/L	0.00	^		(+/-0.200)	MAR1	11/13/12 18:56
Chloride			7.86		7.94	mg/L	1.03			(0%-20%)		11/12/12 23:00
Fluoride			0.224		0.220	mg/L	1.44	^		(+/-0.100)		
Sulfate			13.3		13.2	mg/L	0.107			(0%-20%)		
QC1202771234 LCS												
Bromide	2.50				2.47	mg/L			98.8	(90%-110%)		11/13/12 17:58
Chloride	10.0				9.24	mg/L			92.4	(90%-110%)		11/12/12 22:02
Fluoride	5.00				4.82	mg/L			96.5	(90%-110%)		
Sulfate	20.0				18.9	mg/L			94.7	(90%-110%)		
QC1202771231 MB												
Bromide				U	ND	mg/L						11/13/12 17:29
Chloride				U	ND	mg/L						11/12/12 21:33

QC Summary

Workorder: 314341

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1259659											
Fluoride				U	ND	mg/L					
Sulfate				U	ND	mg/L				MAR1	11/12/12 21:33
QC1202771233 314340002 PS											
Bromide	2.50	J	0.143		2.68	mg/L		101	(90%-110%)		11/13/12 19:25
Chloride	10.0		7.86		18.5	mg/L		107	(90%-110%)		11/12/12 23:29
Fluoride	5.00		0.224		5.11	mg/L		97.7	(90%-110%)		
Sulfate	20.0		13.3		34.1	mg/L		104	(90%-110%)		
Nutrient Analysis											
Batch 1260239											
QC1202772608 314340002 DUP											
Nitrogen, Nitrate/Nitrite			3.89		3.78	mg/L	2.87		(0%-20%)	AXH3	11/05/12 13:31
QC1202772612 LCS											
Nitrogen, Nitrate/Nitrite	1.00				0.978	mg/L		97.8	(90%-110%)		11/05/12 12:13
QC1202772605 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					11/05/12 12:07
QC1202772611 314340002 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.389		1.36	mg/L		97.1	(90%-110%)		11/05/12 13:32
Batch 1260275											
QC1202772677 314340002 DUP											
Nitrogen, Ammonia		U	ND	U	ND	mg/L	N/A			KLP1	11/06/12 09:34
QC1202772678 314341002 DUP											
Nitrogen, Ammonia		U	ND	U	ND	mg/L	N/A				11/06/12 09:37
QC1202772683 LCS											
Nitrogen, Ammonia	1.00				1.06	mg/L		106	(90%-110%)		11/06/12 09:30
QC1202772676 MB											
Nitrogen, Ammonia				U	ND	mg/L					11/06/12 09:29
QC1202772679 314340002 MS											
Nitrogen, Ammonia	1.00	U	ND		1.09	mg/L		108	(90%-110%)		11/06/12 09:34
QC1202772680 314341002 MS											
Nitrogen, Ammonia	1.00	U	ND		1.02	mg/L		101	(90%-110%)		11/06/12 09:42
QC1202772681 314340002 MSD											
Nitrogen, Ammonia	1.00	U	ND		1.08	mg/L	0.922	107	(0%-15%)		11/06/12 09:35
QC1202772682 314341002 MSD											
Nitrogen, Ammonia	1.00	U	ND		0.980	mg/L	4.00	97.4	(0%-15%)		11/06/12 09:43
Batch 1260281											
QC1202772696 314340002 DUP											
Phosphorus, Total as P			0.327		0.331	mg/L	1.22		(0%-31%)	KLP1	11/06/12 16:31
QC1202772701 LCS											
Phosphorus, Total as P	1.00				1.07	mg/L		107	(76%-120%)		11/06/12 16:21
QC1202772694 MB											
Phosphorus, Total as P				J	0.0459	mg/L					11/06/12 16:20
QC1202772698 314340002 MS											
Phosphorus, Total as P	1.00		0.327		1.20	mg/L		87.3	(62%-139%)		11/06/12 16:32
QC1202772700 314340002 MSD											
Phosphorus, Total as P	1.00		0.327		1.18	mg/L	1.68	85.3	(0%-20%)		11/06/12 16:33
Batch 1260284											

QC Summary

Workorder: 314341

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis											
Batch 1260284											
QC1202772708 314340001 DUP											
Nitrogen, Total Kjeldahl		J	0.0596	J	0.0894	mg/L	40.0 ^		(+/-0.100)	KLP1	11/06/12 14:13
QC1202772711 LCS											
Nitrogen, Total Kjeldahl	1.00				0.942	mg/L		94.2	(90%-110%)		11/06/12 14:12
QC1202772707 MB											
Nitrogen, Total Kjeldahl				J	0.0602	mg/L					11/06/12 14:11
QC1202772709 314340001 MS											
Nitrogen, Total Kjeldahl	1.00	J	0.0596		0.908	mg/L		84.8 *	(90%-110%)		11/06/12 14:14
QC1202772710 314340001 MSD											
Nitrogen, Total Kjeldahl	1.00	J	0.0596		1.02	mg/L	11.6	96	(0%-20%)		11/06/12 14:15
Solids Analysis											
Batch 1259753											
QC1202771480 314340002 DUP											
Total Dissolved Solids			169		167	mg/L	0.851		(0%-10%)	LYG1	11/02/12 07:38
QC1202771481 LCS											
Total Dissolved Solids	300				297	mg/L		99	(95%-105%)		11/02/12 07:38
QC1202771477 MB											
Total Dissolved Solids				U	ND	mg/L					11/02/12 07:38
Titration Analysis											
Batch 1262572											
QC1202778371 314340002 DUP											
Alkalinity, Total as CaCO3			53.1		53.6	mg/L	1.01		(0%-20%)	LXA1	11/12/12 14:32
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A				
QC1202778366 LCS											
Alkalinity, Total as CaCO3	50.0				53.1	mg/L		106	(90%-110%)		11/12/12 12:31
QC1202778372 314340002 MS											
Alkalinity, Total as CaCO3	50.0		53.1		105	mg/L		104	(80%-120%)		11/12/12 14:34

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E Organics--Concentration of the target analyte exceeds the instrument calibration range
- F Estimated Value

QC Summary

Workorder: 314341

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
06-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1260284	See Below		

Potentially affected work order(s)(SDG): **314340(2013-246),314341(2013-247),314443(2013-259),314445(2013-258),314528(2013-265),314529(2013-264)**

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS/PS: QC 1202772709MS	1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits.

Originator's Name:

Kristen Parson 06-NOV-12

Data Validator/Group Leader:

Thomas Lewis 27-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
13-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ESHL, FBWP, TUPP
Batch ID:	**Sample Numbers:**		
1259755	See below.		

Potentially affected work order(s)(SDG): 314261,314340(2013-246),314341(2013-247),314409

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 314261 019,035 314340 002 314341 002 314409 001,002,003,004	1. Samples were received out of holding.

Originator's Name:

Lisa Gregory 13-NOV-12

Data Validator/Group Leader:

Julia Hamilton 13-NOV-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-247
Work Order 314341

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1259850

Sample ID	Client ID
314341001	CAMO-13-24240
1202771681	Method Blank (MB)
1202771682	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202771683	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202771681 (MB) and 1202771683 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314443005 (CAMO-13-24225). The QC was from ARSL work order 314443.

QC Information

All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1259851

Sample ID	Client ID
314341001	CAMO-13-24240
1202771684	Method Blank (MB)
1202771686	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202771688	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202771684 (MB) and 1202771688 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314443005 (CAMO-13-24225). The QC was from ARSL work order 314443.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1259852

Sample ID	Client ID
314341001	CAMO-13-24240
1202771689	Method Blank (MB)
1202771691	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202771693	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202771689 (MB) and 1202771693 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314443005 (CAMO-13-24225). The QC was from ARSL work order 314443.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1260199

Sample ID	Client ID
314341001	CAMO-13-24240
1202772494	Method Blank (MB)
1202772495	314528001(CAMO-13-24279) Sample Duplicate (DUP)
1202772496	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in June 2012, July 2012 and August 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314528001 (CAMO-13-24279). The QC was from ARSL work order 314528.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank 1202772494 (MB) result is greater than 1.65 times the CSU but less than the MDC for Co-60.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank 1202772494 (MB) result is greater than the decision level but less than the MDC for Co-60.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1260884

Sample ID	Client ID
314341001	CAMO-13-24240
1202774230	Method Blank (MB)
1202774231	314445001(CAMO-13-24241) Sample Duplicate (DUP)
1202774232	314445001(CAMO-13-24241) Matrix Spike (MS)
1202774233	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202774230 (MB) and 1202774233 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314445001 (CAMO-13-24241). The QC was from ARSL work order 314445.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202774231 (CAMO-13-24241) was recounted due to high MDC. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202774232 (CAMO-13-24241), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1260898

Sample ID	Client ID
314341001	CAMO-13-24240
1202774275	Method Blank (MB)
1202774276	314136001(CAPA-12-23808) Sample Duplicate (DUP)
1202774277	314136001(CAPA-12-23808) Matrix Spike (MS)
1202774278	314136001(CAPA-12-23808) Matrix Spike Duplicate (MSD)
1202774279	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in September 2011. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha

crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202774275 (MB) and 1202774279 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314136001 (CAPA-12-23808). The QC was from ARSL work order 314136.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202774276 (CAPA-12-23808) was recounted due to high MDC. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike and matrix spike duplicate, 1202774277 (CAPA-12-23808) and 1202774278 (CAPA-12-23808), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-247 GEL Work Order: 314341

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Kate Gellatly**

Date: 27 NOV 2012 **Title: Analyst I**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 27, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24240
Sample ID: 314341001
Matrix: W
Collect Date: 30-OCT-12
Receive Date: 01-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	-0.00259	+/-0.00449	0.0295	+/-0.00449	0.050	pCi/L		LYS1	11/12/12	1058	1259852	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	-0.00545	+/-0.00545	0.0262	+/-0.00545	0.050	pCi/L		LYS1	11/12/12	1059	1259851	2
Plutonium-239/240	U	0.00272	+/-0.00721	0.0435	+/-0.00721	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.729	+/-0.0509	0.0719	+/-0.0703	1.00	pCi/L		LYS1	11/12/12	1050	1259850	3
Uranium-235/236	U	0.0115	+/-0.0101	0.0449	+/-0.0102	1.00	pCi/L						
Uranium-238		0.335	+/-0.0328	0.0488	+/-0.0395	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-0.788	+/-1.43	5.03	+/-1.43	8.00	pCi/L		KXG3	11/07/12	1011	1260199	4
Cobalt-60	U	1.11	+/-1.28	5.36	+/-1.28	8.00	pCi/L						
Neptunium-237	U	-1.29	+/-2.85	9.74	+/-2.85	10.0	pCi/L						
Potassium-40	U	1.81	+/-19.6	69.6	+/-19.6	10.0	pCi/L						
Sodium-22	U	1.15	+/-1.49	5.98	+/-1.49	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.225	+/-0.147	0.490	+/-0.149	0.500	pCi/L		VXC2	11/20/12	1625	1260884	5
WSP-GrossA/B "As Received"													
Beta	U	2.61	+/-0.947	2.92	+/-0.972	3.00	pCi/L		BXF1	11/15/12	1312	1260898	6
Alpha	U	-0.0647	+/-0.579	2.65	+/-0.579	3.00	pCi/L		BXF1	11/17/12	1626	1260898	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1259852	86.3	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1259851	80.6	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1259850	72.4	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1260884	83.7	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 27, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24240
Sample ID: 314341001

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 27, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **314341**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1259850										
QC1202771682 314443005 DUP										
Uranium-234	U	-0.0173	U	-0.00844	pCi/L	0.187		(0-1)	LYS1	11/12/1210:50
	Uncert:	+/-0.00984		+/-0.0139						
	TPU:	+/-0.00984		+/-0.0139						
Uranium-235/236	U	0.00733	U	0.00735	pCi/L	0.000488		(0-1)		
	Uncert:	+/-0.00733		+/-0.009						
	TPU:	+/-0.00735		+/-0.00901						
Uranium-238	U	0.00	U	0.00	pCi/L	0.00		(0-1)		
	Uncert:	+/-0.00593		+/-0.00841						
	TPU:	+/-0.00594		+/-0.00841						
**Uranium-232 Tracer	2.73	2.06		1.93	pCi/L		70.8	(50%-105%)		
	Uncert:	+/-0.0913		+/-0.0907						
	TPU:	+/-0.201		+/-0.201						
QC1202771683 LCS										
Uranium-234				2.73	pCi/L				LYS1	11/12/1210:50
	Uncert:			+/-0.0831						
	TPU:			+/-0.199						
Uranium-235/236				0.117	pCi/L					
	Uncert:			+/-0.0204						
	TPU:			+/-0.0218						
Uranium-238	2.70			2.80	pCi/L		103	(80%-120%)		
	Uncert:			+/-0.0836						
	TPU:			+/-0.202						
**Uranium-232 Tracer	2.19			1.49	pCi/L		68.4	(50%-105%)		
	Uncert:			+/-0.0746						
	TPU:			+/-0.162						
QC1202771681 MB										
Uranium-234			U	-0.0191	pCi/L				LYS1	11/12/1210:50
	Uncert:			+/-0.00958						
	TPU:			+/-0.00958						
Uranium-235/236			U	0.00611	pCi/L					
	Uncert:			+/-0.00611						
	TPU:			+/-0.00613						
Uranium-238			U	0.00	pCi/L					
	Uncert:			+/-0.00606						
	TPU:			+/-0.00606						
**Uranium-232 Tracer	2.19			1.56	pCi/L		71.4	(50%-105%)		
	Uncert:			+/-0.0742						
	TPU:			+/-0.162						
Batch 1259851										
QC1202771686 314443005 DUP										
Plutonium-238	U	0.00497	U	-0.00289	pCi/L	0.344		(0-1)	LYS1	11/12/1210:59
	Uncert:	+/-0.00497		+/-0.00647						

QC Summary

Workorder: 314341

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1259851										
	TPU:	+/-0.00497		+/-0.00647						
Plutonium-239/240	U	-0.00248	U	0.00868	pCi/L	0.464		(0-1)		
	Uncert:	+/-0.00555		+/-0.00647						
	TPU:	+/-0.00556		+/-0.00648						
**Plutonium-242 Tracer	2.43	2.16		1.87	pCi/L		77.1	(50%-105%)		
	Uncert:	+/-0.0779		+/-0.0843						
	TPU:	+/-0.130		+/-0.138						
QC1202771688 LCS										
Plutonium-238			U	0.00506	pCi/L			(80%-120%)	LYS1	11/12/1210:59
	Uncert:			+/-0.0062						
	TPU:			+/-0.0062						
Plutonium-239/240	2.03			2.27	pCi/L		112	(80%-120%)		
	Uncert:			+/-0.0759						
	TPU:			+/-0.130						
**Plutonium-242 Tracer	1.94			1.36	pCi/L		70.1	(50%-105%)		
	Uncert:			+/-0.0705						
	TPU:			+/-0.114						
QC1202771684 MB										
Plutonium-238			U	-0.00491	pCi/L				LYS1	11/12/1210:59
	Uncert:			+/-0.00491						
	TPU:			+/-0.00491						
Plutonium-239/240			U	-0.00245	pCi/L					
	Uncert:			+/-0.00425						
	TPU:			+/-0.00425						
**Plutonium-242 Tracer	1.94			1.41	pCi/L		72.3	(50%-105%)		
	Uncert:			+/-0.0692						
	TPU:			+/-0.113						
Batch 1259852										
QC1202771691 314443005 DUP										
Americium-241	U	0.00252	U	-0.00298	pCi/L	0.255		(0-1)	LYS1	11/12/1210:59
	Uncert:	+/-0.00564		+/-0.00516						
	TPU:	+/-0.00564		+/-0.00517						
**Americium-243 Tracer	2.60	2.42		1.96	pCi/L		75.3	(50%-105%)		
	Uncert:	+/-0.0808		+/-0.0877						
	TPU:	+/-0.138		+/-0.146						
QC1202771693 LCS										
Americium-241	1.41			1.49	pCi/L		106	(80%-120%)	LYS1	11/12/1210:59
	Uncert:			+/-0.0544						
	TPU:			+/-0.0833						
**Americium-243 Tracer	2.08			1.83	pCi/L		88.1	(50%-105%)		
	Uncert:			+/-0.0638						
	TPU:			+/-0.109						
QC1202771689 MB										
Americium-241			U	0.00	pCi/L				LYS1	11/12/1210:59
	Uncert:			+/-0.00561						
	TPU:			+/-0.00561						
**Americium-243 Tracer	2.08			1.84	pCi/L		88.5	(50%-105%)		
	Uncert:			+/-0.0639						
	TPU:			+/-0.109						

QC Summary

Workorder: 314341

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1260199										
QC1202772495 314528001 DUP										
Cesium-137	U	1.76	U	-0.106	pCi/L	0.378		(0-1)	KXG3	11/08/1208:59
	Uncert:	+/-1.34		+/-1.13						
	TPU:	+/-1.34		+/-1.13						
Cobalt-60	U	0.442	U	-1.04	pCi/L	0.293		(0-1)		
	Uncert:	+/-1.30		+/-1.24						
	TPU:	+/-1.30		+/-1.24						
Neptunium-237	U	-0.20	U	1.91	pCi/L	0.217		(0-1)		
	Uncert:	+/-2.48		+/-2.37						
	TPU:	+/-2.48		+/-2.37						
Potassium-40	U	-29.9	U	-1.61	pCi/L	0.459		(0-1)		
	Uncert:	+/-16.8		+/-14.0						
	TPU:	+/-16.8		+/-14.0						
Sodium-22	U	-1.35	U	-1.23	pCi/L	0.0237		(0-1)		
	Uncert:	+/-1.46		+/-0.974						
	TPU:	+/-1.46		+/-0.974						
QC1202772496 LCS										
Americium-241	2780			2920	pCi/L		105	(80%-120%)	KXG3	11/08/1212:19
	Uncert:			+/-163						
	TPU:			+/-163						
Cesium-137	6090			6310	pCi/L		104	(80%-120%)		
	Uncert:			+/-264						
	TPU:			+/-264						
Cobalt-60	5670			5730	pCi/L		101	(80%-120%)		
	Uncert:			+/-241						
	TPU:			+/-241						
Neptunium-237			U	32.7	pCi/L					
	Uncert:			+/-21.0						
	TPU:			+/-21.0						
Potassium-40			U	-60.9	pCi/L					
	Uncert:			+/-46.6						
	TPU:			+/-46.6						
Sodium-22			U	-0.12	pCi/L					
	Uncert:			+/-6.61						
	TPU:			+/-6.61						
QC1202772494 MB										
Cesium-137			U	-0.192	pCi/L				KXG3	11/07/1210:58
	Uncert:			+/-1.11						
	TPU:			+/-1.11						
Cobalt-60			U	2.16	pCi/L					
	Uncert:			+/-1.07						
	TPU:			+/-1.07						
Neptunium-237			U	-0.975	pCi/L					
	Uncert:			+/-2.08						
	TPU:			+/-2.08						
Potassium-40			U	-6.92	pCi/L					
	Uncert:			+/-13.7						
	TPU:			+/-13.7						
Sodium-22			U	0.849	pCi/L					

QC Summary

Workorder: 314341

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1260199										
Uncert:				+/-0.975						
TPU:				+/-0.975						
Rad Gas Flow										
Batch 1260884										
QC1202774231 314445001 DUP										
Strontium-90	U	0.224	U	-0.222	pCi/L	0.800		(0-1)	VXC2	11/24/1211:55
Uncert:		+/-0.147		+/-0.130						
TPU:		+/-0.148		+/-0.130						
**Strontium Carrier	7.17	6.40		6.20	mg		86.5	(50%-105%)		
QC1202774233 LCS										
Strontium-90	24.8			24.1	pCi/L		96.9	(80%-120%)	VXC2	11/21/1217:03
Uncert:				+/-0.597						
TPU:				+/-2.04						
**Strontium Carrier	7.17			6.00	mg		83.7	(50%-105%)		
QC1202774230 MB										
Strontium-90			U	-0.0606	pCi/L				VXC2	11/21/1217:02
Uncert:				+/-0.0614						
TPU:				+/-0.0614						
**Strontium Carrier	7.17			6.60	mg		92.1	(50%-105%)		
QC1202774232 314445001 MS										
Strontium-90	124 U	0.224		126	pCi/L		101	(75%-125%)	VXC2	11/21/1217:03
Uncert:		+/-0.147		+/-2.95						
TPU:		+/-0.148		+/-10.4						
**Strontium Carrier	7.17	6.40		6.40	mg		89.3	(50%-105%)		
Batch 1260898										
QC1202774276 314136001 DUP										
Alpha	U	0.899	U	0.189	pCi/L	0.288		(0-1)	BXF1	11/17/1216:40
Uncert:		+/-0.682		+/-0.545						
TPU:		+/-0.686		+/-0.545						
Beta	U	0.924	U	-1.31	pCi/L	0.667		(0-1)		11/16/1208:56
Uncert:		+/-0.855		+/-0.816						
TPU:		+/-0.859		+/-0.816						
QC1202774279 LCS										
Alpha	12.0			11.5	pCi/L		96	(80%-120%)	BXF1	11/18/1219:49
Uncert:				+/-0.620						
TPU:				+/-1.15						
Beta	49.7			45.8	pCi/L		92.2	(80%-120%)		11/15/1213:21
Uncert:				+/-0.882						
TPU:				+/-3.90						
QC1202774275 MB										
Alpha			U	0.00668	pCi/L				BXF1	11/17/1216:41
Uncert:				+/-0.0924						
TPU:				+/-0.0925						
Beta			U	0.0423	pCi/L					11/15/1213:19
Uncert:				+/-0.096						
TPU:				+/-0.0961						
QC1202774277 314136001 MS										
Alpha	481 U	0.899		408	pCi/L		84.7	(75%-125%)	BXF1	11/17/1216:40

QC Summary

Workorder: **314341**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1260898										
	Uncert:	+/-0.682		+/-23.0						
	TPU:	+/-0.686		+/-41.4						
Beta	1990 U	0.924		1730	pCi/L		87.2	(75%-125%)		11/15/1213:20
	Uncert:	+/-0.855		+/-34.2						
	TPU:	+/-0.859		+/-151						
QC1202774278 314136001 MSD										
Alpha	481 U	0.899		370	pCi/L	0.236	76.9	(0-1)	BXF1	11/17/1216:40
	Uncert:	+/-0.682		+/-21.5						
	TPU:	+/-0.686		+/-37.6						
Beta	1990 U	0.924		1850	pCi/L	0.193	93.2	(0-1)		11/15/1213:21
	Uncert:	+/-0.855		+/-36.3						
	TPU:	+/-0.859		+/-158						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%

QC Summary

Workorder: **314341**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-246

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8082-PCB	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-H-3	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAMO-13-24238	Oct 30 2012	13:02	W		2	3			1	1			1	1
CAMO-13-24255	Oct 30 2012	13:02	W				1	1			1	1		
CAMO-13-24226	Oct 30 2012	13:02	W	3	2	3								
CAMO-13-24231	Oct 30 2012	13:02	W		2									

Special Instructions:

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 10/31/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24238 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/30/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1302	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	RSP
LOCATION ID:	MCOI-5	↓	FIELD PREP:	UF	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
UA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-H-3	250 ML AMBER GLASS	1	ICE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: None

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 6.84 mg/L Oxidation-Reduction Potential 198.8 MV pH 8.63 SU

Specific Conductance 196 uS/cm Temperature 13.14 deg C Turbidity 0.33 NTU

COLLECTED BY (PRINT) D. Fellenz

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Megan Green (Signature)	10/30/12 2:40	(Printed Name) (Signature)	10/30/12 2:40
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24226

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/30/2012	FIELD MATRIX:	WG	OF
TIME COLLECTED (HH:MM):		1302	MEDIA:	UA	↓
PRS ID:		GK	SAMPLE TECH CODE:	UA	DC
LOCATION ID:	MCOI-5	↓	FIELD PREP:	UF	UF
LOCATION TYPE:		↓	FIELD QC TYPE:	FB	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	1	ICE	Y	NA
↓	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	↓	↓
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE	↓	↓
↓	WSP-8290-D/F	1 LITER AMBER GLASS	2	ICE	↓	↓

SAMPLE COMMENTS: See CAMO-13-24238

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) D Fellenz

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Megan Green (Signature)	10/30/12 2:40	(Printed Name) (Signature)	10/30/12 240
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24231

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/30/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1302	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	RSP
LOCATION ID:	MCOI-5		FIELD PREP:	UF	ok
LOCATION TYPE:			FIELD QC TYPE:	FTB	
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NP	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	~~2~~ 1	HCL	Y	NP

SAMPLE COMMENTS: See CAMO-13-24238

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) D. Fellenz

RELINQUISHED BY (Printed Name) Megan Green (Signature)	**Date/Time** 10/30/12 2:40	**RECEIVED BY** (Printed Name) M. Montoya (Signature)	**Date/Time** 10/30/12 2:40
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24255

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/30/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1302	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	128P
LOCATION ID:	MCOI-5	↓	FIELD PREP:	F	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
↓	WSP-GENINORG	1 LITER POLY	1	ICE	↓	↓
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: See CAMO-13-24238

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L ~~Oxidation-Reduction Potential~~ _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) D. Fellenz

RELINQUISHED BY (Printed Name) Megan Green (Signature)	**Date/Time** 10/30/12 2:4	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time** 10/30/12 2:40
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-246

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
314340	EPA:120.1	1				
314340	EPA:150.1	1				
314340	EPA:160.1	1				
314340	EPA:245.2	1				
314340	EPA:300.0	1				
314340	EPA:310.1	1				
314340	EPA:350.1	1				
314340	EPA:351.2	1				
314340	EPA:353.2	1				
314340	EPA:365.4	1				
314340	EPA:900	1				
314340	EPA:901.1	1				
314340	EPA:905.0	1				
314340	EPA:906.0	1				
314340	HASL-300:AM-241	1				
314340	HASL-300:ISOPU	1				
314340	HASL-300:ISOU	1				
314340	SM:A2340B	1				
314340	SW-846:6010B	1				
314340	SW-846:6020	1				
314340	SW-846:6850	1				
314340	SW-846:8082				1	
314340	SW-846:8260B	1		1	1	
314340	SW-846:8270C	1			1	
314340	SW-846:9060	1				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
314340	EPA:120.1	1265081	1265081	1							
314340	EPA:150.1	1259755	1259755	1							
314340	EPA:160.1	1259753	1259753	1					1		
314340	EPA:245.2	1264600	1264596	1					1	2	
314340	EPA:300.0	1259659	1259659	1					1		
314340	EPA:310.1	1262572	1262572	1					2	1	
314340	EPA:350.1	1260275	1260272	1					1	2	2
314340	EPA:351.2	1260284	1260283	1					1	1	1
314340	EPA:353.2	1260239	1260239	1					1		
314340	EPA:365.4	1260281	1260280	1					1	1	1
314340	EPA:900	1260898	1260898	1					1	1	1
314340	EPA:901.1	1260199	1260199	1					1		
314340	EPA:905.0	1260884	1260884	1					1	1	
314340	EPA:906.0	1260474	1260474	1					1	1	
314340	HASL-300:AM-241	1259852	1259852	1					1		
314340	HASL-300:ISOPU	1259851	1259851	1					1		
314340	HASL-300:ISOU	1259850	1259850	1					1		
314340	SM:A2340B	1265920	1265920	1							
314340	SW-846:6010B	1259557	1259556	1					1	1	

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				2			
		1				1			
		1				1			
		1				2			
		1				1			
		2				1			
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			

314340	SW-846:6020	1259559	1259558	1					1	1	
314340	SW-846:6850	1260140	1260138	1					1	1	1
314340	SW-846:8082	1262673	1262672				1		1	1	1
314340	SW-846:8260B	1262189	1262189	1		1	1		2		
314340	SW-846:8270C	1260029	1260028	1			1		1	1	1
314340	SW-846:9060	1259029	1259029	1					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24255	1202784135	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24255	314340002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24258	1202784136	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202784137	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24255	1202771488	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24255	314340002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202771490	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24255	1202771480	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24255	314340002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202771481	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202771477	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783063	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783067	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24255	314340002	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783064	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783068	MS	0	0	1	0
EPA:245.2	INORGANIC	LCS	1202783069	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202783062	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24255	1202771232	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24255	314340002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202771234	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202771231	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24255	1202778371	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24255	1202778372	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24255	314340002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202778366	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202778927	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202778365	MB	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202778926	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	1202772677	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	1202772679	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	1202772681	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	314340002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	1202772678	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	1202772680	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	1202772682	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202772683	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202772676	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	1202772708	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	1202772709	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	1202772710	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	314340001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202772711	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202772707	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24255	1202772608	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24255	314340002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202772612	LCS	0	0	1	0

		1				1			
		1							
		1							
		4							
		1							
		1				2			

EPA:353.2	GENERAL CHEMISTRY	MB	1202772605	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	1202772696	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	1202772698	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	1202772700	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	314340002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202772701	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202772694	MB	1	0	0	0
EPA:900	RAD	CAMO-13-24238	314340001	REG	2	0	0	0
EPA:900	RAD	CAPA-12-23808	1202774276	DUP	2	0	0	0
EPA:900	RAD	CAPA-12-23808	1202774277	MS	0	0	2	0
EPA:900	RAD	CAPA-12-23808	1202774278	MSD	0	0	2	0
EPA:900	RAD	LCS	1202774279	LCS	0	0	2	0
EPA:900	RAD	MB	1202774275	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24238	314340001	REG	5	0	0	0
EPA:901.1	RAD	CAMO-13-24279	1202772495	DUP	6	0	0	0
EPA:901.1	RAD	LCS	1202772496	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202772494	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24238	314340001	REG	1	0	0	0
EPA:905.0	RAD	CAMO-13-24241	1202774231	DUP	1	0	0	0
EPA:905.0	RAD	CAMO-13-24241	1202774232	MS	0	0	1	0
EPA:905.0	RAD	LCS	1202774233	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202774230	MB	1	0	0	0
EPA:906.0	RAD	CAMO-13-24238	314340001	REG	1	0	0	0
EPA:906.0	RAD	CASA-13-24215	1202773258	DUP	1	0	0	0
EPA:906.0	RAD	CASA-13-24215	1202773259	MS	0	0	1	0
EPA:906.0	RAD	LCS	1202773260	LCS	0	0	1	0
EPA:906.0	RAD	MB	1202773257	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24225	1202771691	DUP	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24238	314340001	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202771693	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202771689	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24225	1202771686	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24238	314340001	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202771688	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202771684	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24225	1202771682	DUP	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24238	314340001	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202771683	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202771681	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24255	314340002	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24255	314340002	REG	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24257	1202771016	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24257	1202771017	MS	0	0	17	0
SW-846:6010B	INORGANIC	LCS	1202771015	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202771014	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24255	314340002	REG	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24257	1202771021	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24257	1202771022	MS	0	0	11	0
SW-846:6020	INORGANIC	LCS	1202771020	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202771019	MB	11	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24255	314340002	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24259	1202772360	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24259	1202772361	MSD	0	0	1	0

SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202772359	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202772358	MB	1	0	0	0
SW-846:8082	PESTPCB	CAMO-13-24226	314340003	FB	8	2	0	0
SW-846:8082	PESTPCB	LCS	1202778593	LCS	0	2	2	0
SW-846:8082	PESTPCB	MB	1202778592	MB	8	2	0	0
SW-846:8082	PESTPCB	WST05-12-23548	1202778594	MS	0	2	2	0
SW-846:8082	PESTPCB	WST05-12-23548	1202778595	MSD	0	2	2	0
SW-846:8260B	VOC	CAMO-13-24226	314340004	FB	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24231	314340005	FTB	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24238	314340001	REG	80	3	0	0
SW-846:8260B	VOC	LCS	1202777502	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202777503	LCS	0	3	10	0
SW-846:8260B	VOC	LCS	1202782475	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202782476	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1202777499	MB	80	3	0	0
SW-846:8260B	VOC	MB	1202782474	MB	80	3	0	0
SW-846:8270C	SVOC	CAMO-13-24226	314340004	FB	80	6	0	0
SW-846:8270C	SVOC	CAMO-13-24238	1202772855	MS	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24238	1202772856	MSD	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24238	314340001	REG	80	6	0	0
SW-846:8270C	SVOC	LCS	1202772058	LCS	0	6	76	0
SW-846:8270C	SVOC	MB	1202772057	MB	80	6	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24238	314340001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAPA-12-23808	1202769810	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAPA-12-23811	1202769809	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202769813	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202769808	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202772694	METHOD BLANK	EPA:365.4	W	Total Phosphate as Phosphorus	0.0459	J	mg/L	0.05
MB	1202772707	METHOD BLANK	EPA:351.2	W	Total Kjeldahl Nitrogen	0.0602	J	mg/L	0.1

Any samples affected by the presence of contaminants in blanks?

Field Sample ID	Blank Field Sample ID	Blank Lab Sample ID	Blank Type	Analytical Method	Parameter Name	Units	Blank Result	Sample Result	Lab Qualifier	Detect Limit	Detected
CAMO-13-24238	MB	1202772707	METHOD BLANK	EPA:351.2	Total Kjeldahl Nitrogen	mg/L	0.0602	0.0596	J	0.1	Y

6. Any surrogate recoveries outside the control limits?

No.

Correction Factor (ND)	Correction Factor (J)	Use Factors
5		Y

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CAMO-13-24238	1202772709	1202772710	EPA:351.2	Total Kjeldahl Nitrogen	1260283	11/6/2012	W	84.8	96	110	90
CAMO-13-24238	1202772709	1202772710	EPA:351.2	Total Kjeldahl Nitrogen	1260283	11/6/2012	W	84.8	96	110	90
CAMO-13-24238	1202772855	1202772856	SW-846:8270C	Aniline	1260028	11/6/2012	W	49	76	108	28
CAMO-13-24238	1202772855	1202772856	SW-846:8270C	Benzidine	1260028	11/6/2012	W	0	37	125	10
CAMO-13-24238	1202772855	1202772856	SW-846:8270C	Pyridine	1260028	11/6/2012	W	12	53	93	21

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
MCOI-5	2013-246	CAMO-13-24238	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
MCOI-5	2013-246	CAMO-13-24238	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
MCOI-5	2013-246	CAMO-13-24238	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
MCOI-5	2013-246	CAMO-13-24238	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
MCOI-5	2013-246	CAMO-13-24238	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
MCOI-5	2013-246	CAMO-13-24238	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
MCOI-5	2013-246	CAMO-13-24238	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
MCOI-5	2013-246	CAMO-13-24238	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
MCOI-5	2013-246	CAMO-13-24238	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
MCOI-5	2013-246	CAMO-13-24238	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
MCOI-5	2013-246	CAMO-13-24238	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
MCOI-5	2013-246	CAMO-13-24238	REG	INIT	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	J	U	I4	N
MCOI-5	2013-246	CAMO-13-24238	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N

Reason Code	Description
I4	the sample result is =<5x the concentration of related analyte in the method blank.

Rejection Limit	RPD	RPD Limit
10	11.6	20
10	11.6	20
10	43	30
10	200	30
10	125	30

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
0.00631	pCi/L	0.00631	pCi/L	0.0359	0.00773	W	10/30/2012		1259852	VAL	Y
-0.494	pCi/L	-0.494	pCi/L	5.91	1.64	W	10/30/2012		1260199	VAL	Y
0.889	pCi/L	0.889	pCi/L	6.39	1.56	W	10/30/2012		1260199	VAL	Y
0.346	pCi/L	0.346	pCi/L	2.46	0.598	W	10/30/2012		1260898	VAL	Y
-0.638	pCi/L	-0.638	pCi/L	2.63	0.648	W	10/30/2012		1260898	VAL	Y
2.21	pCi/L	2.21	pCi/L	11.8	3.27	W	10/30/2012		1260199	VAL	Y
0.00249	pCi/L	0.00249	pCi/L	0.0239	0.00557	W	10/30/2012		1259851	VAL	Y
0.0125	pCi/L	0.0125	pCi/L	0.0398	0.00659	W	10/30/2012		1259851	VAL	Y
17.8	pCi/L	17.8	pCi/L	89.8	22.1	W	10/30/2012		1260199	VAL	Y
-3.07	pCi/L	-3.07	pCi/L	6.1	1.89	W	10/30/2012		1260199	VAL	Y
-0.295	pCi/L	-0.295	pCi/L	0.487	0.126	W	10/30/2012		1260884	VAL	Y
0.0596	mg/L	0.0596	mg/L			W	10/30/2012		1260284	VAL	Y
0	pCi/L	0	pCi/L	0.037	0.00631	W	10/30/2012		1259850	VAL	Y

J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24226	MCOI-5	FB	SW-846:8082	0	8
CAMO-13-24226	MCOI-5	FB	SW-846:8260B	0	80
CAMO-13-24226	MCOI-5	FB	SW-846:8270C	0	80
CAMO-13-24231	MCOI-5	FTB	SW-846:8260B	0	80
CAMO-13-24238	MCOI-5	REG	EPA:351.2	0	1
CAMO-13-24238	MCOI-5	REG	EPA:900	0	2
CAMO-13-24238	MCOI-5	REG	EPA:901.1	0	5
CAMO-13-24238	MCOI-5	REG	EPA:905.0	0	1
CAMO-13-24238	MCOI-5	REG	EPA:906.0	0	1
CAMO-13-24238	MCOI-5	REG	HASL-300:AM-241	0	1
CAMO-13-24238	MCOI-5	REG	HASL-300:ISOPU	0	2
CAMO-13-24238	MCOI-5	REG	HASL-300:ISOU	0	3
CAMO-13-24238	MCOI-5	REG	SW-846:8260B	0	80
CAMO-13-24238	MCOI-5	REG	SW-846:8270C	0	80
CAMO-13-24238	MCOI-5	REG	SW-846:9060	0	1
CAMO-13-24255	MCOI-5	REG	EPA:120.1	0	1
CAMO-13-24255	MCOI-5	REG	EPA:150.1	0	1
CAMO-13-24255	MCOI-5	REG	EPA:160.1	0	1
CAMO-13-24255	MCOI-5	REG	EPA:245.2	0	1
CAMO-13-24255	MCOI-5	REG	EPA:300.0	0	4
CAMO-13-24255	MCOI-5	REG	EPA:310.1	0	2
CAMO-13-24255	MCOI-5	REG	EPA:350.1	0	1
CAMO-13-24255	MCOI-5	REG	EPA:353.2	0	1
CAMO-13-24255	MCOI-5	REG	EPA:365.4	0	1
CAMO-13-24255	MCOI-5	REG	SM:A2340B	0	1
CAMO-13-24255	MCOI-5	REG	SW-846:6010B	0	17
CAMO-13-24255	MCOI-5	REG	SW-846:6020	0	11
CAMO-13-24255	MCOI-5	REG	SW-846:6850	0	1

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

November 27, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 314340
SDG: 2013-246

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 01, 2012, and analyzed for GC Semivolatile PCB, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

for

Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-246
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 314340
SDG: 2013-246

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....9

Volatile Analysis.....11

Case Narrative.....12

Sample Data Summary.....17

Quality Control Summary.....27

Quality Control Data.....43

Miscellaneous.....59

Semi-Volatile Analysis.....61

Case Narrative.....62

Sample Data Summary.....68

Quality Control Summary.....75

Quality Control Data.....90

Miscellaneous.....103

Perchlorates by LCMSMS Analysis.....105

Case Narrative.....106

Sample Data Summary.....112

Quality Control Summary.....114

Quality Control Data.....117

Miscellaneous.....123
PCB Analysis.....125
Case Narrative.....126
Sample Data Summary.....131
Quality Control Summary.....133
Quality Control Data.....139
Metals Analysis.....142
Case Narrative.....143
Sample Data Summary.....149
Quality Control Summary.....153
General Chem Analysis.....167
Case Narrative.....168
Sample Data Summary.....196
Quality Control Summary.....201
Miscellaneous.....206
Radiological Analysis.....209
Sample Data Summary.....222
Quality Control Data.....225

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 314340
SDG # : 2013-246

November 27, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 01, 2012 for analysis. Please see attached email for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. The container for Gross A/B was preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
314340001	CAMO-13-24238
314340002	CAMO-13-24255
314340003	CAMO-13-24226
314340004	CAMO-13-24226
314340005	CAMO-13-24231

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC Semivolatile PCB, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

for

Valerie Davis
Project Manager

List of current GEL Certifications as of 27 November 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

314340

COC/Lab Request #: 2013-246

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Special Instructions:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8082-PCB	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-H-3	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAMO-13-24238	Oct 30 2012	13:02	W		2	3			1	1			1	1
CAMO-13-24255	Oct 30 2012	13:02	W				1	1			1	1		
CAMO-13-24226	Oct 30 2012	13:02	W	3	2	3								
CAMO-13-24231	Oct 30 2012	13:02	W		2									

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 10/31/12 3:00	Received by:	110112@0855
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	SDG/AR/COC/Work Order: 2013-246
Received By: A. Taylor	Date Received: 110112

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) 4 *all temperatures are recorded in Celsius
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: 61524646 Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			✓	Sample ID's, containers affected and observed pH: CAMO-13-24238 If Preservation added, Lot#: L03022
6	VOA vials free of headspace (defined as < 6mm bubble)?	✓			Sample ID's and containers affected:
7	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?			✓	Sample ID's affected: *see below
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			
14	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 5462 9832 4749-4 5462 9832 4750-4

Comments (Use Continuation Form if needed):

*lab received one container for SVOA and PCB for ID CAMO-13-24226 chain indicates three each
received one container for 8260 for CAMO-13-24231 chain indicates 2

PM (or PMA) review: Initials HT Date 110512 Page 1 of 1

Subject: Fwd: Sample Receipt for 110112
From: Hope Taylor <Hope.Taylor@gel.com>
Date: 11/1/2012 4:11 PM
To: "Keith R. Greene" <kgreene@lanl.gov>
CC: "team.davis" <team.davis@gel.com>

ID correction CAMO-13-24226

-------- Original Message --------
Subject: Sample Receipt for 110112
Date: Thu, 01 Nov 2012 15:59:40 -0400
From: Hope Taylor <Hope.Taylor@gel.com>
To: Keith R. Greene <kgreene@lanl.gov>
CC:LANL@amrad.com, "team.davis" <team.davis@gel.com>

Good afternoon Keith

The containers for Gross A/B were preserved prior to analysis.

RN 2013-246
lab received one container each for SVOA and PCB for ID CAMO-4524226, chain indicates three.
lab received one container for 8260 for ID CAMO-13-24231, chain indicates two.

--
Hope Taylor
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Direct: 843.769.7376 ext. 4778
Main: 843.556.8171
Fax: 843.766.1178
E-mail: hop01200@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 31OCT12
ACTWGT: 45.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

4

580C1/9CCB/10BC

FedEx Express

J111311060601 25

1 of 2

TRK# 0201 5462 9832 4749
MASTER

THU - 01 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 AITR 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 31OCT12
ACTWGT: 48.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

4

580C1/9CCB/10BC

FedEx Express

J111311060601 25

2 of 2

MPS# 0263 5462 9832 4750
Mstr# 5462 9832 4749

0201

THU - 01 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 AITR 08/10

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Volatile Analysis

Case Narrative

ChemStation Case Narrative
ARS International (ARSL)
SDG 2013-246

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 8260B DOE-AL
Analytical Batch Number:	1262189

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

Sample ID	Client ID
314340001	CAMO-13-24238
314340004	CAMO-13-24226
314340005	CAMO-13-24231
1202777499	Method Blank (MB)
1202777500	314340001(CAMO-13-24238) Post Spike (PS)
1202777501	314340001(CAMO-13-24238) Post Spike Duplicate (PSD)
1202777502	Laboratory Control Sample (LCS)
1202777503	Laboratory Control Sample (LCS)

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 18.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 19.1.2. False positive analytes are designated on the quantitation report with a ’d’ qualifier.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package.

The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement
The blank analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
Surrogate recoveries in all client and quality control samples were within the acceptance limits.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Sample 314340001 (CAMO-13-24238) was designated for spike analysis.

Matrix Spike (PS) Recovery Statement
The spike recoveries were within the required acceptance limits.

Matrix Spike Duplicate (PSD) Recovery Statement
The spike duplicate recoveries were within the required acceptance limits.

Relative Percent Difference (RPD) Statement
The RPD between the matrix spike pair 1202777500 (CAMO-13-24238) and 1202777501 (CAMO-13-24238) were not all within the acceptance limits. See the Data Exception Report in the miscellaneous section of the deliverable.

Internal Standard (ISTD) Acceptance
The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-analyses were not required for samples in this SDG.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER# 1141397.

Manual Integrations

Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment

Tentatively identified compounds (TIC) may be requested for this sample delivery group/work order. Please note that non-requested target analytes that are reported on the quantitation reports will be present on the Form I. These detected analytes are included in the calibrated method and as a result will be reported on the Sample Data Summary (Form I) or Certificate of Analysis (C of A). TIC data, if requested, are included on the Sample Data Summary (Form I) and are also included with the sample raw data.

Residual Chlorine

Residual Chlorine was not detected in any of the samples in this SDG.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOA6.I	Agilent 6890N/5975 GC/MS w/ OI 4560/Archon Autosampler	HP6890N/HP5975	DB-624	J&W, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-246 GEL Work Order: 314340

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Erin Haubert **Name:** **Erin Haubert**

Date: **20 NOV 2012** **Title:** **Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**314340001**	**Date Received:**	**11/01/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24238**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 15:04**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 15:04**				
Data File:	**110912V6\6J511.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**314340001**	**Date Received:**	**11/01/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24238**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 15:04**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 15:04**				
Data File:	**110912V6\6J511.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**314340001**	**Date Received:**	**11/01/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24238**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 15:04**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 15:04**				
Data File:	**110912V6\6J511.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	49.0	50.0	ug/L	98.1	(78%-124%)
Bromofluorobenzene	48.5	50.0	ug/L	97.0	(80%-120%)
Toluene-d8	48.2	50.0	ug/L	96.4	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**314340004**	**Date Received:**	**11/01/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24226**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 15:34**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 15:34**				
Data File:	**110912V6\6J512.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**314340004**	**Date Received:**	**11/01/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24226**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 15:34**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 15:34**				
Data File:	**110912V6\6J512.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**314340004**	**Date Received:**	**11/01/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24226**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 15:34**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 15:34**				
Data File:	**110912V6\6J512.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.7	50.0	ug/L	95.4	(78%-124%)
Bromofluorobenzene	48.6	50.0	ug/L	97.3	(80%-120%)
Toluene-d8	48.4	50.0	ug/L	96.8	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**314340005**	**Date Received:**	**11/01/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24231**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 16:02**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 16:02**				
Data File:	**110912V6\6J513.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**314340005**	**Date Received:**	**11/01/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24231**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 16:02**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 16:02**				
Data File:	**110912V6\6J513.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**314340005**	**Date Received:**	**11/01/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24231**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 16:02**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 16:02**				
Data File:	**110912V6\6J513.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.0	50.0	ug/L	96.0	(78%-124%)
Bromofluorobenzene	47.9	50.0	ug/L	95.8	(80%-120%)
Toluene-d8	48.0	50.0	ug/L	96.0	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2013-246

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1202777502	LCS for batch 1262189	96	96	98
1202777503	LCS for batch 1262189	103	97	97
1202777499	MB for batch 1262189	97	96	96
314340001	CAMO-13-24238	98	96	97
314340004	CAMO-13-24226	95	97	97
314340005	CAMO-13-24231	96	96	96
1202777500	CAMO-13-24238PS	100	97	97
1202777501	CAMO-13-24238PSD	97	98	97

Surrogate		Acceptance Limits
DCED4	= 1,2-Dichloroethane-d4	(78%-124%)
TOL	= Toluene-d8	(80%-120%)
BFB	= Bromofluorobenzene	(80%-120%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **CAMO-13-24238PS**
Lab Sample ID: **1202777500**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/09/2012 19:54**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	PS	Dichlorodifluoromethane	50.0	0.00	U	42.9	86	36-123
74-87-3	PS	Chloromethane	50.0	0.00	U	37.2	74	47-134
75-01-4	PS	Vinyl chloride	50.0	0.00	U	38.4	77	49-129
74-83-9	PS	Bromomethane	50.0	0.00	U	45.3	91	56-127
75-00-3	PS	Chloroethane	50.0	0.00	U	43.5	87	67-122
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	U	45.7	91	60-123
60-29-7	PS	Ethyl ether	50.0	0.00	U	42.9	86	69-121
67-64-1	PS	Acetone	250	0.00	U	144	58	30-143
75-05-8	PS	Acetonitrile	1250	0.00	U	999	80	60-133
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	U	48.1	96	67-132
74-88-4	PS	Iodomethane	250	0.00	U	249	100	69-147
75-09-2	PS	Methylene chloride	50.0	0.00	U	46.1	92	56-135
75-15-0	PS	Carbon disulfide	250	0.00	U	247	99	65-153
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	U	47.8	96	73-126
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	U	46.4	93	69-128
108-05-4	PS	Vinyl acetate	250	0.00	U	218	87	50-143
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	U	46.9	94	75-124
78-93-3	PS	2-Butanone	250	0.00	U	228	91	30-140
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	U	46.4	93	52-147
594-20-7	PS	2,2-Dichloropropane	50.0	0.00	U	46.4	93	67-143
67-66-3	PS	Chloroform	50.0	0.00	U	47.9	96	75-125
74-97-5	PS	Bromochloromethane	50.0	0.00	U	47.2	94	80-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **CAMO-13-24238PS**
Lab Sample ID: **1202777500**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/09/2012 19:54**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	PS	1,1,1-Trichloroethane	50.0	0.00	U	50.3	101	69-140
563-58-6	PS	1,1-Dichloropropene	50.0	0.00	U	46.9	94	71-130
71-36-3	PS	n-Butyl alcohol	5000	0.00	U	5440	109	53-150
56-23-5	PS	Carbon tetrachloride	50.0	0.00	U	51.6	103	69-142
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	U	47.0	94	72-126
71-43-2	PS	Benzene	50.0	0.00	U	43.3	87	73-119
79-01-6	PS	Trichloroethylene	50.0	0.00	U	44.8	90	54-147
78-87-5	PS	1,2-Dichloropropane	50.0	0.00	U	45.8	92	78-123
75-27-4	PS	Bromodichloromethane	50.0	0.00	U	51.2	102	76-131
74-95-3	PS	Dibromomethane	50.0	0.00	U	47.7	95	79-120
108-10-1	PS	4-Methyl-2-pentanone	250	0.00	U	242	97	68-136
10061-01-5	PS	cis-1,3-Dichloropropylene	50.0	0.00	U	49.5	99	72-134
108-88-3	PS	Toluene	50.0	0.00	U	42.3	85	62-126
10061-02-6	PS	trans-1,3-Dichloropropylene	50.0	0.00	U	50.6	101	72-133
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	U	46.6	93	74-120
591-78-6	PS	2-Hexanone	250	0.00	U	243	97	31-132
142-28-9	PS	1,3-Dichloropropane	50.0	0.00	U	44.4	89	73-121
127-18-4	PS	Tetrachloroethylene	50.0	0.00	U	41.6	83	54-139
124-48-1	PS	Dibromochloromethane	50.0	0.00	U	52.1	104	74-128
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	U	48.8	98	80-120
108-90-7	PS	Chlorobenzene	50.0	0.00	U	41.2	82	73-119
100-41-4	PS	Ethylbenzene	50.0	0.00	U	40.9	82	66-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **CAMO-13-24238PS**
Lab Sample ID: **1202777500**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/09/2012 19:54**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	PS	m,p-Xylenes	100	0.00	U	79.7	80	56-134
95-47-6	PS	o-Xylene	50.0	0.00	U	40.3	81	68-126
100-42-5	PS	Styrene	50.0	0.00	U	42.3	85	57-138
75-25-2	PS	Bromoform	50.0	0.00	U	55.1	110	66-129
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	U	47.7	95	44-146
96-18-4	PS	1,2,3-Trichloropropane	50.0	0.00	U	46.5	93	68-129
108-86-1	PS	Bromobenzene	50.0	0.00	U	40.5	81	70-122
103-65-1	PS	n-Propylbenzene	50.0	0.00	U	36.5	73	61-131
95-49-8	PS	2-Chlorotoluene	50.0	0.00	U	37.7	75	66-126
98-82-8	PS	Isopropylbenzene	50.0	0.00	U	39.0	78	65-130
108-67-8	PS	1,3,5-Trimethylbenzene	50.0	0.00	U	37.8	76	58-134
106-43-4	PS	4-Chlorotoluene	50.0	0.00	U	37.2	74	63-125
98-06-6	PS	tert-Butylbenzene	50.0	0.00	U	38.1	76	66-129
95-63-6	PS	1,2,4-Trimethylbenzene	50.0	0.00	U	37.6	75	60-131
135-98-8	PS	sec-Butylbenzene	50.0	0.00	U	35.9	72	62-130
99-87-6	PS	4-Isopropyltoluene	50.0	0.00	U	35.4	71	62-132
541-73-1	PS	1,3-Dichlorobenzene	50.0	0.00	U	37.3	75	66-121
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	U	36.6	73	65-119
104-51-8	PS	n-Butylbenzene	50.0	0.00	U	33.0	66	55-134
96-12-8	PS	1,2-Dibromo-3-chloropropane	50.0	0.00	U	53.9	108	58-137
87-68-3	PS	Hexachlorobutadiene	50.0	0.00	U	28.5	57	49-139
91-20-3	PS	Naphthalene	50.0	0.00	U	41.3	83	46-145

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Sample Type: **Post Spike**
Client ID: **CAMO-13-24238PS**
Matrix: **W**
Lab Sample ID: **1202777500**
Instrument: **VOA6.I**
Analysis Date: **11/09/2012 19:54**
Dilution: 1
Analyst: **RXD1**
Prep Batch ID: **1262189**
Purge Vol: **5 mL**
Batch ID: **1262189**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	PS	1,2,3-Trichlorobenzene	50.0	0.00	U	34.3	69	54-134
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	U	48.3	97	79-128
120-82-1	PS	1,2,4-Trichlorobenzene	50.0	0.00	U	34.4	69	55-128
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	U	39.5	79	68-121

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **CAMO-13-24238PSD**
Lab Sample ID: **1202777501**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/09/2012 20:22**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: **1**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
75-71-8	PSD	Dichlorodifluoromethane	50.0	0.00	U	40.7	81	36-123	5	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	U	35.4	71	47-134	5	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	U	36.5	73	49-129	5	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	U	44.1	88	56-127	3	0-20
75-00-3	PSD	Chloroethane	50.0	0.00	U	42.7	85	67-122	2	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	U	44.4	89	60-123	3	0-20
60-29-7	PSD	Ethyl ether	50.0	0.00	U	41.9	84	69-121	2	0-20
67-64-1	PSD	Acetone	250	0.00	U	128	51	30-143	12	0-20
75-05-8	PSD	Acetonitrile	1250	0.00	U	901	72	60-133	10	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	U	47.8	96	67-132	1	0-20
74-88-4	PSD	Iodomethane	250	0.00	U	248	99	69-147	1	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	U	46.2	92	56-135	0	0-20
75-15-0	PSD	Carbon disulfide	250	0.00	U	247	99	65-153	0	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	U	46.3	93	73-126	3	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	U	46.2	92	69-128	1	0-20
108-05-4	PSD	Vinyl acetate	250	0.00	U	205	82	50-143	6	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	U	46.8	94	75-124	0	0-20
78-93-3	PSD	2-Butanone	250	0.00	U	201	80	30-140	13	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	U	46.3	93	52-147	0	0-20
594-20-7	PSD	2,2-Dichloropropane	50.0	0.00	U	46.7	93	67-143	1	0-20
67-66-3	PSD	Chloroform	50.0	0.00	U	47.7	95	75-125	1	0-20
74-97-5	PSD	Bromochloromethane	50.0	0.00	U	47.3	95	80-120	0	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **CAMO-13-24238PSD**
Lab Sample ID: **1202777501**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/09/2012 20:22**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: **1**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
71-55-6	PSD	1,1,1-Trichloroethane	50.0	0.00	U	50.5	101	69-140	0	0-20
563-58-6	PSD	1,1-Dichloropropene	50.0	0.00	U	47.0	94	71-130	0	0-20
71-36-3	PSD	n-Butyl alcohol	5000	0.00	U	4780	96	53-150	13	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	U	51.8	104	69-142	1	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	U	46.2	92	72-126	2	0-20
71-43-2	PSD	Benzene	50.0	0.00	U	44.1	88	73-119	2	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	U	46.6	93	54-147	4	0-20
78-87-5	PSD	1,2-Dichloropropane	50.0	0.00	U	46.0	92	78-123	0	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	U	51.7	103	76-131	1	0-20
74-95-3	PSD	Dibromomethane	50.0	0.00	U	46.9	94	79-120	2	0-20
108-10-1	PSD	4-Methyl-2-pentanone	250	0.00	U	221	88	68-136	9	0-20
10061-01-5	PSD	cis-1,3-Dichloropropylene	50.0	0.00	U	50.5	101	72-134	2	0-20
108-88-3	PSD	Toluene	50.0	0.00	U	45.2	90	62-126	7	0-20
10061-02-6	PSD	trans-1,3-Dichloropropylene	50.0	0.00	U	51.9	104	72-133	3	0-20
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	U	46.7	93	74-120	0	0-20
591-78-6	PSD	2-Hexanone	250	0.00	U	219	88	31-132	10	0-20
142-28-9	PSD	1,3-Dichloropropane	50.0	0.00	U	44.7	89	73-121	1	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	U	45.3	91	54-139	9	0-20
124-48-1	PSD	Dibromochloromethane	50.0	0.00	U	53.3	107	74-128	2	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	U	48.1	96	80-120	2	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.00	U	44.9	90	73-119	9	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	U	46.0	92	66-125	12	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **CAMO-13-24238PSD**
Lab Sample ID: **1202777501**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/09/2012 20:22**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: **1**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	PSD	m,p-Xylenes	100	0.00	U	90.2	90	56-134	12	0-20
95-47-6	PSD	o-Xylene	50.0	0.00	U	45.5	91	68-126	12	0-20
100-42-5	PSD	Styrene	50.0	0.00	U	47.4	95	57-138	11	0-20
75-25-2	PSD	Bromoform	50.0	0.00	U	54.7	109	66-129	1	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	U	46.2	92	44-146	3	0-20
96-18-4	PSD	1,2,3-Trichloropropane	50.0	0.00	U	44.5	89	68-129	4	0-20
108-86-1	PSD	Bromobenzene	50.0	0.00	U	45.0	90	70-122	11	0-20
103-65-1	PSD	n-Propylbenzene	50.0	0.00	U	44.7	89	61-131	20	0-20
95-49-8	PSD	2-Chlorotoluene	50.0	0.00	U	44.1	88	66-126	16	0-20
98-82-8	PSD	Isopropylbenzene	50.0	0.00	U	45.4	91	65-130	15	0-20
108-67-8	PSD	1,3,5-Trimethylbenzene	50.0	0.00	U	45.4	91	58-134	18	0-20
106-43-4	PSD	4-Chlorotoluene	50.0	0.00	U	44.1	88	63-125	17	0-20
98-06-6	PSD	tert-Butylbenzene	50.0	0.00	U	45.4	91	66-129	18	0-20
95-63-6	PSD	1,2,4-Trimethylbenzene	50.0	0.00	U	45.3	91	60-131	19	0-20
135-98-8	PSD	sec-Butylbenzene	50.0	0.00	U	44.8	90	62-130	22 *	0-20
99-87-6	PSD	4-Isopropyltoluene	50.0	0.00	U	45.0	90	62-132	24 *	0-20
541-73-1	PSD	1,3-Dichlorobenzene	50.0	0.00	U	43.7	87	66-121	16	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	U	43.0	86	65-119	16	0-20
104-51-8	PSD	n-Butylbenzene	50.0	0.00	U	43.6	87	55-134	28 *	0-20
96-12-8	PSD	1,2-Dibromo-3-chloropropane	50.0	0.00	U	49.0	98	58-137	10	0-20
87-68-3	PSD	Hexachlorobutadiene	50.0	0.00	U	40.3	81	49-139	34 *	0-20
91-20-3	PSD	Naphthalene	50.0	0.00	U	43.0	86	46-145	4	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Sample Type: **Post Spike Duplicate**
Client ID: **CAMO-13-24238PSD**
Matrix: **W**
Lab Sample ID: **1202777501**
Instrument: **VOA6.I**
Analysis Date: **11/09/2012 20:22**
Dilution: 1
Analyst: **RXD1**
Prep Batch ID: **1262189**
Purge Vol: **5 mL**
Batch ID: **1262189**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
87-61-6	PSD	1,2,3-Trichlorobenzene	50.0	0.00	U	40.0	80	54-134	15	0-20
630-20-6	PSD	1,1,1,2-Tetrachloroethane	50.0	0.00	U	51.4	103	79-128	6	0-20
120-82-1	PSD	1,2,4-Trichlorobenzene	50.0	0.00	U	40.5	81	55-128	16	0-20
95-50-1	PSD	1,2-Dichlorobenzene	50.0	0.00	U	44.7	89	68-121	12	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **LCS for batch 1262189**
Lab Sample ID: **1202777502**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/09/2012 11:03**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	44.0	88	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	41.0	82	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	42.5	85	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	47.0	94	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	46.2	92	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	48.3	97	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	43.7	87	74-120
67-64-1	LCS	Acetone	250	0.0	144	58	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	990	79	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	52.6	105	76-127
74-88-4	LCS	Iodomethane	250	0.0	264	106	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	48.4	97	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	273	109	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	49.2	98	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	50.1	100	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	249	100	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	49.9	100	79-120
78-93-3	LCS	2-Butanone	250	0.0	162	65	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	49.9	100	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	51.7	103	76-145
67-66-3	LCS	Chloroform	50.0	0.0	50.7	101	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	49.3	99	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **LCS for batch 1262189**
Lab Sample ID: **1202777502**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/09/2012 11:03**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	55.1	110	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	52.2	104	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	5150	103	66-138
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	57.1	114	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	47.5	95	75-121
71-43-2	LCS	Benzene	50.0	0.0	47.5	95	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	51.2	102	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	48.9	98	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	55.1	110	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	48.8	98	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	223	89	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	55.0	110	80-127
108-88-3	LCS	Toluene	50.0	0.0	48.7	97	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	55.2	110	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	48.1	96	79-120
591-78-6	LCS	2-Hexanone	250	0.0	183	73	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	46.4	93	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	50.1	100	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	55.6	111	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	49.6	99	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	48.2	96	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	50.3	101	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **LCS for batch 1262189**
Lab Sample ID: **1202777502**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/09/2012 11:03**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	98.9	99	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	49.3	99	80-120
100-42-5	LCS	Styrene	50.0	0.0	52.7	105	80-121
75-25-2	LCS	Bromoform	50.0	0.0	58.4	117	72-125
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	48.8	98	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	46.2	92	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	48.2	96	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	50.4	101	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	48.3	97	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	50.3	101	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	50.7	101	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	49.3	99	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	50.8	102	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	50.8	102	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	50.4	101	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	51.6	103	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	48.6	97	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	48.1	96	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	51.9	104	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	53.7	107	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	47.9	96	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	45.8	92	71-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **LCS for batch 1262189**
Lab Sample ID: **1202777502**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/09/2012 11:03**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	43.1	86	73-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	53.2	106	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	46.5	93	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	48.7	97	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **LCS for batch 1262189**
Lab Sample ID: **1202777503**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/09/2012 12:31**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS	Acrolein	250	0.0	252	101	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	276	110	65-157
107-05-1	LCS	Allyl chloride	250	0.0	226	90	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	213	85	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	57.2	114	45-159
107-12-0	LCS	Propionitrile	250	0.0	218	87	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	220	88	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2230	89	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	234	94	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	241	97	66-132

Method Blank Summary

SDG Number:	**2013-246**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1262189**	**Instrument ID:**	**VOA6.I**	**Data File:**	**110912V6\6J508BA.D**
Lab Sample ID:	**1202777499**	**Prep Date:**	**11/09/2012 13:29**	**Analyzed:**	**11/09/12 13:29**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1262189	1202777502	110912V6\6J503LA.D	11/09/12	1103
02 LCS for batch 1262189	1202777503	110912V6\6J506BA.D	11/09/12	1231
03 CAMO-13-24238	314340001	110912V6\6J511.D	11/09/12	1504
04 CAMO-13-24226	314340004	110912V6\6J512.D	11/09/12	1534
05 CAMO-13-24231	314340005	110912V6\6J513.D	11/09/12	1602
06 CAMO-13-24238PS	1202777500	110912V6\6J521.D	11/09/12	1954
07 CAMO-13-24238PSD	1202777501	110912V6\6J522.D	11/09/12	2022

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777499**				
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262189**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 13:29**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 13:29**				
Data File:	**110912V6\6J508BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777499**				
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262189**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 13:29**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 13:29**				
Data File:	**110912V6\6J508BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777499**				
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262189**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 13:29**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 13:29**				
Data File:	**110912V6\6J508BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.5	50.0	ug/L	97.1	(78%-124%)
Bromofluorobenzene	48.2	50.0	ug/L	96.4	(80%-120%)
Toluene-d8	47.8	50.0	ug/L	95.7	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202777500**	**Date Received:**	**11/01/2012 08:55**		
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 19:54**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 19:54**				
Data File:	**110912V6\6J521.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		42.9	ug/L	0.300	1.00
74-87-3	Chloromethane		37.2	ug/L	0.300	1.00
75-01-4	Vinyl chloride		38.4	ug/L	0.300	1.00
74-83-9	Bromomethane		45.3	ug/L	0.300	1.00
75-00-3	Chloroethane		43.5	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		45.7	ug/L	0.300	1.00
60-29-7	Ethyl ether		42.9	ug/L	0.300	1.00
67-64-1	Acetone	B	144	ug/L	3.00	10.0
75-05-8	Acetonitrile		999	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		48.1	ug/L	0.300	1.00
74-88-4	Iodomethane		249	ug/L	1.50	5.00
75-09-2	Methylene chloride		46.1	ug/L	3.00	10.0
75-15-0	Carbon disulfide		247	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		47.8	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		46.4	ug/L	0.300	1.00
108-05-4	Vinyl acetate		218	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		46.9	ug/L	0.300	1.00
78-93-3	2-Butanone		228	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		46.4	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		46.4	ug/L	0.300	1.00
67-66-3	Chloroform		47.9	ug/L	0.300	1.00
74-97-5	Bromochloromethane		47.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		50.3	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		46.9	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5440	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		51.6	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		47.0	ug/L	0.300	1.00
71-43-2	Benzene		43.3	ug/L	0.300	1.00
79-01-6	Trichloroethylene		44.8	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		45.8	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		51.2	ug/L	0.300	1.00
74-95-3	Dibromomethane		47.7	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		242	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		49.5	ug/L	0.300	1.00
108-88-3	Toluene		42.3	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		50.6	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		46.6	ug/L	0.300	1.00
591-78-6	2-Hexanone		243	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202777500**	**Date Received:**	**11/01/2012 08:55**		
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 19:54**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 19:54**				
Data File:	**110912V6\6J521.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		44.4	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		41.6	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		52.1	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		48.8	ug/L	0.300	1.00
108-90-7	Chlorobenzene		41.2	ug/L	0.300	1.00
100-41-4	Ethylbenzene		40.9	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		79.7	ug/L	0.300	2.00
95-47-6	o-Xylene		40.3	ug/L	0.300	1.00
100-42-5	Styrene		42.3	ug/L	0.300	1.00
75-25-2	Bromoform		55.1	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		47.7	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		46.5	ug/L	0.300	1.00
108-86-1	Bromobenzene		40.5	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		36.5	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		37.7	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		39.0	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		37.8	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		37.2	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		38.1	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		37.6	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		35.9	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		35.4	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		37.3	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		36.6	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		33.0	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		53.9	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		28.5	ug/L	0.300	1.00
91-20-3	Naphthalene		41.3	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		34.3	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202777500**	**Date Received:**	**11/01/2012 08:55**		
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 19:54**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 19:54**				
Data File:	**110912V6\6J521.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		48.3	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		34.4	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		39.5	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	49.8	50.0	ug/L	99.7	(78%-124%)
Bromofluorobenzene	48.7	50.0	ug/L	97.4	(80%-120%)
Toluene-d8	48.5	50.0	ug/L	97.1	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202777501**	**Date Received:**	**11/01/2012 08:55**		
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 20:22**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 20:22**				
Data File:	**110912V6\6J522.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		40.7	ug/L	0.300	1.00
74-87-3	Chloromethane		35.4	ug/L	0.300	1.00
75-01-4	Vinyl chloride		36.5	ug/L	0.300	1.00
74-83-9	Bromomethane		44.1	ug/L	0.300	1.00
75-00-3	Chloroethane		42.7	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		44.4	ug/L	0.300	1.00
60-29-7	Ethyl ether		41.9	ug/L	0.300	1.00
67-64-1	Acetone	B	128	ug/L	3.00	10.0
75-05-8	Acetonitrile		901	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		47.8	ug/L	0.300	1.00
74-88-4	Iodomethane		248	ug/L	1.50	5.00
75-09-2	Methylene chloride		46.2	ug/L	3.00	10.0
75-15-0	Carbon disulfide		247	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		46.3	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		46.2	ug/L	0.300	1.00
108-05-4	Vinyl acetate		205	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		46.8	ug/L	0.300	1.00
78-93-3	2-Butanone		201	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		46.3	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		46.7	ug/L	0.300	1.00
67-66-3	Chloroform		47.7	ug/L	0.300	1.00
74-97-5	Bromochloromethane		47.3	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		50.5	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		47.0	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		4780	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		51.8	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		46.2	ug/L	0.300	1.00
71-43-2	Benzene		44.1	ug/L	0.300	1.00
79-01-6	Trichloroethylene		46.6	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		46.0	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		51.7	ug/L	0.300	1.00
74-95-3	Dibromomethane		46.9	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		221	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		50.5	ug/L	0.300	1.00
108-88-3	Toluene		45.2	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		51.9	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		46.7	ug/L	0.300	1.00
591-78-6	2-Hexanone		219	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202777501**	**Date Received:**	**11/01/2012 08:55**		
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 20:22**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 20:22**				
Data File:	**110912V6\6J522.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		44.7	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		45.3	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		53.3	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		48.1	ug/L	0.300	1.00
108-90-7	Chlorobenzene		44.9	ug/L	0.300	1.00
100-41-4	Ethylbenzene		46.0	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		90.2	ug/L	0.300	2.00
95-47-6	o-Xylene		45.5	ug/L	0.300	1.00
100-42-5	Styrene		47.4	ug/L	0.300	1.00
75-25-2	Bromoform		54.7	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		46.2	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		44.5	ug/L	0.300	1.00
108-86-1	Bromobenzene		45.0	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		44.7	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		44.1	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		45.4	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		45.4	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		44.1	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		45.4	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		45.3	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		44.8	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		45.0	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		43.7	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		43.0	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		43.6	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		49.0	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		40.3	ug/L	0.300	1.00
91-20-3	Naphthalene		43.0	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		40.0	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202777501**	**Date Received:**	**11/01/2012 08:55**		
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 20:22**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 20:22**				
Data File:	**110912V6\6J522.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		51.4	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		40.5	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		44.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.3	50.0	ug/L	96.6	(78%-124%)
Bromofluorobenzene	48.5	50.0	ug/L	97.1	(80%-120%)
Toluene-d8	49.1	50.0	ug/L	98.2	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777502**				
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262189**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 11:03**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 11:03**				
Data File:	**110912V6\6J503LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		44.0	ug/L	0.300	1.00
74-87-3	Chloromethane		41.0	ug/L	0.300	1.00
75-01-4	Vinyl chloride		42.5	ug/L	0.300	1.00
74-83-9	Bromomethane		47.0	ug/L	0.300	1.00
75-00-3	Chloroethane		46.2	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		48.3	ug/L	0.300	1.00
60-29-7	Ethyl ether		43.7	ug/L	0.300	1.00
67-64-1	Acetone	B	144	ug/L	3.00	10.0
75-05-8	Acetonitrile		990	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		52.6	ug/L	0.300	1.00
74-88-4	Iodomethane		264	ug/L	1.50	5.00
75-09-2	Methylene chloride		48.4	ug/L	3.00	10.0
75-15-0	Carbon disulfide		273	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		49.2	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		50.1	ug/L	0.300	1.00
108-05-4	Vinyl acetate		249	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		49.9	ug/L	0.300	1.00
78-93-3	2-Butanone		162	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		49.9	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		51.7	ug/L	0.300	1.00
67-66-3	Chloroform		50.7	ug/L	0.300	1.00
74-97-5	Bromochloromethane		49.3	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		55.1	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		52.2	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5150	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		57.1	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		47.5	ug/L	0.300	1.00
71-43-2	Benzene		47.5	ug/L	0.300	1.00
79-01-6	Trichloroethylene		51.2	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.9	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		55.1	ug/L	0.300	1.00
74-95-3	Dibromomethane		48.8	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		223	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		55.0	ug/L	0.300	1.00
108-88-3	Toluene		48.7	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		55.2	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.1	ug/L	0.300	1.00
591-78-6	2-Hexanone		183	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777502**				
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262189**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 11:03**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 11:03**				
Data File:	**110912V6\6J503LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		46.4	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		50.1	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		55.6	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		49.6	ug/L	0.300	1.00
108-90-7	Chlorobenzene		48.2	ug/L	0.300	1.00
100-41-4	Ethylbenzene		50.3	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		98.9	ug/L	0.300	2.00
95-47-6	o-Xylene		49.3	ug/L	0.300	1.00
100-42-5	Styrene		52.7	ug/L	0.300	1.00
75-25-2	Bromoform		58.4	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		48.8	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		46.2	ug/L	0.300	1.00
108-86-1	Bromobenzene		48.2	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		50.4	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		48.3	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		50.3	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		50.7	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		49.3	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		50.8	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		50.8	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		50.4	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		51.6	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		48.6	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		48.1	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		51.9	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		53.7	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		47.9	ug/L	0.300	1.00
91-20-3	Naphthalene		45.8	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		43.1	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777502**				
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262189**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 11:03**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 11:03**				
Data File:	**110912V6\6J503LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		53.2	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		46.5	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		48.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.1	50.0	ug/L	96.3	(78%-124%)
Bromofluorobenzene	49.2	50.0	ug/L	98.5	(80%-120%)
Toluene-d8	48.2	50.0	ug/L	96.5	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777503**				
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262189**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 12:31**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 12:31**				
Data File:	**110912V6\6J506BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777503**				
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262189**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 12:31**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 12:31**				
Data File:	**110912V6\6J506BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein		252	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		276	ug/L	1.50	5.00
107-05-1	Allyl chloride		226	ug/L	1.50	5.00
107-13-1	Acrylonitrile		213	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		57.2	ug/L	0.300	1.00
107-12-0	Propionitrile		218	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		220	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2230	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		234	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777503**				
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262189**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 12:31**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 12:31**				
Data File:	**110912V6\6J506BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		241	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	51.4	50.0	ug/L	103	(78%-124%)
Bromofluorobenzene	48.5	50.0	ug/L	97.0	(80%-120%)
Toluene-d8	48.5	50.0	ug/L	96.9	(80%-120%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
16-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
VOA GC/MS	SW846 8260B DOE-AL	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1262189	See Below		

Potentially affected work order(s)(SDG): 314340(2013-246),314440(2013-263),314443(2013-259)

Application Issues:

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. QC samples 1202777500 (MS) and 1202777501 (MSD) did not have acceptable calculated RPD values for all analytes.	1. All of the compounds passed recovery for the MS and the MSD.

Originator's Name:

Ryan Dushak 16-NOV-12

Data Validator/Group Leader:

Erin Haubert 20-NOV-12

Semi-Volatile Analysis

Case Narrative

Semi-Volatile Case Narrative
ARS International (ARSL)
SDG 2013-246

Method/Analysis Information

Procedure:	**Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method:	SW846 8270C
Prep Method:	SW846 3510C
Analytical Batch Number:	1260029
Prep Batch Number:	1260028

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8270C:

Sample ID	Client ID
314340001	CAMO-13-24238
314340004	CAMO-13-24226
1202772057	Method Blank (MB)
1202772058	Laboratory Control Sample (LCS)
1202772855	314340001(CAMO-13-24238) Matrix Spike (MS)
1202772856	314340001(CAMO-13-24238) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 29.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 18.2.

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

CCV Requirements
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG in this batch met the acceptance criteria.

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria for this SDG in this batch.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Sample 314340001 (CAMO-13-24238) was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) Recovery Statement
The MS(1202772855(CAMO-13-24238)) recovered Benzidine at 0% (limits: 10%-125%) and Pyridine at 12% (limits: 21%-93%). The LCS and MSD were well within the acceptance limits for Benzidine and Pyridine. Since there was insufficient sample volume remaining to re-extract the parent sample with a MS/MSD pair the data results have been reported.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The MS(1202772855(CAMO-13-24238))/MSD(1202772856(CAMO-13-24238)) RPD value for Aniline was 43% (limit: 30%), for Benzidine was 200% (limit: 30%), and for Pyridine was 125% (limit: 30%). The RPD failures were attributed to the higher recoveries in the MSD when compared to the MS. Since there was insufficient sample volume remaining to re-extract the parent sample with a MS/MSD pair the data results have been reported.

Internal Standard (ISTD) Acceptance
The internal standard responses used to quantitate the requested target analytes were within the required acceptance criteria for the SDG associated samples in this batch.

Technical Information:

Holding Time Specifications
All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire

at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

Sample Dilutions
The samples in this SDG in this batch did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG in this analytical batch unless confirmations or dilutions were required.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception report 1137905 was generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

TIC Comment
Tentatively identified compounds (TIC) may be requested for samples in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

Additional Comments
Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

System Configuration

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description

MSD3.I	Agilent 7890A/5975C GC/MS w/ 7683 Autosampler	HP7890A/HP5975C	DB-5MS	25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-246 GEL Work Order: 314340

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Barbara Bailey **Name: Barbara Bailey**

Date: 27 NOV 2012 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**314340001**	**Date Received:**	**11/01/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24238**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 16:59**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0615.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
62-53-3	Aniline	U	10.0	ug/L	3.00	10.0
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
78-59-1	Isophorone	U	10.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
65-85-0	Benzoic acid	U	20.0	ug/L	6.00	20.0
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene	U	10.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	10.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**314340001**	**Date Received:**	**11/01/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24238**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 16:59**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0615.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline	U	10.0	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene	U	10.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.0	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00
123-91-1	1,4-Dioxane	J	5.28	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**314340001**	**Date Received:**	**11/01/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24238**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 16:59**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0615.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	85.3	100	ug/L	85.3	(23%-130%)
2-Fluorobiphenyl	26.0	50.0	ug/L	52.0	(30%-104%)
2-Fluorophenol	42.9	100	ug/L	42.9	(14%-77%)
Nitrobenzene-d5	32.8	50.0	ug/L	65.6	(34%-125%)
Phenol-d5	27.4	100	ug/L	27.4	(10%-78%)
p-Terphenyl-d14	31.5	50.0	ug/L	63.0	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.892	37.1	ug/L	0	J
	unknown	1.918	7	ug/L	0	J
	unknown	1.977	7.97	ug/L	0	J
001528-21-8	Ethylidenecyclobutane	1.997	14.2	ug/L	90	NJ
	unknown	2.017	4.79	ug/L	0	J

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**314340004**	**Date Received:**	**11/01/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24226**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 18:14**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**970 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0618.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.3	ug/L	3.09	10.3
110-86-1	Pyridine	U	10.3	ug/L	3.09	10.3
62-53-3	Aniline	U	10.3	ug/L	3.09	10.3
108-95-2	Phenol	U	10.3	ug/L	3.09	10.3
111-44-4	bis(2-Chloroethyl) ether	U	10.3	ug/L	3.09	10.3
95-57-8	2-Chlorophenol	U	10.3	ug/L	3.09	10.3
541-73-1	1,3-Dichlorobenzene	U	10.3	ug/L	3.09	10.3
106-46-7	1,4-Dichlorobenzene	U	10.3	ug/L	3.09	10.3
95-50-1	1,2-Dichlorobenzene	U	10.3	ug/L	3.09	10.3
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.3	ug/L	3.09	10.3
100-51-6	Benzyl alcohol	U	10.3	ug/L	3.09	10.3
95-48-7	o-Cresol	U	10.3	ug/L	3.09	10.3
65794-96-9	m,p-Cresols	U	10.3	ug/L	3.09	10.3
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.3	ug/L	3.09	10.3
67-72-1	Hexachloroethane	U	10.3	ug/L	3.09	10.3
98-95-3	Nitrobenzene	U	10.3	ug/L	3.09	10.3
78-59-1	Isophorone	U	10.3	ug/L	3.09	10.3
88-75-5	2-Nitrophenol	U	10.3	ug/L	3.09	10.3
105-67-9	2,4-Dimethylphenol	U	10.3	ug/L	3.09	10.3
111-91-1	bis(2-Chloroethoxy)methane	U	10.3	ug/L	3.09	10.3
120-83-2	2,4-Dichlorophenol	U	10.3	ug/L	3.09	10.3
65-85-0	Benzoic acid	U	20.6	ug/L	6.19	20.6
106-47-8	4-Chloroaniline	U	10.3	ug/L	3.40	10.3
87-68-3	Hexachlorobutadiene	U	10.3	ug/L	3.09	10.3
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.3	ug/L	3.09	10.3
91-57-6	2-Methylnaphthalene	U	1.03	ug/L	0.309	1.03
91-20-3	Naphthalene	U	1.03	ug/L	0.309	1.03
90-12-0	1-Methylnaphthalene	U	1.03	ug/L	0.309	1.03
77-47-4	Hexachlorocyclopentadiene	U	10.3	ug/L	3.09	10.3
88-06-2	2,4,6-Trichlorophenol	U	10.3	ug/L	3.09	10.3
95-95-4	2,4,5-Trichlorophenol	U	10.3	ug/L	3.09	10.3
91-58-7	2-Chloronaphthalene	U	1.03	ug/L	0.309	1.03
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.3	ug/L	3.09	10.3
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.3	ug/L	3.09	10.3
131-11-3	Dimethylphthalate	U	10.3	ug/L	3.09	10.3
606-20-2	2,6-Dinitrotoluene	U	10.3	ug/L	3.09	10.3

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**314340004**	**Date Received:**	**11/01/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24226**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 18:14**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**970 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0618.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.3	ug/L	3.09	10.3
208-96-8	Acenaphthylene	U	1.03	ug/L	0.309	1.03
83-32-9	Acenaphthene	U	1.03	ug/L	0.309	1.03
51-28-5	2,4-Dinitrophenol	U	20.6	ug/L	5.15	20.6
132-64-9	Dibenzofuran	U	10.3	ug/L	3.09	10.3
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.3	ug/L	3.09	10.3
84-66-2	Diethylphthalate	U	10.3	ug/L	3.09	10.3
100-02-7	4-Nitrophenol	U	10.3	ug/L	3.09	10.3
86-73-7	Fluorene	U	1.03	ug/L	0.309	1.03
7005-72-3	4-Chlorophenylphenylether	U	10.3	ug/L	3.09	10.3
100-01-6	4-Nitroaniline	U	10.3	ug/L	3.09	10.3
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.3	ug/L	3.09	10.3
122-39-4	Diphenylamine	U	10.3	ug/L	3.09	10.3
122-66-7	Azobenzene	U	10.3	ug/L	3.09	10.3
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.3	ug/L	3.09	10.3
118-74-1	Hexachlorobenzene	U	10.3	ug/L	3.09	10.3
87-86-5	Pentachlorophenol	U	10.3	ug/L	3.09	10.3
88-85-7	Dinoseb	U	10.3	ug/L	3.09	10.3
85-01-8	Phenanthrene	U	1.03	ug/L	0.309	1.03
120-12-7	Anthracene	U	1.03	ug/L	0.309	1.03
84-74-2	Di-n-butylphthalate	U	10.3	ug/L	3.09	10.3
206-44-0	Fluoranthene	U	1.03	ug/L	0.309	1.03
129-00-0	Pyrene	U	1.03	ug/L	0.309	1.03
85-68-7	Butylbenzylphthalate	U	10.3	ug/L	3.09	10.3
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.3	ug/L	3.09	10.3
56-55-3	Benzo(a)anthracene	U	1.03	ug/L	0.309	1.03
218-01-9	Chrysene	U	1.03	ug/L	0.309	1.03
117-84-0	Di-n-octylphthalate	U	10.3	ug/L	3.09	10.3
205-99-2	Benzo(b)fluoranthene	U	1.03	ug/L	0.309	1.03
207-08-9	Benzo(k)fluoranthene	U	1.03	ug/L	0.309	1.03
50-32-8	Benzo(a)pyrene	U	1.03	ug/L	0.454	1.03
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.03	ug/L	0.309	1.03
53-70-3	Dibenzo(a,h)anthracene	U	1.03	ug/L	0.309	1.03
191-24-2	Benzo(ghi)perylene	U	1.03	ug/L	0.309	1.03
123-91-1	1,4-Dioxane	U	10.3	ug/L	3.09	10.3
55-18-5	N-Nitrosodiethylamine	U	10.3	ug/L	3.09	10.3
930-55-2	N-Nitrosopyrrolidine	U	10.3	ug/L	3.09	10.3

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**314340004**	**Date Received:**	**11/01/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24226**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 18:14**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**970 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0618.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.3	ug/L	3.09	10.3
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.3	ug/L	3.09	10.3
608-93-5	Pentachlorobenzene	U	10.3	ug/L	3.09	10.3
1912-24-9	Atrazine	U	10.3	ug/L	3.09	10.3
92-87-5	Benzidine	U	10.3	ug/L	3.09	10.3
91-94-1	3,3'-Dichlorobenzidine	U	10.3	ug/L	3.09	10.3
120-82-1	1,2,4-Trichlorobenzene	U	10.3	ug/L	3.09	10.3

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	57.0	103	ug/L	55.3	(23%-130%)
2-Fluorobiphenyl	20.7	51.5	ug/L	40.2	(30%-104%)
2-Fluorophenol	30.9	103	ug/L	29.9	(14%-77%)
Nitrobenzene-d5	25.1	51.5	ug/L	48.7	(34%-125%)
Phenol-d5	19.3	103	ug/L	18.7	(10%-78%)
p-Terphenyl-d14	26.8	51.5	ug/L	51.9	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.895	29	ug/L	0	J
	unknown	1.917	5.96	ug/L	0	J
	unknown	1.977	7.59	ug/L	0	J
002597-49-1	Cyclobutane, ethenyl-	2	11	ug/L	94	NJ

Quality Control Summary

Semi-Volatile

Surrogate Recovery Report

SDG Number: 2013-246

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1202772057	MB for batch 1260028	41	26	68	52	87	65
1202772058	LCS for batch 1260028	44	30	69	58	82	59
314340001	CAMO-13-24238	43	27	66	52	85	63
1202772855	CAMO-13-24238MS	56	44	67	56	88	65
1202772856	CAMO-13-24238MSD	54	42	67	54	85	64
314340004	CAMO-13-24226	30	19	49	40	55	52

Surrogate			Acceptance Limits
2FP	=	2-Fluorophenol	(14%-77%)
PHL	=	Phenol-d5	(10%-78%)
NBZ	=	Nitrobenzene-d5	(34%-125%)
FBP	=	2-Fluorobiphenyl	(30%-104%)
TBP	=	2,4,6-Tribromophenol	(23%-130%)
TPH	=	p-Terphenyl-d14	(33%-136%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **LCS for batch 1260028**
Lab Sample ID: **1202772058**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/06/2012 14:04**
Prep Batch ID: **1260028**
Batch ID: **1260029**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	LCS	N-Methyl-N-nitrosomethylam	50.0	0.0	21.7	43	29-86
110-86-1	LCS	Pyridine	50.0	0.0	22.6	45	25-96
62-53-3	LCS	Aniline	50.0	0.0	32.7	65	38-105
108-95-2	LCS	Phenol	50.0	0.0	16.1	32	13-137
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	31.6	63	37-110
95-57-8	LCS	2-Chlorophenol	50.0	0.0	31.0	62	41-98
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	27.2	54	33-86
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	27.0	54	33-87
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	27.2	54	34-86
39638-32-9	LCS	bis(2-Chloroisopropyl)ether	50.0	0.0	30.7	61	30-118
100-51-6	LCS	Benzyl alcohol	50.0	0.0	27.7	55	39-88
95-48-7	LCS	o-Cresol	50.0	0.0	29.8	60	37-89
65794-96-9	LCS	m,p-Cresols	50.0	0.0	34.9	70	33-99
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	33.1	66	40-112
67-72-1	LCS	Hexachloroethane	50.0	0.0	25.9	52	31-87
98-95-3	LCS	Nitrobenzene	50.0	0.0	36.6	73	42-118
78-59-1	LCS	Isophorone	50.0	0.0	38.3	77	50-132
88-75-5	LCS	2-Nitrophenol	50.0	0.0	36.5	73	45-109
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	28.8	58	44-98
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	34.6	69	45-109
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	35.9	72	46-106
65-85-0	LCS	Benzoic acid	100	0.0	43.7	44	4-134

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **LCS for batch 1260028**
Lab Sample ID: **1202772058**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/06/2012 14:04**
Prep Batch ID: **1260028**
Batch ID: **1260029**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	LCS	4-Chloroaniline	50.0	0.0	35.1	70	50-122
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	35.0	70	29-94
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	36.6	73	47-110
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	31.3	63	37-100
91-20-3	LCS	Naphthalene	50.0	0.0	30.7	61	35-97
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	33.0	66	38-105
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	23.1	46	38-79
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	34.3	69	43-108
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	35.0	70	43-110
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	30.8	62	40-96
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	33.3	67	45-116
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	34.2	68	46-123
131-11-3	LCS	Dimethylphthalate	50.0	0.0	37.9	76	53-111
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	35.7	71	52-117
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	36.9	74	46-124
208-96-8	LCS	Acenaphthylene	50.0	0.0	30.9	62	42-105
83-32-9	LCS	Acenaphthene	50.0	0.0	29.0	58	42-103
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	42.3	85	33-105
132-64-9	LCS	Dibenzofuran	50.0	0.0	34.2	68	46-106
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	36.7	73	46-119
84-66-2	LCS	Diethylphthalate	50.0	0.0	35.7	71	52-115
100-02-7	LCS	4-Nitrophenol	50.0	0.0	16.6	33	12-130

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **LCS for batch 1260028**
Lab Sample ID: **1202772058**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/06/2012 14:04**
Prep Batch ID: **1260028**
Batch ID: **1260029**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	LCS	Fluorene	50.0	0.0	32.7	65	44-110
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	36.0	72	41-113
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	36.6	73	39-132
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	43.2	86	39-111
122-39-4	LCS	Diphenylamine	50.0	0.0	32.0	64	47-111
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	32.5	65	41-111
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	38.1	76	42-113
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	36.9	74	44-115
87-86-5	LCS	Pentachlorophenol	50.0	0.0	34.3	69	36-99
85-01-8	LCS	Phenanthrene	50.0	0.0	33.2	66	47-111
120-12-7	LCS	Anthracene	50.0	0.0	32.5	65	46-109
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	33.7	67	49-115
206-44-0	LCS	Fluoranthene	50.0	0.0	33.9	68	45-118
129-00-0	LCS	Pyrene	50.0	0.0	33.3	67	39-126
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	31.3	63	41-121
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	31.2	62	38-124
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	33.7	67	49-110
218-01-9	LCS	Chrysene	50.0	0.0	33.3	67	45-117
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	29.4	59	34-121
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	31.3	63	47-116
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	31.7	63	47-119
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	31.9	64	48-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **LCS for batch 1260028**
Lab Sample ID: **1202772058**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/06/2012 14:04**
Prep Batch ID: **1260028**
Batch ID: **1260029**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	LCS	Indeno(1,2,3-cd)pyrene	50.0	0.0	41.0	82	38-124
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	43.1	86	38-124
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	40.3	81	36-124
123-91-1	LCS	1,4-Dioxane	50.0	0.0	22.1	44	41-69
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	33.6	67	42-105
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	29.9	60	40-93
1912-24-9	LCS	Atrazine	50.0	0.0	25.2	50	47-115
92-87-5	LCS	Benzidine	100	0.0	54.5	55	19-124
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	31.8	64	36-111
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	30.9	62	32-92

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246** **Sample Type:** **Matrix Spike**
Client ID: **CAMO-13-24238MS** **Matrix:** **W**
Lab Sample ID: **1202772855**
Instrument: **MSD3.I** **Analysis Date:** **11/06/2012 17:24** **Dilution: 1**
Analyst: **JLD1** **Prep Batch ID:** **1260028**
Inj. Vol: **1 uL** **Batch ID:** **1260029**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	MS	N-Methyl-N-nitrosomethylam	110	0.00	U	63.8	58	27-85
110-86-1	MS	Pyridine	110	0.00	U	13.3	12 *	21-93
62-53-3	MS	Aniline	110	0.00	U	53.8	49	28-108
108-95-2	MS	Phenol	110	0.00	U	50.9	46	15-100
111-44-4	MS	bis(2-Chloroethyl) ether	110	0.00	U	71.1	65	27-114
95-57-8	MS	2-Chlorophenol	110	0.00	U	70.9	65	32-103
541-73-1	MS	1,3-Dichlorobenzene	110	0.00	U	54.6	50	23-84
106-46-7	MS	1,4-Dichlorobenzene	110	0.00	U	54.8	50	23-88
95-50-1	MS	1,2-Dichlorobenzene	110	0.00	U	55.9	51	24-86
39638-32-9	MS	bis(2-Chloroisopropyl)ether	110	0.00	U	69.9	64	19-122
100-51-6	MS	Benzyl alcohol	110	0.00	U	71.5	65	34-98
95-48-7	MS	o-Cresol	110	0.00	U	71.4	65	29-96
65794-96-9	MS	m,p-Cresols	110	0.00	U	91.3	83	26-111
621-64-7	MS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	110	0.00	U	76.6	70	32-115
67-72-1	MS	Hexachloroethane	110	0.00	U	51.2	47	25-82
98-95-3	MS	Nitrobenzene	110	0.00	U	79.2	72	35-124
78-59-1	MS	Isophorone	110	0.00	U	88.3	80	37-140
88-75-5	MS	2-Nitrophenol	110	0.00	U	78.8	72	33-115
105-67-9	MS	2,4-Dimethylphenol	110	0.00	U	69.4	63	31-106
111-91-1	MS	bis(2-Chloroethoxy)methane	110	0.00	U	77.9	71	35-112
120-83-2	MS	2,4-Dichlorophenol	110	0.00	U	80.1	73	36-110
65-85-0	MS	Benzoic acid	220	0.00	U	137	62	12-108

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **CAMO-13-24238MS**
Lab Sample ID: **1202772855**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/06/2012 17:24**
Prep Batch ID: **1260028**
Batch ID: **1260029**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS	4-Chloroaniline	110	0.00	U	88.9	81	33-120
87-68-3	MS	Hexachlorobutadiene	110	0.00	U	64.8	59	19-96
59-50-7	MS	Parachlorometa cresol *4-Chloro-3-methylphenol*	110	0.00	U	87.3	79	36-116
91-57-6	MS	2-Methylnaphthalene	110	0.00	U	62.4	57	27-103
91-20-3	MS	Naphthalene	110	0.00	U	62.1	57	28-99
90-12-0	MS	1-Methylnaphthalene	110	0.00	U	66.6	61	29-107
77-47-4	MS	Hexachlorocyclopentadiene	110	0.00	U	38.5	35	25-75
88-06-2	MS	2,4,6-Trichlorophenol	110	0.00	U	78.3	71	36-111
95-95-4	MS	2,4,5-Trichlorophenol	110	0.00	U	81.9	75	34-115
91-58-7	MS	2-Chloronaphthalene	110	0.00	U	62.3	57	33-96
88-74-4	MS	2-Nitroaniline *o-Nitroaniline*	110	0.00	U	78.7	72	31-120
99-09-2	MS	3-Nitroaniline *m-Nitroaniline*	110	0.00	U	80.4	73	32-123
131-11-3	MS	Dimethylphthalate	110	0.00	U	90.5	82	43-115
606-20-2	MS	2,6-Dinitrotoluene	110	0.00	U	86.5	79	42-121
121-14-2	MS	2,4-Dinitrotoluene	110	0.00	U	88.6	81	37-125
208-96-8	MS	Acenaphthylene	110	0.00	U	66.3	60	34-103
83-32-9	MS	Acenaphthene	110	0.00	U	62.8	57	31-104
51-28-5	MS	2,4-Dinitrophenol	110	0.00	U	98.9	90	25-108
132-64-9	MS	Dibenzofuran	110	0.00	U	75.7	69	38-106
58-90-2	MS	2,3,4,6-Tetrachlorophenol	110	0.00	U	86.5	79	33-123
84-66-2	MS	Diethylphthalate	110	0.00	U	88.5	81	43-116
100-02-7	MS	4-Nitrophenol	110	0.00	U	52.4	48	26-72

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246** **Sample Type:** **Matrix Spike**

Client ID: **CAMO-13-24238MS** **Matrix:** **W**

Lab Sample ID: **1202772855**

Instrument: **MSD3.I** **Analysis Date:** **11/06/2012 17:24** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1260028**

Inj. Vol: **1 uL** **Batch ID:** **1260029**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	110	0.00	U	74.5	68	33-110
7005-72-3	MS	4-Chlorophenylphenylether	110	0.00	U	81.2	74	30-112
100-01-6	MS	4-Nitroaniline *p-Nitroaniline*	110	0.00	U	76.3	69	28-131
534-52-1	MS	2-Methyl-4,6-dinitrophenol	110	0.00	U	103	94	31-113
122-39-4	MS	Diphenylamine	110	0.00	U	74.9	68	36-110
122-66-7	MS	Azobenzene *1,2-Diphenylhydrazine*	110	0.00	U	77.1	70	33-110
101-55-3	MS	4-Bromophenylphenylether	110	0.00	U	89.4	81	33-111
118-74-1	MS	Hexachlorobenzene	110	0.00	U	89.1	81	36-113
87-86-5	MS	Pentachlorophenol	110	0.00	U	85.3	78	25-110
85-01-8	MS	Phenanthrene	110	0.00	U	79.6	72	36-111
120-12-7	MS	Anthracene	110	0.00	U	77.4	70	36-107
84-74-2	MS	Di-n-butylphthalate	110	0.00	U	85.7	78	38-116
206-44-0	MS	Fluoranthene	110	0.00	U	85.4	78	35-116
129-00-0	MS	Pyrene	110	0.00	U	78.0	71	28-126
85-68-7	MS	Butylbenzylphthalate	110	0.00	U	75.3	69	32-120
117-81-7	MS	bis(2-Ethylhexyl)phthalate	110	0.00	U	75.8	69	30-121
56-55-3	MS	Benzo(a)anthracene	110	0.00	U	80.5	73	38-110
218-01-9	MS	Chrysene	110	0.00	U	80.3	73	35-115
117-84-0	MS	Di-n-octylphthalate	110	0.00	U	70.6	64	30-115
205-99-2	MS	Benzo(b)fluoranthene	110	0.00	U	75.8	69	37-115
207-08-9	MS	Benzo(k)fluoranthene	110	0.00	U	76.0	69	36-118
50-32-8	MS	Benzo(a)pyrene	110	0.00	U	75.6	69	36-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **CAMO-13-24238MS**
Lab Sample ID: **1202772855**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/06/2012 17:24**
Prep Batch ID: **1260028**
Batch ID: **1260029**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	MS	Indeno(1,2,3-cd)pyrene	110	0.00	U	100	91	28-121
53-70-3	MS	Dibenzo(a,h)anthracene	110	0.00	U	105	96	26-124
191-24-2	MS	Benzo(ghi)perylene	110	0.00	U	101	92	25-122
123-91-1	MS	1,4-Dioxane	110	5.28	J	72.6	61	26-90
930-55-2	MS	N-Nitrosopyrrolidine	110	0.00	U	85.4	78	40-113
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	110	0.00	U	57.4	52	32-94
1912-24-9	MS	Atrazine	110	0.00	U	60.9	55	36-119
92-87-5	MS	Benzidine	220	0.00	U	0.00	0 *	10-125
91-94-1	MS	3,3'-Dichlorobenzidine	110	0.00	U	70.9	65	27-109
120-82-1	MS	1,2,4-Trichlorobenzene	110	0.00	U	59.8	54	23-90

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24238MSD** **Matrix:** **W**

Lab Sample ID: **1202772856**

Instrument: **MSD3.I** **Analysis Date:** **11/06/2012 17:49** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1260028**

Inj. Vol: **1 uL** **Batch ID:** **1260029**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
62-75-9	MSD	N-Methyl-N-nitrosomethylam	110	0.00	U	60.7	55	27-85	5	0-30
110-86-1	MSD	Pyridine	110	0.00	U	57.8	53	21-93	125 *	0-30
62-53-3	MSD	Aniline	110	0.00	U	83.3	76	28-108	43 *	0-30
108-95-2	MSD	Phenol	110	0.00	U	48.6	44	15-100	5	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	110	0.00	U	71.3	65	27-114	0	0-30
95-57-8	MSD	2-Chlorophenol	110	0.00	U	72.2	66	32-103	2	0-30
541-73-1	MSD	1,3-Dichlorobenzene	110	0.00	U	57.0	52	23-84	4	0-30
106-46-7	MSD	1,4-Dichlorobenzene	110	0.00	U	57.0	52	23-88	4	0-30
95-50-1	MSD	1,2-Dichlorobenzene	110	0.00	U	57.4	52	24-86	3	0-30
39638-32-9	MSD	bis(2-Chloroisopropyl)ether	110	0.00	U	69.1	63	19-122	1	0-30
100-51-6	MSD	Benzyl alcohol	110	0.00	U	69.2	63	34-98	3	0-30
95-48-7	MSD	o-Cresol	110	0.00	U	71.3	65	29-96	0	0-30
65794-96-9	MSD	m,p-Cresols	110	0.00	U	87.2	79	26-111	5	0-30
621-64-7	MSD	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	110	0.00	U	75.3	69	32-115	2	0-30
67-72-1	MSD	Hexachloroethane	110	0.00	U	52.9	48	25-82	3	0-30
98-95-3	MSD	Nitrobenzene	110	0.00	U	80.1	73	35-124	1	0-30
78-59-1	MSD	Isophorone	110	0.00	U	86.3	79	37-140	2	0-30
88-75-5	MSD	2-Nitrophenol	110	0.00	U	79.6	72	33-115	1	0-30
105-67-9	MSD	2,4-Dimethylphenol	110	0.00	U	61.5	56	31-106	12	0-30
111-91-1	MSD	bis(2-Chloroethoxy)methane	110	0.00	U	75.8	69	35-112	3	0-30
120-83-2	MSD	2,4-Dichlorophenol	110	0.00	U	80.3	73	36-110	0	0-30
65-85-0	MSD	Benzoic acid	220	0.00	U	135	61	12-108	1	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24238MSD** **Matrix:** **W**

Lab Sample ID: **1202772856**

Instrument: **MSD3.I** **Analysis Date:** **11/06/2012 17:49** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1260028**

Inj. Vol: **1 uL** **Batch ID:** **1260029**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
106-47-8	MSD	4-Chloroaniline	110	0.00	U	86.1	78	33-120	3	0-30
87-68-3	MSD	Hexachlorobutadiene	110	0.00	U	65.1	59	19-96	1	0-30
59-50-7	MSD	Parachlorometa cresol *4-Chloro-3-methylphenol*	110	0.00	U	85.2	78	36-116	2	0-30
91-57-6	MSD	2-Methylnaphthalene	110	0.00	U	62.5	57	27-103	0	0-30
91-20-3	MSD	Naphthalene	110	0.00	U	62.7	57	28-99	1	0-30
90-12-0	MSD	1-Methylnaphthalene	110	0.00	U	66.3	60	29-107	0	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	110	0.00	U	37.3	34	25-75	3	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	110	0.00	U	76.7	70	36-111	2	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	110	0.00	U	80.7	73	34-115	1	0-30
91-58-7	MSD	2-Chloronaphthalene	110	0.00	U	61.6	56	33-96	1	0-30
88-74-4	MSD	2-Nitroaniline *o-Nitroaniline*	110	0.00	U	76.8	70	31-120	2	0-30
99-09-2	MSD	3-Nitroaniline *m-Nitroaniline*	110	0.00	U	80.2	73	32-123	0	0-30
131-11-3	MSD	Dimethylphthalate	110	0.00	U	87.5	80	43-115	3	0-30
606-20-2	MSD	2,6-Dinitrotoluene	110	0.00	U	83.2	76	42-121	4	0-30
121-14-2	MSD	2,4-Dinitrotoluene	110	0.00	U	87.2	79	37-125	2	0-30
208-96-8	MSD	Acenaphthylene	110	0.00	U	64.5	59	34-103	3	0-30
83-32-9	MSD	Acenaphthene	110	0.00	U	60.5	55	31-104	4	0-30
51-28-5	MSD	2,4-Dinitrophenol	110	0.00	U	99.4	90	25-108	0	0-30
132-64-9	MSD	Dibenzofuran	110	0.00	U	73.1	66	38-106	4	0-30
58-90-2	MSD	2,3,4,6-Tetrachlorophenol	110	0.00	U	85.7	78	33-123	1	0-30
84-66-2	MSD	Diethylphthalate	110	0.00	U	84.8	77	43-116	4	0-30
100-02-7	MSD	4-Nitrophenol	110	0.00	U	50.9	46	26-72	3	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24238MSD** **Matrix:** **W**

Lab Sample ID: **1202772856**

Instrument: **MSD3.I** **Analysis Date:** **11/06/2012 17:49** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1260028**

Inj. Vol: **1 uL** **Batch ID:** **1260029**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
86-73-7	MSD	Fluorene	110	0.00	U	72.5	66	33-110	3	0-30
7005-72-3	MSD	4-Chlorophenylphenylether	110	0.00	U	78.4	71	30-112	3	0-30
100-01-6	MSD	4-Nitroaniline *p-Nitroaniline*	110	0.00	U	84.5	77	28-131	10	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	110	0.00	U	102	93	31-113	1	0-30
122-39-4	MSD	Diphenylamine	110	0.00	U	72.2	66	36-110	4	0-30
122-66-7	MSD	Azobenzene *1,2-Diphenylhydrazine*	110	0.00	U	74.1	67	33-110	4	0-30
101-55-3	MSD	4-Bromophenylphenylether	110	0.00	U	85.6	78	33-111	4	0-30
118-74-1	MSD	Hexachlorobenzene	110	0.00	U	85.8	78	36-113	4	0-30
87-86-5	MSD	Pentachlorophenol	110	0.00	U	80.8	74	25-110	5	0-30
85-01-8	MSD	Phenanthrene	110	0.00	U	77.4	70	36-111	3	0-30
120-12-7	MSD	Anthracene	110	0.00	U	76.0	69	36-107	2	0-30
84-74-2	MSD	Di-n-butylphthalate	110	0.00	U	79.7	73	38-116	7	0-30
206-44-0	MSD	Fluoranthene	110	0.00	U	79.1	72	35-116	8	0-30
129-00-0	MSD	Pyrene	110	0.00	U	78.1	71	28-126	0	0-30
85-68-7	MSD	Butylbenzylphthalate	110	0.00	U	73.2	67	32-120	3	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	110	0.00	U	73.1	67	30-121	4	0-30
56-55-3	MSD	Benzo(a)anthracene	110	0.00	U	79.1	72	38-110	2	0-30
218-01-9	MSD	Chrysene	110	0.00	U	78.7	72	35-115	2	0-30
117-84-0	MSD	Di-n-octylphthalate	110	0.00	U	68.6	62	30-115	3	0-30
205-99-2	MSD	Benzo(b)fluoranthene	110	0.00	U	74.9	68	37-115	1	0-30
207-08-9	MSD	Benzo(k)fluoranthene	110	0.00	U	78.8	72	36-118	4	0-30
50-32-8	MSD	Benzo(a)pyrene	110	0.00	U	74.2	67	36-109	2	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **CAMO-13-24238MSD**
Lab Sample ID: **1202772856**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/06/2012 17:49**
Prep Batch ID: **1260028**
Batch ID: **1260029**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
193-39-5	MSD	Indeno(1,2,3-cd)pyrene	110	0.00	U	93.8	85	28-121	7	0-30
53-70-3	MSD	Dibenzo(a,h)anthracene	110	0.00	U	98.0	89	26-124	7	0-30
191-24-2	MSD	Benzo(ghi)perylene	110	0.00	U	92.0	84	25-122	9	0-30
123-91-1	MSD	1,4-Dioxane	110	5.28	J	67.4	57	26-90	7	0-30
930-55-2	MSD	N-Nitrosopyrrolidine	110	0.00	U	81.7	74	40-113	4	0-30
95-94-3	MSD	1,2,4,5-Tetrachlorobenzene	110	0.00	U	57.0	52	32-94	1	0-30
1912-24-9	MSD	Atrazine	110	0.00	U	56.3	51	36-119	8	0-30
92-87-5	MSD	Benzidine	220	0.00	U	81.8	37	10-125	200 *	0-30
91-94-1	MSD	3,3'-Dichlorobenzidine	110	0.00	U	70.2	64	27-109	1	0-30
120-82-1	MSD	1,2,4-Trichlorobenzene	110	0.00	U	61.3	56	23-90	2	0-30

Method Blank Summary

SDG Number:	**2013-246**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1260028**	**Instrument ID:**	**MSD3.I**	**Data File:**	**S110612.B\s3k0607.D**
Lab Sample ID:	**1202772057**	**Prep Date:**	**11/05/2012 12:15**	**Analyzed:**	**11/06/12 13:39**
Column:	**DB-5ms**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1260028	1202772058	S110612.B\s3k0608.D	11/06/12	1404
02 CAMO-13-24238	314340001	S110612.B\s3k0615.D	11/06/12	1659
03 CAMO-13-24238MS	1202772855	S110612.B\s3k0616.D	11/06/12	1724
04 CAMO-13-24238MSD	1202772856	S110612.B\s3k0617.D	11/06/12	1749
05 CAMO-13-24226	314340004	S110612.B\s3k0618.D	11/06/12	1814

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**			**Matrix:**	**WATER**
Lab Sample ID:	**1202772057**				
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1260028**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 13:39**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0607.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
62-53-3	Aniline	U	10.0	ug/L	3.00	10.0
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
78-59-1	Isophorone	U	10.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
65-85-0	Benzoic acid	U	20.0	ug/L	6.00	20.0
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene	U	10.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	10.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**			**Matrix:**	**WATER**
Lab Sample ID:	**1202772057**				
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1260028**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 13:39**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0607.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline	U	10.0	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene	U	10.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.0	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**			**Matrix:**	**WATER**
Lab Sample ID:	**1202772057**				
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1260028**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 13:39**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0607.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	86.5	100	ug/L	86.5	(23%-130%)
2-Fluorobiphenyl	26.2	50.0	ug/L	52.5	(30%-104%)
2-Fluorophenol	41.3	100	ug/L	41.3	(14%-77%)
Nitrobenzene-d5	34.2	50.0	ug/L	68.4	(34%-125%)
Phenol-d5	25.8	100	ug/L	25.8	(10%-78%)
p-Terphenyl-d14	32.5	50.0	ug/L	65.0	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.9	40.7	ug/L	0	J
	unknown	1.991	9.14	ug/L	0	J
000110-83-8	Cyclohexene	2.017	19.9	ug/L	94	NJ

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**			**Matrix:**	**WATER**
Lab Sample ID:	**1202772058**				
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1260028**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 14:04**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0608.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		21.7	ug/L	3.00	10.0
110-86-1	Pyridine		22.6	ug/L	3.00	10.0
62-53-3	Aniline		32.7	ug/L	3.00	10.0
108-95-2	Phenol		16.1	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		31.6	ug/L	3.00	10.0
95-57-8	2-Chlorophenol		31.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		27.2	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		27.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		27.2	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether		30.7	ug/L	3.00	10.0
100-51-6	Benzyl alcohol		27.7	ug/L	3.00	10.0
95-48-7	o-Cresol		29.8	ug/L	3.00	10.0
65794-96-9	m,p-Cresols		34.9	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		33.1	ug/L	3.00	10.0
67-72-1	Hexachloroethane		25.9	ug/L	3.00	10.0
98-95-3	Nitrobenzene		36.6	ug/L	3.00	10.0
78-59-1	Isophorone		38.3	ug/L	3.00	10.0
88-75-5	2-Nitrophenol		36.5	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		28.8	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		34.6	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		35.9	ug/L	3.00	10.0
65-85-0	Benzoic acid		43.7	ug/L	6.00	20.0
106-47-8	4-Chloroaniline		35.1	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene		35.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		36.6	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		31.3	ug/L	0.300	1.00
91-20-3	Naphthalene		30.7	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene		33.0	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene		23.1	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		34.3	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		35.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		30.8	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*		33.3	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		34.2	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		37.9	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		35.7	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**			**Matrix:**	**WATER**
Lab Sample ID:	**1202772058**				
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1260028**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 14:04**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0608.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		36.9	ug/L	3.00	10.0
208-96-8	Acenaphthylene		30.9	ug/L	0.300	1.00
83-32-9	Acenaphthene		29.0	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol		42.3	ug/L	5.00	20.0
132-64-9	Dibenzofuran		34.2	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol		36.7	ug/L	3.00	10.0
84-66-2	Diethylphthalate		35.7	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		16.6	ug/L	3.00	10.0
86-73-7	Fluorene		32.7	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether		36.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline		36.6	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		43.2	ug/L	3.00	10.0
122-39-4	Diphenylamine		32.0	ug/L	3.00	10.0
122-66-7	Azobenzene		32.5	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		38.1	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene		36.9	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		34.3	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene		33.2	ug/L	0.300	1.00
120-12-7	Anthracene		32.5	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		33.7	ug/L	3.00	10.0
206-44-0	Fluoranthene		33.9	ug/L	0.300	1.00
129-00-0	Pyrene		33.3	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate		31.3	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		31.2	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene		33.7	ug/L	0.300	1.00
218-01-9	Chrysene		33.3	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate		29.4	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene		31.3	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		31.7	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		31.9	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene		41.0	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene		43.1	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		40.3	ug/L	0.300	1.00
123-91-1	1,4-Dioxane		22.1	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		33.6	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**			**Matrix:**	**WATER**
Lab Sample ID:	**1202772058**				
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1260028**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 14:04**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0608.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene		29.9	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine		25.2	ug/L	3.00	10.0
92-87-5	Benzidine		54.5	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		31.8	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		30.9	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	81.7	100	ug/L	81.7	(23%-130%)
2-Fluorobiphenyl	29.1	50.0	ug/L	58.3	(30%-104%)
2-Fluorophenol	44.2	100	ug/L	44.2	(14%-77%)
Nitrobenzene-d5	34.3	50.0	ug/L	68.7	(34%-125%)
Phenol-d5	29.9	100	ug/L	29.9	(10%-78%)
p-Terphenyl-d14	29.7	50.0	ug/L	59.4	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202772855**	**Date Received:**	**11/01/2012 09:00**		
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 17:24**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**455 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0616.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		63.8	ug/L	6.59	22.0
110-86-1	Pyridine	J	13.3	ug/L	6.59	22.0
62-53-3	Aniline		53.8	ug/L	6.59	22.0
108-95-2	Phenol		50.9	ug/L	6.59	22.0
111-44-4	bis(2-Chloroethyl) ether		71.1	ug/L	6.59	22.0
95-57-8	2-Chlorophenol		70.9	ug/L	6.59	22.0
541-73-1	1,3-Dichlorobenzene		54.6	ug/L	6.59	22.0
106-46-7	1,4-Dichlorobenzene		54.8	ug/L	6.59	22.0
95-50-1	1,2-Dichlorobenzene		55.9	ug/L	6.59	22.0
39638-32-9	bis(2-Chloroisopropyl)ether		69.9	ug/L	6.59	22.0
100-51-6	Benzyl alcohol		71.5	ug/L	6.59	22.0
95-48-7	o-Cresol		71.4	ug/L	6.59	22.0
65794-96-9	m,p-Cresols		91.3	ug/L	6.59	22.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		76.6	ug/L	6.59	22.0
67-72-1	Hexachloroethane		51.2	ug/L	6.59	22.0
98-95-3	Nitrobenzene		79.2	ug/L	6.59	22.0
78-59-1	Isophorone		88.3	ug/L	6.59	22.0
88-75-5	2-Nitrophenol		78.8	ug/L	6.59	22.0
105-67-9	2,4-Dimethylphenol		69.4	ug/L	6.59	22.0
111-91-1	bis(2-Chloroethoxy)methane		77.9	ug/L	6.59	22.0
120-83-2	2,4-Dichlorophenol		80.1	ug/L	6.59	22.0
65-85-0	Benzoic acid		137	ug/L	13.2	44.0
106-47-8	4-Chloroaniline		88.9	ug/L	7.25	22.0
87-68-3	Hexachlorobutadiene		64.8	ug/L	6.59	22.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		87.3	ug/L	6.59	22.0
91-57-6	2-Methylnaphthalene		62.4	ug/L	0.659	2.20
91-20-3	Naphthalene		62.1	ug/L	0.659	2.20
90-12-0	1-Methylnaphthalene		66.6	ug/L	0.659	2.20
77-47-4	Hexachlorocyclopentadiene		38.5	ug/L	6.59	22.0
88-06-2	2,4,6-Trichlorophenol		78.3	ug/L	6.59	22.0
95-95-4	2,4,5-Trichlorophenol		81.9	ug/L	6.59	22.0
91-58-7	2-Chloronaphthalene		62.3	ug/L	0.659	2.20
88-74-4	2-Nitroaniline *o-Nitroaniline*		78.7	ug/L	6.59	22.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		80.4	ug/L	6.59	22.0
131-11-3	Dimethylphthalate		90.5	ug/L	6.59	22.0
606-20-2	2,6-Dinitrotoluene		86.5	ug/L	6.59	22.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202772855**	**Date Received:**	**11/01/2012 09:00**		
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 17:24**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**455 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0616.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		88.6	ug/L	6.59	22.0
208-96-8	Acenaphthylene		66.3	ug/L	0.659	2.20
83-32-9	Acenaphthene		62.8	ug/L	0.659	2.20
51-28-5	2,4-Dinitrophenol		98.9	ug/L	11.0	44.0
132-64-9	Dibenzofuran		75.7	ug/L	6.59	22.0
58-90-2	2,3,4,6-Tetrachlorophenol		86.5	ug/L	6.59	22.0
84-66-2	Diethylphthalate		88.5	ug/L	6.59	22.0
100-02-7	4-Nitrophenol		52.4	ug/L	6.59	22.0
86-73-7	Fluorene		74.5	ug/L	0.659	2.20
7005-72-3	4-Chlorophenylphenylether		81.2	ug/L	6.59	22.0
100-01-6	4-Nitroaniline		76.3	ug/L	6.59	22.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		103	ug/L	6.59	22.0
122-39-4	Diphenylamine		74.9	ug/L	6.59	22.0
122-66-7	Azobenzene		77.1	ug/L	6.59	22.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		89.4	ug/L	6.59	22.0
118-74-1	Hexachlorobenzene		89.1	ug/L	6.59	22.0
87-86-5	Pentachlorophenol		85.3	ug/L	6.59	22.0
88-85-7	Dinoseb	U	22.0	ug/L	6.59	22.0
85-01-8	Phenanthrene		79.6	ug/L	0.659	2.20
120-12-7	Anthracene		77.4	ug/L	0.659	2.20
84-74-2	Di-n-butylphthalate		85.7	ug/L	6.59	22.0
206-44-0	Fluoranthene		85.4	ug/L	0.659	2.20
129-00-0	Pyrene		78.0	ug/L	0.659	2.20
85-68-7	Butylbenzylphthalate		75.3	ug/L	6.59	22.0
117-81-7	bis(2-Ethylhexyl)phthalate		75.8	ug/L	6.59	22.0
56-55-3	Benzo(a)anthracene		80.5	ug/L	0.659	2.20
218-01-9	Chrysene		80.3	ug/L	0.659	2.20
117-84-0	Di-n-octylphthalate		70.6	ug/L	6.59	22.0
205-99-2	Benzo(b)fluoranthene		75.8	ug/L	0.659	2.20
207-08-9	Benzo(k)fluoranthene		76.0	ug/L	0.659	2.20
50-32-8	Benzo(a)pyrene		75.6	ug/L	0.967	2.20
193-39-5	Indeno(1,2,3-cd)pyrene		100	ug/L	0.659	2.20
53-70-3	Dibenzo(a,h)anthracene		105	ug/L	0.659	2.20
191-24-2	Benzo(ghi)perylene		101	ug/L	0.659	2.20
123-91-1	1,4-Dioxane		72.6	ug/L	6.59	22.0
55-18-5	N-Nitrosodiethylamine	U	22.0	ug/L	6.59	22.0
930-55-2	N-Nitrosopyrrolidine		85.4	ug/L	6.59	22.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202772855**	**Date Received:**	**11/01/2012 09:00**		
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 17:24**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**455 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0616.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	22.0	ug/L	6.59	22.0
95-94-3	1,2,4,5-Tetrachlorobenzene		57.4	ug/L	6.59	22.0
608-93-5	Pentachlorobenzene	U	22.0	ug/L	6.59	22.0
1912-24-9	Atrazine		60.9	ug/L	6.59	22.0
92-87-5	Benzidine	U	22.0	ug/L	6.59	22.0
91-94-1	3,3'-Dichlorobenzidine		70.9	ug/L	6.59	22.0
120-82-1	1,2,4-Trichlorobenzene		59.8	ug/L	6.59	22.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	193	220	ug/L	87.8	(23%-130%)
2-Fluorobiphenyl	61.7	110	ug/L	56.2	(30%-104%)
2-Fluorophenol	123	220	ug/L	56.0	(14%-77%)
Nitrobenzene-d5	73.7	110	ug/L	67.0	(34%-125%)
Phenol-d5	96.8	220	ug/L	44.0	(10%-78%)
p-Terphenyl-d14	71.9	110	ug/L	65.5	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202772856**	**Date Received:**	**11/01/2012 09:00**		
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 17:49**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**455 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0617.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		60.7	ug/L	6.59	22.0
110-86-1	Pyridine		57.8	ug/L	6.59	22.0
62-53-3	Aniline		83.3	ug/L	6.59	22.0
108-95-2	Phenol		48.6	ug/L	6.59	22.0
111-44-4	bis(2-Chloroethyl) ether		71.3	ug/L	6.59	22.0
95-57-8	2-Chlorophenol		72.2	ug/L	6.59	22.0
541-73-1	1,3-Dichlorobenzene		57.0	ug/L	6.59	22.0
106-46-7	1,4-Dichlorobenzene		57.0	ug/L	6.59	22.0
95-50-1	1,2-Dichlorobenzene		57.4	ug/L	6.59	22.0
39638-32-9	bis(2-Chloroisopropyl)ether		69.1	ug/L	6.59	22.0
100-51-6	Benzyl alcohol		69.2	ug/L	6.59	22.0
95-48-7	o-Cresol		71.3	ug/L	6.59	22.0
65794-96-9	m,p-Cresols		87.2	ug/L	6.59	22.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		75.3	ug/L	6.59	22.0
67-72-1	Hexachloroethane		52.9	ug/L	6.59	22.0
98-95-3	Nitrobenzene		80.1	ug/L	6.59	22.0
78-59-1	Isophorone		86.3	ug/L	6.59	22.0
88-75-5	2-Nitrophenol		79.6	ug/L	6.59	22.0
105-67-9	2,4-Dimethylphenol		61.5	ug/L	6.59	22.0
111-91-1	bis(2-Chloroethoxy)methane		75.8	ug/L	6.59	22.0
120-83-2	2,4-Dichlorophenol		80.3	ug/L	6.59	22.0
65-85-0	Benzoic acid		135	ug/L	13.2	44.0
106-47-8	4-Chloroaniline		86.1	ug/L	7.25	22.0
87-68-3	Hexachlorobutadiene		65.1	ug/L	6.59	22.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		85.2	ug/L	6.59	22.0
91-57-6	2-Methylnaphthalene		62.5	ug/L	0.659	2.20
91-20-3	Naphthalene		62.7	ug/L	0.659	2.20
90-12-0	1-Methylnaphthalene		66.3	ug/L	0.659	2.20
77-47-4	Hexachlorocyclopentadiene		37.3	ug/L	6.59	22.0
88-06-2	2,4,6-Trichlorophenol		76.7	ug/L	6.59	22.0
95-95-4	2,4,5-Trichlorophenol		80.7	ug/L	6.59	22.0
91-58-7	2-Chloronaphthalene		61.6	ug/L	0.659	2.20
88-74-4	2-Nitroaniline *o-Nitroaniline*		76.8	ug/L	6.59	22.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		80.2	ug/L	6.59	22.0
131-11-3	Dimethylphthalate		87.5	ug/L	6.59	22.0
606-20-2	2,6-Dinitrotoluene		83.2	ug/L	6.59	22.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202772856**	**Date Received:**	**11/01/2012 09:00**		
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 17:49**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**455 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0617.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		87.2	ug/L	6.59	22.0
208-96-8	Acenaphthylene		64.5	ug/L	0.659	2.20
83-32-9	Acenaphthene		60.5	ug/L	0.659	2.20
51-28-5	2,4-Dinitrophenol		99.4	ug/L	11.0	44.0
132-64-9	Dibenzofuran		73.1	ug/L	6.59	22.0
58-90-2	2,3,4,6-Tetrachlorophenol		85.7	ug/L	6.59	22.0
84-66-2	Diethylphthalate		84.8	ug/L	6.59	22.0
100-02-7	4-Nitrophenol		50.9	ug/L	6.59	22.0
86-73-7	Fluorene		72.5	ug/L	0.659	2.20
7005-72-3	4-Chlorophenylphenylether		78.4	ug/L	6.59	22.0
100-01-6	4-Nitroaniline		84.5	ug/L	6.59	22.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		102	ug/L	6.59	22.0
122-39-4	Diphenylamine		72.2	ug/L	6.59	22.0
122-66-7	Azobenzene		74.1	ug/L	6.59	22.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		85.6	ug/L	6.59	22.0
118-74-1	Hexachlorobenzene		85.8	ug/L	6.59	22.0
87-86-5	Pentachlorophenol		80.8	ug/L	6.59	22.0
88-85-7	Dinoseb	U	22.0	ug/L	6.59	22.0
85-01-8	Phenanthrene		77.4	ug/L	0.659	2.20
120-12-7	Anthracene		76.0	ug/L	0.659	2.20
84-74-2	Di-n-butylphthalate		79.7	ug/L	6.59	22.0
206-44-0	Fluoranthene		79.1	ug/L	0.659	2.20
129-00-0	Pyrene		78.1	ug/L	0.659	2.20
85-68-7	Butylbenzylphthalate		73.2	ug/L	6.59	22.0
117-81-7	bis(2-Ethylhexyl)phthalate		73.1	ug/L	6.59	22.0
56-55-3	Benzo(a)anthracene		79.1	ug/L	0.659	2.20
218-01-9	Chrysene		78.7	ug/L	0.659	2.20
117-84-0	Di-n-octylphthalate		68.6	ug/L	6.59	22.0
205-99-2	Benzo(b)fluoranthene		74.9	ug/L	0.659	2.20
207-08-9	Benzo(k)fluoranthene		78.8	ug/L	0.659	2.20
50-32-8	Benzo(a)pyrene		74.2	ug/L	0.967	2.20
193-39-5	Indeno(1,2,3-cd)pyrene		93.8	ug/L	0.659	2.20
53-70-3	Dibenzo(a,h)anthracene		98.0	ug/L	0.659	2.20
191-24-2	Benzo(ghi)perylene		92.0	ug/L	0.659	2.20
123-91-1	1,4-Dioxane		67.4	ug/L	6.59	22.0
55-18-5	N-Nitrosodiethylamine	U	22.0	ug/L	6.59	22.0
930-55-2	N-Nitrosopyrrolidine		81.7	ug/L	6.59	22.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202772856**	**Date Received:**	**11/01/2012 09:00**		
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 17:49**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**455 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0617.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	22.0	ug/L	6.59	22.0
95-94-3	1,2,4,5-Tetrachlorobenzene		57.0	ug/L	6.59	22.0
608-93-5	Pentachlorobenzene	U	22.0	ug/L	6.59	22.0
1912-24-9	Atrazine		56.3	ug/L	6.59	22.0
92-87-5	Benzidine		81.8	ug/L	6.59	22.0
91-94-1	3,3'-Dichlorobenzidine		70.2	ug/L	6.59	22.0
120-82-1	1,2,4-Trichlorobenzene		61.3	ug/L	6.59	22.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	186	220	ug/L	84.7	(23%-130%)
2-Fluorobiphenyl	59.1	110	ug/L	53.8	(30%-104%)
2-Fluorophenol	119	220	ug/L	53.9	(14%-77%)
Nitrobenzene-d5	73.5	110	ug/L	66.9	(34%-125%)
Phenol-d5	91.2	220	ug/L	41.5	(10%-78%)
p-Terphenyl-d14	70.5	110	ug/L	64.2	(33%-136%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
08-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 8270C	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1260029	See Below		

Potentially affected work order(s)(SDG): 314340(2013-246),314440(2013-263),314443(2013-259)

Application Issues:

Failed Recovery for MS/PS

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. The MS(1202772855) recovered Benzidine at 0% (limits: 10%-125%) and Pyridine at 12% (limits: 21%-93%).	1. The LCS and MSD were well within the acceptance limits for Benzidine and Pyridine. Since there was insufficient sample volume remaining to re-extract the parent sample with a MS/MSD pair the data results have been reported.
2. The MS(1202772855)/MSD(1202772856) RPD value for Aniline was 43% (limit: 30%), for Benzidine was 200% (limit: 30%), and for Pyridine was 125% (limit: 30%).	2. The RPD failures were attributed to the higher recoveries in the MSD when compared to the MS. Since there was insufficient sample volume remaining to re-extract the parent sample with a MS/MSD pair the data results have been reported.

Originator's Name:

Jennifer Dunagan Jones 08-NOV-12

Data Validator/Group Leader:

Barbara Bailey 09-NOV-12

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC/MSMS
ARS International (ARSL)
SDG 2013-246

Method/Analysis Information

Procedure:	**Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method:	SW846 6850 Modified
Prep Method:	SW846 6850 Modified
Analytical Batch Number:	1260140
Prep Batch Number:	1260138

Sample Analysis

Sample ID	Client ID
314340002	CAMO-13-24255
1202772362	Interference Check Sample (ICS)
1202772358	Method Blank (MB)
1202772359	Laboratory Control Sample (LCS)
1202772360	314443002(CAMO-13-24259) Matrix Spike (MS)
1202772361	314443002(CAMO-13-24259) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 9.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

ICV Requirements
All associated initial calibration verification standards (ICV) met the acceptance criteria.

CCB Requirements
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

CCV Requirements
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

Low Level Standard (CRI) Requirements
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Interference Check Sample (ICS)
The interference check sample (ICS) met all recovery acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Client sample 314443002 (CAMO-13-24259) from SDG 2013-259 was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
A negative recovery of -28.4% was observed for Perchlorate-101 in MS (1202772360). The acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

Matrix Spike Duplicate (MSD) Recovery Statement
Low recoveries were observed for Perchlorate and Perchlorate-101 in MSD (1202772361). The recoveries were 63% and 3.9% respectively and the acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits.

Retention Time Standard Area Acceptance
The retention time standard areas were within the required acceptance criteria for all samples and QC.

Retention Time
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Sample 314340002 (CAMO-13-24255) and QC samples 1202772360 (CAMO-13-24259MS) and 1202772361 (CAMO-13-24259MSD) were diluted to bring the over range concentrations within the calibration range.

Parmname	**314340002**
All	100X

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG.

Miscellaneous Information

Data Exception (DER) Documentation
Data Exception Report 1138672 was generated for this SDG.

A negative recovery of -28.4% was observed for Perchlorate-101 in MS (1202772360). The acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

Low recoveries were observed for Perchlorate and Perchlorate-101 in MSD (1202772361). The recoveries were 63% and 3.9% respectively and the acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

Additional Comments
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples.

Please see the isotope ratio criteria in the Miscellaneous Section.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-246 GEL Work Order: 314340

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 12 NOV 2012 **Title: Group Leader**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24255

Date Received: 01-NOV-12

GEL Job No (SDG): 2013-246

GEL Sample ID: 314340002

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	5	20	75.0	ug/L		100	09-NOV-12 13:07	per1109012a
	Perchlorate Isotope Ratio			3.14			100	09-NOV-12 13:07	per1109012a
14797-73-0	Perchlorate-101	5	20	78.3	ug/L		100	09-NOV-12 13:07	per1109012a
	Perchlorate-O(18)			49.9	ug/L		100	09-NOV-12 13:07	per1109012a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2013-246

Extract Batch Code: 1260138

Date Filtered: 07-NOV-12

Matrix: WATER

Sample ID: 1202772359

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.213	ug/L	107		85 - 115
Perchlorate Isotope Ratio		3.25				-
Perchlorate-101	0.200	.212	ug/L	106		85 - 115
Perchlorate-O(18)		.479	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2013-246

Extract Batch Code: 1260138

Date Extracted: 07-NOV-12

GEL MS/PS ID: 1202772360

Client ID: CAMO-13-24259

GEL MSD/PSD ID: 1202772361

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Recovery Limit
Perchlorate	0.200	7.86	ug/L	8.04	93.3		7.98	62.6	*	.766		30	75 - 125
Perchlorate Isotope Ratio	0	3.18		3.28			3.23			1.57			-
Perchlorate-101	0.200	8.09	ug/L	8.03	-28.4	*	8.09	3.89	*	.802		30	75 - 125
Perchlorate-O(18)	0	4.99	ug/L	4.97			4.95			.302			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-246

GEL Sample ID: 1202772358

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	08-NOV-12 16:16	per1108012a
	Perchlorate Isotope Ratio						1	08-NOV-12 16:16	per1108012a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	08-NOV-12 16:16	per1108012a
	Perchlorate-O(18)			0.471	ug/L		1	08-NOV-12 16:16	per1108012a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-246

GEL Sample ID: 1202772359

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.213	ug/L		1	08-NOV-12 16:24	per1108013a
	Perchlorate Isotope Ratio			3.25			1	08-NOV-12 16:24	per1108013a
14797-73-0	Perchlorate-101	.05	.2	0.212	ug/L		1	08-NOV-12 16:24	per1108013a
	Perchlorate-O(18)			0.479	ug/L		1	08-NOV-12 16:24	per1108013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2013-246

GEL Sample ID: 1202772362

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.202	ug/L		1	08-NOV-12 16:33	per1108014a
	Perchlorate Isotope Ratio			3.12			1	08-NOV-12 16:33	per1108014a
14797-73-0	Perchlorate-101	.05	.2	0.209	ug/L		1	08-NOV-12 16:33	per1108014a
	Perchlorate-O(18)			0.502	ug/L		1	08-NOV-12 16:33	per1108014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24259MS

Date Received: 02-NOV-12

GEL Job No (SDG): 2013-246

GEL Sample ID: 1202772360

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	8.04	ug/L		10	09-NOV-12 13:31	per1109015a
	Perchlorate Isotope Ratio			3.28			10	09-NOV-12 13:31	per1109015a
14797-73-0	Perchlorate-101	.5	2	8.03	ug/L		10	09-NOV-12 13:31	per1109015a
	Perchlorate-O(18)			4.97	ug/L		10	09-NOV-12 13:31	per1109015a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24259MSD

Date Received: 02-NOV-12

GEL Job No (SDG): 2013-246

GEL Sample ID: 1202772361

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	7.98	ug/L		10	09-NOV-12 13:39	per1109016a
	Perchlorate Isotope Ratio			3.23			10	09-NOV-12 13:39	per1109016a
14797-73-0	Perchlorate-101	.5	2	8.09	ug/L		10	09-NOV-12 13:39	per1109016a
	Perchlorate-O(18)			4.95	ug/L		10	09-NOV-12 13:39	per1109016a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
10-NOV-12	Federal	Others	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LC-MS/MS	SW846-6850 Modified	Liquid	ARSL001
Batch ID:	**Sample Numbers:**		
1260140	See below		

Potentially affected work order(s)(SDG): 314340(2013-246),314341(2013-247),314443(2013-259),314445(2013-258),314529(2013-264)

Application Issues:

Failed Recovery for MS/PS

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. A negative recovery was observed for Perchlorate-101 at -28.4% in the MS (1202772360). The acceptance range is 75-125%. 2. Low recoveries were observed for Perchlorate and Perchlorate-101 in the MSD (1202772361). The recoveries were 63% and 3.9% respectively and the acceptance range is 75-125% for both.	1. & 2. The low and negative recoveries observed in the matrix spikes may be the result of the background concentration present in the parent sample, 314443002, and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER.

Originator's Name:

Charles Wilson 10-NOV-12

Data Validator/Group Leader:

Michael Penny 10-NOV-12

PCB Analysis

Case Narrative

PCB Case Narrative
ARS International (ARSL)
SDG 2013-246

Method/Analysis Information

Procedure:	**Analysis of Polychlorinated Biphenyls by ECD**
Analytical Method:	SW846 3535A/8082
Prep Method:	SW846 3535A
Analytical Batch Number:	1262673
Prep Batch Number:	1262672

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3535A/8082:

Sample ID	Client ID
314340003	CAMO-13-24226
1202778592	Method Blank (MB)
1202778593	Laboratory Control Sample (LCS)
1202778594	314048005(WST05-12-23548) Matrix Spike (MS)
1202778595	314048005(WST05-12-23548) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-040 REV# 19.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 23.0.

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standards (ICV or CCV) met the acceptance criteria. All analytes were within the established retention time windows for this method.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
An ARSL sample of similar matrix in SDG 2013-225 was selected for the matrix spike and matrix spike duplicate analysis for this batch of the samples.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the MS and MSD met the acceptance limits.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns. All sample extracts were cleaned using alumina.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not performed in this SDG.

Miscellaneous Information

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception report (DER) is generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A DER was not required for this SDG.

Manual Integrations
Certain standards and samples may have required manual integration to correctly position the baseline as set in the calibration standard injections. If manual integration was performed, copies of all manual integration peak profiles are included in the raw data section of this PCB fraction.

Additional Comments
The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

The higher results from either column have been chosen and reported in the data package for the client samples, MB and LCS. The data reported for the MS and MSD are from the same analytical column as the parent sample.

Due to software issue, the surrogate recovery range was not indicated or possibly indicated incorrectly in Quantitation Report. Please see Surrogate Recovery Report for correct surrogate acceptance limits.

Due to rounding differences in the calculation between the forms, the data reported in Sample Summary (form 1) and Spike Recovery Report (form 3) may differ slightly from the data reported in Identification Summary (form 10).

Aroclors quantitated on the raw data report by ChemStation data system do not necessarily represent positive Aroclor identification. In order for positive identification to be made, the Aroclor must match in pattern and retention time; as well as quantitate relatively close between the primary and confirmation columns, as specified in SW846 method 8000. When these conditions are not met, the Aroclor is reported as a non-detect on the data report.

System Configuration

The Semi-Volatiles-PCB analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
ECD8A.I_1	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP I	30m x 0.25mm, 0.25um (Rtx-CLPesticide I)
ECD8A.I_2	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP II	30m x 0.25mm, 0.20um (Rtx-CLPesticide II)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-246 GEL Work Order: 314340

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Jimi Cao **Name: Jimin Cao**

Date: 27 NOV 2012 **Title: Data Validator**

Sample Data Summary

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**314340003**	**Date Received:**	**11/01/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24226**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1262673**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 14:45**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/14/2012 08:57**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**111512.B\e8k1538.D**	**Column:**	**1 RTX-CLPEST1**		
	111512.B\e8k1538.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.100	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260	U	0.100	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.131	0.200	ug/L	65.6	(42%-120%)
Decachlorobiphenyl	0.159	0.200	ug/L	79.7	(41%-120%)

Quality Control Summary

PCB

Surrogate Recovery Report

SDG Number: 2013-246

Matrix Type: LIQUID

Sample ID	Client ID	4CMX 1 %REC #	4CMX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #
1202778592	MB for batch 1262672	54	55	72	72
1202778593	LCS for batch 1262672	69	70	79	79
1202778594	WST05-12-23548MS	67	69	89	86
1202778595	WST05-12-23548MSD	66	67	81	81
314340003	CAMO-13-24226	64	66	79	80

Surrogate		Acceptance Limits
4CMX	= 4cmx	(42%-120%)
DCB	= Decachlorobiphenyl	(41%-120%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **LCS for batch 1262672**
Lab Sample ID: **1202778593**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/15/2012 13:19**
Prep Batch ID: **1262672**
Batch ID: **1262673**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	LCS	Aroclor-1016	1.00	0.0	0.728	73	47-115
11096-82-5	LCS	Aroclor-1260	1.00	0.0	0.797	80	42-115

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **WST05-12-23548MS**
Lab Sample ID: **1202778594**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/15/2012 13:44**
Prep Batch ID: **1262672**
Batch ID: **1262673**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	MS	Aroclor-1016	1.00	0.00	U	0.762	76	34-123
11096-82-5	MS	Aroclor-1260	1.00	0.00	U	0.809	81	30-127

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-246**
Client ID: **WST05-12-23548MSD**
Lab Sample ID: **1202778595**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/15/2012 13:56**
Prep Batch ID: **1262672**
Batch ID: **1262673**
Dilution: 1

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
12674-11-2	MSD Aroclor-1016	1.00	0.00	U	0.703	70	34-123	8	0-30
11096-82-5	MSD Aroclor-1260	1.00	0.00	U	0.811	81	30-127	0	0-30

Method Blank Summary

SDG Number:	**2013-246**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1262672**	**Instrument ID:**	**ECD8A.I_1** **ECD8A.I_2**	**Data File:**	**111512.B\e8k1530.D** **111512.B\e8k1530.D**
Lab Sample ID:	**1202778592**				
Column:	**RTX-CLPEST1** **RTX-CLPEST2**	**Prep Date:**	**11/14/2012 08:57**	**Analyzed:**	**11/15/12 13:07**

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1262672	**1202778593**	**111512.B\e8k1531.D** **111512.B\e8k1531.D**	**11/15/12**	**1319**
02 WST05-12-23548MS	**1202778594**	**111512.B\e8k1533.D** **111512.B\e8k1533.D**	**11/15/12**	**1344**
03 WST05-12-23548MSD	**1202778595**	**111512.B\e8k1534.D** **111512.B\e8k1534.D**	**11/15/12**	**1356**
04 CAMO-13-24226	**314340003**	**111512.B\e8k1538.D** **111512.B\e8k1538.D**	**11/15/12**	**1445**

Quality Control Data

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778592**				
Client Sample:	**QC for batch 1262672**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262672**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1262673**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 13:07**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/14/2012 08:57**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**111512.B\e8k1530.D**	**Column:**	**1 RTX-CLPEST1**		
	111512.B\e8k1530.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.100	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260	U	0.100	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.109	0.200	ug/L	54.5	(42%-120%)
Decachlorobiphenyl	0.145	0.200	ug/L	72.5	(41%-120%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-246**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778593**				
Client Sample:	**QC for batch 1262672**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262672**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1262673**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 13:19**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/14/2012 08:57**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**111512.B\e8k1531.D**	**Column:**	**1 RTX-CLPEST1**		
	111512.B\e8k1531.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		0.728	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260		0.797	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
Decachlorobiphenyl	0.158	0.200	ug/L	79.0	(41%-120%)
4cmx	0.140	0.200	ug/L	69.9	(42%-120%)

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-246

Sample Analysis

Sample ID	Client ID
314340002	CAMO-13-24255
1202771014	Method Blank (MB) **ICP**
1202771015	Laboratory Control Sample (LCS)
1202771018	314341002(CAMO-13-24257L) Serial Dilution (SD)
1202771016	314341002(CAMO-13-24257D) Sample Duplicate (DUP)
1202771017	314341002(CAMO-13-24257S) Matrix Spike (MS)
1202771019	Method Blank (MB) **ICP-MS**
1202771020	Laboratory Control Sample (LCS)
1202771023	314341002(CAMO-13-24257L) Serial Dilution (SD)
1202771021	314341002(CAMO-13-24257D) Sample Duplicate (DUP)
1202771022	314341002(CAMO-13-24257S) Matrix Spike (MS)
1202783062	Method Blank (MB) **CVAA**
1202783069	Laboratory Control Sample (LCS)
1202783065	314340002(CAMO-13-24255L) Serial Dilution (SD)
1202783063	314340002(CAMO-13-24255D) Sample Duplicate (DUP)
1202783067	314340002(CAMO-13-24255S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1259557, 1259559, 1264600 and 1265920
Prep Batch :	1259556, 1259558 and 1264596
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 7
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B
Prep Method :	SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 314341002 (CAMO-13-24257)-ICP and ICP-MS and 314340002 (CAMO-13-24255)-CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight

on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 11.28.12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-246 GEL Work Order: 314340

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 11-28-12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-246 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314340002 **BASIS:** As Received **DATE COLLECTED** 30-OCT-12

CLIENT ID: CAMO-13-24255 **LEVEL:** Low **DATE RECEIVED** 01-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/20/12 09:22	112012W1-5	1264600

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-246 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314340002 **BASIS:** As Received **DATE COLLECTED** 30-OCT-12

CLIENT ID: CAMO-13-24255 **LEVEL:** Low **DATE RECEIVED** 01-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/17/12 14:54	111712-1	1259557
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/12/12 20:00	121112-3	1259559
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/13/12 14:32	121113-4	1259559
7440-39-3	Barium	16.1	ug/L		1	5	5	1	P	HSC	11/17/12 14:54	111712-1	1259557
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 14:54	111712-1	1259557
7440-42-8	Boron	20.8	ug/L	J	15	50	50	1	P	HSC	11/17/12 14:54	111712-1	1259557
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/12/12 20:00	121112-3	1259559
7440-70-2	Calcium	20800	ug/L		50	200	200	1	P	HSC	11/17/12 14:54	111712-1	1259557
7440-47-3	Chromium	4.32	ug/L	J	2	10	10	1	MS	BAJ	11/13/12 14:32	121113-4	1259559
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 14:54	111712-1	1259557
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/19/12 08:01	111912-2	1259557
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/17/12 14:54	111712-1	1259557
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/12/12 20:00	121112-3	1259559
7439-95-4	Magnesium	3960	ug/L		110	300	300	1	P	HSC	11/17/12 14:54	111712-1	1259557
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/17/12 14:54	111712-1	1259557
7439-98-7	Molybdenum	1.79	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/12/12 20:00	121112-3	1259559
7440-02-0	Nickel	0.780	ug/L	J	0.5	2	2	1	MS	BAJ	11/13/12 14:32	121113-4	1259559
7440-09-7	Potassium	984	ug/L		50	150	150	1	P	HSC	11/19/12 08:01	111912-2	1259557
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/13/12 14:32	121113-4	1259559
7631-86-9	Silica	72600	ug/L		53	213	213	1	P	HSC	11/17/12 14:54	111712-1	1259557
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/12/12 20:00	121112-3	1259559
7440-23-5	Sodium	14900	ug/L		100	300	300	1	P	HSC	11/17/12 14:54	111712-1	1259557
7440-24-6	Strontium	93.8	ug/L		1	5	5	1	P	HSC	11/17/12 14:54	111712-1	1259557
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/12/12 20:00	121112-3	1259559
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/19/12 08:01	111912-2	1259557
7440-61-1	Uranium	0.130	ug/L	J	0.067	0.2	0.2	1	MS	BAJ	11/12/12 20:00	121112-3	1259559
7440-62-2	Vanadium	2.27	ug/L	J	1	5	5	1	P	HSC	11/17/12 14:54	111712-1	1259557
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	11/17/12 14:54	111712-1	1259557

METALS

INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-246 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314340002 **BASIS:** As Received **DATE COLLECTED** 30-OCT-12

CLIENT ID: CAMO-13-24255 **LEVEL:** Low **DATE RECEIVED** 01-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	68.1	mg/L		0.453	1.24	1.24	1		JJ2	11/26/12 09:25		1265920

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1259557	1259556	SW846 3005A	50	mL	50	mL	11/07/12	AXG2
1259559	1259558	SW846 3005A	50	mL	50	mL	11/07/12	AXG2
1264600	1264596	EPA 245.1/245.2 Prep	20	mL	20	mL	11/19/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**
P **SW846 3005/6010B**
AV **EPA 245.1/245.2**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−246

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202771014								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	50	ug/L	+/−150	U	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202771019								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202783062								
	Mercury	0.067	ug/L	+/−0.2	U	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−246 **Client ID** CAMO−13−24257S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314341002 **Spike ID:** 1202771017

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5150		68	U	5000	102		P
Barium	ug/L	75−125	513		13.7		500	99.8		P
Beryllium	ug/L	75−125	514		1	U	500	103		P
Boron	ug/L	75−125	515		15	U	500	101		P
Calcium	ug/L	75−125	16400		11300		5000	102		P
Cobalt	ug/L	75−125	503		1	U	500	101		P
Copper	ug/L	75−125	501		3	U	500	99.8		P
Iron	ug/L	75−125	5090		30	U	5000	101		P
Magnesium	ug/L	75−125	9230		4110		5000	102		P
Manganese	ug/L	75−125	488		2	U	500	97.4		P
Potassium	ug/L	75−125	6680		1690		5000	99.9		P
Silica	ug/L		93300		80300		10700	121	N/A	P
Sodium	ug/L	75−125	19100		13300		5000	116		P
Strontium	ug/L	75−125	548		51.8		500	99.1		P
Tin	ug/L	75−125	486		2.5	U	500	97.1		P
Vanadium	ug/L	75−125	502		8.1		500	98.9		P
Zinc	ug/L	75−125	480		3.3	U	500	96		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−246 **Client ID** CAMO−13−24257S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314341002 **Spike ID:** 1202771022

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	193		1	U	200	96.5		MS
Arsenic	ug/L	75−125	75.3		1.7	U	80	93		MS
Cadmium	ug/L	75−125	10.1		0.11	U	10	101		MS
Chromium	ug/L	75−125	52.1		4.27	J	50	95.6		MS
Lead	ug/L	75−125	42.1		0.5	U	40	105		MS
Molybdenum	ug/L	75−125	52.2		1.24		50	102		MS
Nickel	ug/L	75−125	55		11		50	87.9		MS
Selenium	ug/L	75−125	19.9		1.5	U	20	94.2		MS
Silver	ug/L	75−125	49.9		0.2	U	50	99.8		MS
Thallium	ug/L	75−125	97.9		0.45	U	100	97.9		MS
Uranium	ug/L	75−125	49.8		0.933		50	97.8		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−246 **Client ID** CAMO−13−24255S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314340002 **Spike ID:** 1202783067

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.05		0.067	U	2	103		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−246 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24257D

Matrix: LIQUID **Level:** Low

Sample ID: 314341002 **Duplicate ID:** 1202771016 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−5	13.7		13.6		.417		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	15	U			P
Calcium	ug/L	+/−20%	11300		11200		.978		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L		3	U	3	U			P
Iron	ug/L		30	U	30	U			P
Magnesium	ug/L	+/−20%	4110		4020		2.22		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	1690		1710		1.35		P
Silica	ug/L	+/−20%	80300		80100		.258		P
Sodium	ug/L	+/−20%	13300		13300		.248		P
Strontium	ug/L	+/−20%	51.8		52.2		.875		P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L	+/−5	8.1		8.3		2.47		P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−246 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24257D

Matrix: LIQUID **Level:** Low

Sample ID: 314341002 **Duplicate ID:** 1202771021 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	4.27	J	4.08	J	4.52		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.24		1.18		4.79		MS
Nickel	ug/L	+/−20%	11		10		9.54		MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.933		0.897		3.93		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−246 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24255D

Matrix: LIQUID **Level:** Low

Sample ID: 314340002 **Duplicate ID:** 1202783063 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−246

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202771015								
	Aluminum	ug/L	5000	5190		104	80−120	P
	Barium	ug/L	500	495		99.1	80−120	P
	Beryllium	ug/L	500	502		100	80−120	P
	Boron	ug/L	500	490		98	80−120	P
	Calcium	ug/L	5000	5050		101	80−120	P
	Cobalt	ug/L	500	502		100	80−120	P
	Copper	ug/L	500	477		95.5	80−120	P
	Iron	ug/L	5000	5010		100	80−120	P
	Magnesium	ug/L	5000	5120		102	80−120	P
	Manganese	ug/L	500	490		97.9	80−120	P
	Potassium	ug/L	5000	4880		97.6	80−120	P
	Silica	ug/L	10700	10300		96.5	80−120	P
	Sodium	ug/L	5000	5330		107	80−120	P
	Strontium	ug/L	500	497		99.4	80−120	P
	Tin	ug/L	500	470		94.1	80−120	P
	Vanadium	ug/L	500	491		98.2	80−120	P
	Zinc	ug/L	500	475		95	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−246

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202771020								
	Antimony	ug/L	50	50.7		101	80−120	MS
	Arsenic	ug/L	50	47.4		94.8	80−120	MS
	Cadmium	ug/L	50	51.1		102	80−120	MS
	Chromium	ug/L	50	47.7		95.4	80−120	MS
	Lead	ug/L	50	51.9		104	80−120	MS
	Molybdenum	ug/L	50	48.5		97.1	80−120	MS
	Nickel	ug/L	50	50.6		101	80−120	MS
	Selenium	ug/L	50	51		102	80−120	MS
	Silver	ug/L	50	53.1		106	80−120	MS
	Thallium	ug/L	50	50		100	80−120	MS
	Uranium	ug/L	50	53.1		106	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−246

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783069								
	Mercury	ug/L	2	2.08		104	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−246 **Client ID** CAMO−13−24257L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314341002 **Serial Dilution ID:** 1202771018

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	13.7		13.9	J	1.63			P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	11300		11100		1.64		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	4110		4220		2.66			P
Manganese	2	U	10	U				P
Potassium	1690		1990		17.9			P
Silica	80300		80100		.229		10	P
Sodium	13300		13800		4.1		10	P
Strontium	51.8		50.2		2.96		10	P
Tin	2.5	U	12.5	U				P
Vanadium	8.1		7.8	J	3.62			P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−246 **Client ID** CAMO−13−24257L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314341002 **Serial Dilution ID:** 1202771023

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	4.27	J	10	U	100			MS
Lead	.5	U	2.5	U				MS
Molybdenum	1.24		1.5	J	20.9			MS
Nickel	11		10.8		2			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.933		.92	J	1.39			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−246 **Client ID** CAMO−13−24255L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314340002 **Serial Dilution ID:** 1202783065

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-246

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1259029 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
314340001	CAMO-13-24238
1202769808	Method Blank (MB)
1202769809	313643004(CAPA-12-23811) Sample Duplicate (DUP)
1202769810	314136001(CAPA-12-23808) Sample Duplicate (DUP)
1202769811	313643004(CAPA-12-23811) Post Spike (PS)
1202769812	314136001(CAPA-12-23808) Post Spike (PS)
1202769813	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 313643004 (CAPA-12-23811) and 314136001 (CAPA-12-23808).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1265081	**Method:**	EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
314340002	CAMO-13-24255
1202784135	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202784136	314445002(CAMO-13-24258) Sample Duplicate (DUP)
1202784137	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314340002 (CAMO-13-24255) and 314445002 (CAMO-13-24258).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1259755 **Method:** EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
314340002	CAMO-13-24255
1202771488	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202771490	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following sample from this sample group was received by the lab outside of the method specified holding time: 314340002 (CAMO-13-24255).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1139374 314340002 (CAMO-13-24255).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1259659	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
314340002	CAMO-13-24255
1202771231	Method Blank (MB)
1202771232	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202771233	314340002(CAMO-13-24255) Post Spike (PS)
1202771234	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following samples were re-analyzed due to CCV failure: 1202771231 (MB), 1202771232 (CAMO-13-24255), 1202771233 (CAMO-13-24255), 1202771234 (LCS) and 314340002 (CAMO-13-24255).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202771232 (CAMO-13-24255), 1202771233 (CAMO-13-24255) and 314340002 (CAMO-13-24255).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1260275	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1260272	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
314340002	CAMO-13-24255
1202772676	Method Blank (MB)
1202772677	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202772678	314341002(CAMO-13-24257) Sample Duplicate (DUP)
1202772679	314340002(CAMO-13-24255) Matrix Spike (MS)
1202772680	314341002(CAMO-13-24257) Matrix Spike (MS)
1202772681	314340002(CAMO-13-24255) Matrix Spike Duplicate (MSD)
1202772682	314341002(CAMO-13-24257) Matrix Spike Duplicate (MSD)
1202772683	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314340002 (CAMO-13-24255) and 314341002 (CAMO-13-24257).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries for this sample set were within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202772677 (CAMO-13-24255).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1260284	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1260283	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
314340001	CAMO-13-24238
1202772707	Method Blank (MB)
1202772708	314340001(CAMO-13-24238) Sample Duplicate (DUP)
1202772709	314340001(CAMO-13-24238) Matrix Spike (MS)
1202772710	314340001(CAMO-13-24238) Matrix Spike Duplicate (MSD)
1202772711	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340001 (CAMO-13-24238).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1202772709 (CAMO-13-24238).

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202772708 (CAMO-13-24238).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1137073 1202772709 (CAMO-13-24238).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1260239	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
314340002	CAMO-13-24255
1202772605	Method Blank (MB)
1202772608	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202772611	314340002(CAMO-13-24255) Post Spike (PS)
1202772612	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202772608 (CAMO-13-24255), 1202772611 (CAMO-13-24255) and 314340002 (CAMO-13-24255).

Sample Re-analysis
The following samples were re-analyzed due to CCV failure: 1202772608 (CAMO-13-24255), 1202772611 (CAMO-13-24255) and 314340002 (CAMO-13-24255).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1260281	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1260280	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
314340002	CAMO-13-24255
1202772694	Method Blank (MB)
1202772696	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202772698	314340002(CAMO-13-24255) Matrix Spike (MS)
1202772700	314340002(CAMO-13-24255) Matrix Spike Duplicate (MSD)
1202772701	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following sample was re-analyzed due to instrument failure: 314340002 (CAMO-13-24255).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Solids, Total Dissolved**		
Analytical Batch:	1259753	**Method:**	EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
314340002	CAMO-13-24255
1202771477	Method Blank (MB)
1202771480	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202771481	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Alkalinity**

Analytical Batch: 1262572 **Method:** EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
314340002	CAMO-13-24255
1202778366	Laboratory Control Sample (LCS)
1202778371	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202778372	314340002(CAMO-13-24255) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____28Nov12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-246 GEL Work Order: 314340

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

H Analytical holding time was exceeded

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-246

Client Sample ID:	CAMO-13-24238	Project:	ESHL00210
Sample ID:	314340001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	30-OCT-12 13:02		
Receive Date:	01-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.879	0.330	1.00	mg/L	1	TSM	11/03/12	0126	1259029	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	J	0.0596	0.035	0.100	mg/L	1	KLP1	11/06/12	1413	1260284	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/05/12	1700	1260283

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-246

Client Sample ID: CAMO-13-24255
Sample ID: 314340002
Matrix: W
Collect Date: 30-OCT-12 13:02
Receive Date: 01-NOV-12
Collector: Client
Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		195	1.00	1.00	umhos/cm	1	TXT1	11/20/12	1114	1265081	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 11.1C	H	8.44	0.010	0.100	SU	1	LYG1	11/02/12	0857	1259755	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Chloride		7.86	0.067	0.200	mg/L	1	MAR1	11/12/12	2231	1259659	3
Fluoride		0.224	0.033	0.100	mg/L	1					
Sulfate		13.3	0.133	0.400	mg/L	1					
Bromide	J	0.143	0.067	0.200	mg/L	1	MAR1	11/13/12	1827	1259659	4
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	U	ND	0.017	0.050	mg/L	1	KLP1	11/06/12	0933	1260275	5
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		3.89	0.170	0.500	mg/L	10	AXH3	11/05/12	1330	1260239	6
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.327	0.017	0.050	mg/L	1	KLP1	11/06/12	1645	1260281	7
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		169	3.40	14.3	mg/L		LYG1	11/02/12	0738	1259753	8
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		53.1	0.725	1.00	mg/L		LXA1	11/12/12	1428	1262572	9
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/05/12	1600	1260272
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/05/12	1700	1260280

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-246
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24255	Project:	ESHL00210
Sample ID:	314340002	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 300.0	
5	EPA 350.1	
6	EPA 353.2	
7	EPA 365.4	
8	EPA 160.1	
9	EPA 310.1	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 28, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **314340**

Parmname	NOM		Sample	Qual	QC	Units	RPD%		REC%	Range	Anlst	Date Time
Carbon Analysis												
Batch 1259029												
QC1202769809 313643004 DUP												
Total Organic Carbon Average		J	0.503	J	0.457	mg/L	9.58	^		(+/-1.00)	TSM	11/02/12 14:55
QC1202769810 314136001 DUP												
Total Organic Carbon Average		J	0.891	J	0.775	mg/L	13.9	^		(+/-1.00)		11/03/12 00:58
QC1202769813 LCS												
Total Organic Carbon Average	10.0				10.6	mg/L			106	(85%-115%)		11/02/12 14:13
QC1202769808 MB												
Total Organic Carbon Average				U	ND	mg/L						11/02/12 14:04
QC1202769811 313643004 PS												
Total Organic Carbon Average	10.0	J	0.503		10.7	mg/L			102	(65%-120%)		11/02/12 15:15
QC1202769812 314136001 PS												
Total Organic Carbon Average	10.0	J	0.891		10.8	mg/L			99.3	(65%-120%)		11/03/12 01:18
Conductivity Analysis												
Batch 1265081												
QC1202784135 314340002 DUP												
Conductivity			195		196	umhos/cm	0.307			(0%-10%)	TXT1	11/20/12 11:15
QC1202784136 314445002 DUP												
Conductivity			141		140	umhos/cm	0.142			(0%-10%)		11/20/12 11:23
QC1202784137 LCS												
Conductivity	1410				1420	umhos/cm			101	(95%-105%)		11/20/12 10:55
Electrode Analysis												
Batch 1259755												
QC1202771488 314340002 DUP												
pH		H	8.44	H	8.41	SU	0.356			(0%-10%)	LYG1	11/02/12 09:00
QC1202771490 LCS												
pH	7.00				7.02	SU			100	(99%-101%)		11/02/12 08:44
Ion Chromatography												
Batch 1259659												
QC1202771232 314340002 DUP												
Bromide		J	0.143	J	0.143	mg/L	0.00	^		(+/-0.200)	MAR1	11/13/12 18:56
Chloride			7.86		7.94	mg/L	1.03			(0%-20%)		11/12/12 23:00
Fluoride			0.224		0.220	mg/L	1.44	^		(+/-0.100)		
Sulfate			13.3		13.2	mg/L	0.107			(0%-20%)		
QC1202771234 LCS												
Bromide	2.50				2.47	mg/L			98.8	(90%-110%)		11/13/12 17:58
Chloride	10.0				9.24	mg/L			92.4	(90%-110%)		11/12/12 22:02
Fluoride	5.00				4.82	mg/L			96.5	(90%-110%)		
Sulfate	20.0				18.9	mg/L			94.7	(90%-110%)		
QC1202771231 MB												
Bromide				U	ND	mg/L						11/13/12 17:29
Chloride				U	ND	mg/L						11/12/12 21:33

QC Summary

Workorder: 314340

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1259659											
Fluoride				U	ND	mg/L					
Sulfate				U	ND	mg/L				MAR1	11/12/12 21:33
QC1202771233 314340002 PS											
Bromide	2.50	J	0.143		2.68	mg/L		101	(90%-110%)		11/13/12 19:25
Chloride	10.0		7.86		18.5	mg/L		107	(90%-110%)		11/12/12 23:29
Fluoride	5.00		0.224		5.11	mg/L		97.7	(90%-110%)		
Sulfate	20.0		13.3		34.1	mg/L		104	(90%-110%)		
Nutrient Analysis											
Batch 1260239											
QC1202772608 314340002 DUP											
Nitrogen, Nitrate/Nitrite			3.89		3.78	mg/L	2.87		(0%-20%)	AXH3	11/05/12 13:31
QC1202772612 LCS											
Nitrogen, Nitrate/Nitrite	1.00				0.978	mg/L		97.8	(90%-110%)		11/05/12 12:13
QC1202772605 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					11/05/12 12:07
QC1202772611 314340002 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.389		1.36	mg/L		97.1	(90%-110%)		11/05/12 13:32
Batch 1260275											
QC1202772677 314340002 DUP											
Nitrogen, Ammonia		U	ND	U	ND	mg/L	N/A			KLP1	11/06/12 09:34
QC1202772678 314341002 DUP											
Nitrogen, Ammonia		U	ND	U	ND	mg/L	N/A				11/06/12 09:37
QC1202772683 LCS											
Nitrogen, Ammonia	1.00				1.06	mg/L		106	(90%-110%)		11/06/12 09:30
QC1202772676 MB											
Nitrogen, Ammonia				U	ND	mg/L					11/06/12 09:29
QC1202772679 314340002 MS											
Nitrogen, Ammonia	1.00	U	ND		1.09	mg/L		108	(90%-110%)		11/06/12 09:34
QC1202772680 314341002 MS											
Nitrogen, Ammonia	1.00	U	ND		1.02	mg/L		101	(90%-110%)		11/06/12 09:42
QC1202772681 314340002 MSD											
Nitrogen, Ammonia	1.00	U	ND		1.08	mg/L	0.922	107	(0%-15%)		11/06/12 09:35
QC1202772682 314341002 MSD											
Nitrogen, Ammonia	1.00	U	ND		0.980	mg/L	4.00	97.4	(0%-15%)		11/06/12 09:43
Batch 1260281											
QC1202772696 314340002 DUP											
Phosphorus, Total as P			0.327		0.331	mg/L	1.22		(0%-31%)	KLP1	11/06/12 16:31
QC1202772701 LCS											
Phosphorus, Total as P	1.00				1.07	mg/L		107	(76%-120%)		11/06/12 16:21
QC1202772694 MB											
Phosphorus, Total as P				J	0.0459	mg/L					11/06/12 16:20
QC1202772698 314340002 MS											
Phosphorus, Total as P	1.00		0.327		1.20	mg/L		87.3	(62%-139%)		11/06/12 16:32
QC1202772700 314340002 MSD											
Phosphorus, Total as P	1.00		0.327		1.18	mg/L	1.68	85.3	(0%-20%)		11/06/12 16:33
Batch 1260284											

QC Summary

Workorder: 314340

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis											
Batch 1260284											
QC1202772708 314340001 DUP											
Nitrogen, Total Kjeldahl		J	0.0596	J	0.0894	mg/L	40.0 ^		(+/-0.100)	KLP1	11/06/12 14:13
QC1202772711 LCS											
Nitrogen, Total Kjeldahl	1.00				0.942	mg/L		94.2	(90%-110%)		11/06/12 14:12
QC1202772707 MB											
Nitrogen, Total Kjeldahl				J	0.0602	mg/L					11/06/12 14:11
QC1202772709 314340001 MS											
Nitrogen, Total Kjeldahl	1.00	J	0.0596		0.908	mg/L		84.8 *	(90%-110%)		11/06/12 14:14
QC1202772710 314340001 MSD											
Nitrogen, Total Kjeldahl	1.00	J	0.0596		1.02	mg/L	11.6	96	(0%-20%)		11/06/12 14:15
Solids Analysis											
Batch 1259753											
QC1202771480 314340002 DUP											
Total Dissolved Solids			169		167	mg/L	0.851		(0%-10%)	LYG1	11/02/12 07:38
QC1202771481 LCS											
Total Dissolved Solids	300				297	mg/L		99	(95%-105%)		11/02/12 07:38
QC1202771477 MB											
Total Dissolved Solids				U	ND	mg/L					11/02/12 07:38
Titration Analysis											
Batch 1262572											
QC1202778371 314340002 DUP											
Alkalinity, Total as CaCO3			53.1		53.6	mg/L	1.01		(0%-20%)	LXA1	11/12/12 14:32
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A				
QC1202778366 LCS											
Alkalinity, Total as CaCO3	50.0				53.1	mg/L		106	(90%-110%)		11/12/12 12:31
QC1202778372 314340002 MS											
Alkalinity, Total as CaCO3	50.0		53.1		105	mg/L		104	(80%-120%)		11/12/12 14:34

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E Organics--Concentration of the target analyte exceeds the instrument calibration range
- F Estimated Value

QC Summary

Workorder: 314340

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
06-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1260284	See Below		

Potentially affected work order(s)(SDG): **314340(2013-246),314341(2013-247),314443(2013-259),314445(2013-258),314528(2013-265),314529(2013-264)**

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS/PS: QC 1202772709MS	1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits.

Originator's Name:

Kristen Parson 06-NOV-12

Data Validator/Group Leader:

Thomas Lewis 27-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
13-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ESHL, FBWP, TUPP
Batch ID:	**Sample Numbers:**		
1259755	See below.		

Potentially affected work order(s)(SDG): 314261,314340(2013-246),314341(2013-247),314409

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 314261 019,035 314340 002 314341 002 314409 001,002,003,004	1. Samples were received out of holding.

Originator's Name:

Lisa Gregory 13-NOV-12

Data Validator/Group Leader:

Julia Hamilton 13-NOV-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-246
Work Order 314340

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1259850

Sample ID	Client ID
314340001	CAMO-13-24238
1202771681	Method Blank (MB)
1202771682	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202771683	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202771681 (MB) and 1202771683 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314443005 (CAMO-13-24225). The QC was from ARSL work order 314443.

QC Information

All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1259851

Sample ID	Client ID
314340001	CAMO-13-24238
1202771684	Method Blank (MB)
1202771686	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202771688	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202771684 (MB) and 1202771688 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314443005 (CAMO-13-24225). The QC was from ARSL work order 314443.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1259852

Sample ID	Client ID
314340001	CAMO-13-24238
1202771689	Method Blank (MB)
1202771691	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202771693	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202771689 (MB) and 1202771693 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314443005 (CAMO-13-24225). The QC was from ARSL work order 314443.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1260199

Sample ID	Client ID
314340001	CAMO-13-24238
1202772494	Method Blank (MB)
1202772495	314528001(CAMO-13-24279) Sample Duplicate (DUP)
1202772496	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in May 2012, June 2012, July 2012 and August 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314528001 (CAMO-13-24279). The QC was from ARSL work order 314528.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank 1202772494 (MB) result is greater than 1.65 times the CSU but less than the MDC for Co-60.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank 1202772494 (MB) result is greater than the decision level but less than the MDC for Co-60.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1260884

Sample ID	Client ID
314340001	CAMO-13-24238
1202774230	Method Blank (MB)
1202774231	314445001(CAMO-13-24241) Sample Duplicate (DUP)
1202774232	314445001(CAMO-13-24241) Matrix Spike (MS)
1202774233	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202774230 (MB) and 1202774233 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314445001 (CAMO-13-24241). The QC was from ARSL work order 314445.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202774231 (CAMO-13-24241) was recounted due to high MDC. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202774232 (CAMO-13-24241), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1260898

Sample ID	Client ID
314340001	CAMO-13-24238
1202774275	Method Blank (MB)
1202774276	314136001(CAPA-12-23808) Sample Duplicate (DUP)
1202774277	314136001(CAPA-12-23808) Matrix Spike (MS)
1202774278	314136001(CAPA-12-23808) Matrix Spike Duplicate (MSD)
1202774279	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in September 2011. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha

crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202774275 (MB) and 1202774279 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314136001 (CAPA-12-23808). The QC was from ARSL work order 314136.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202774276 (CAPA-12-23808) was recounted due to high MDC. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike and matrix spike duplicate, 1202774277 (CAPA-12-23808) and 1202774278 (CAPA-12-23808), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-H-3**
Analytical Method:	EPA 906.0 Modified
Analytical Batch Number:	1260474

Sample ID	Client ID
314340001	CAMO-13-24238
1202773257	Method Blank (MB)
1202773258	314529001(CASA-13-24215) Sample Duplicate (DUP)
1202773259	314529001(CASA-13-24215) Matrix Spike (MS)
1202773260	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-002 REV# 20.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in August 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314529001 (CASA-13-24215). The QC was from ARSL work order 314529.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 314340001 (CAMO-13-24238) was recounted to verify sample results. The recount is similar to the original count. The original count is being reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-246 GEL Work Order: 314340

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Kate Gellatly**

Date: 27 NOV 2012 **Title: Analyst I**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 27, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24238
Sample ID: 314340001
Matrix: W
Collect Date: 30-OCT-12
Receive Date: 01-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.00631	+/-0.00773	0.0359	+/-0.00774	0.050	pCi/L		LYS1	11/12/12	1058	1259852	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.00249	+/-0.00557	0.0239	+/-0.00557	0.050	pCi/L		LYS1	11/12/12	1059	1259851	2
Plutonium-239/240	U	0.0125	+/-0.00659	0.0398	+/-0.00661	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.0758	+/-0.0155	0.0592	+/-0.0164	1.00	pCi/L		LYS1	11/12/12	1050	1259850	3
Uranium-235/236	U	0.00	+/-0.00631	0.037	+/-0.00632	1.00	pCi/L						
Uranium-238		0.0485	+/-0.0117	0.0402	+/-0.0121	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-0.494	+/-1.64	5.91	+/-1.64	8.00	pCi/L		KXG3	11/07/12	1011	1260199	4
Cobalt-60	U	0.889	+/-1.56	6.39	+/-1.56	8.00	pCi/L						
Neptunium-237	U	2.21	+/-3.27	11.8	+/-3.27	10.0	pCi/L						
Potassium-40	U	17.8	+/-22.1	89.8	+/-22.1	10.0	pCi/L						
Sodium-22	U	-3.07	+/-1.89	6.10	+/-1.89	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	-0.295	+/-0.126	0.487	+/-0.126	0.500	pCi/L		VXC2	11/20/12	1625	1260884	5
WSP-GrossA/B "As Received"													
Beta	U	-0.638	+/-0.648	2.63	+/-0.648	3.00	pCi/L		BXF1	11/15/12	1311	1260898	6
Alpha	U	0.346	+/-0.598	2.46	+/-0.598	3.00	pCi/L		BXF1	11/17/12	1626	1260898	7
Rad Liquid Scintillation Analysis													
WSP-H-3 "As Received"													
Tritium		2410	+/-79.2	154	+/-251	200	pCi/L		BYS1	11/09/12	1823	1260474	8

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310
8	EPA 906.0 Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1259852	71.3	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1259851	93.1	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 27, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24238
Sample ID: 314340001

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1259850	89.7	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1260884	89.3	(50%-105%)

Notes:
TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

QC Summary

Report Date: November 27, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico
Contact: **Keith Greene**

Workorder: **314340**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1259850										
QC1202771682 314443005 DUP										
Uranium-234	U	-0.0173	U	-0.00844	pCi/L	0.187		(0-1)	LYS1	11/12/1210:50
	Uncert:	+/-0.00984		+/-0.0139						
	TPU:	+/-0.00984		+/-0.0139						
Uranium-235/236	U	0.00733	U	0.00735	pCi/L	0.000488		(0-1)		
	Uncert:	+/-0.00733		+/-0.009						
	TPU:	+/-0.00735		+/-0.00901						
Uranium-238	U	0.00	U	0.00	pCi/L	0.00		(0-1)		
	Uncert:	+/-0.00593		+/-0.00841						
	TPU:	+/-0.00594		+/-0.00841						
**Uranium-232 Tracer	2.73	2.06		1.93	pCi/L		70.8	(50%-105%)		
	Uncert:	+/-0.0913		+/-0.0907						
	TPU:	+/-0.201		+/-0.201						
QC1202771683 LCS										
Uranium-234				2.73	pCi/L				LYS1	11/12/1210:50
	Uncert:			+/-0.0831						
	TPU:			+/-0.199						
Uranium-235/236				0.117	pCi/L					
	Uncert:			+/-0.0204						
	TPU:			+/-0.0218						
Uranium-238	2.70			2.80	pCi/L		103	(80%-120%)		
	Uncert:			+/-0.0836						
	TPU:			+/-0.202						
**Uranium-232 Tracer	2.19			1.49	pCi/L		68.4	(50%-105%)		
	Uncert:			+/-0.0746						
	TPU:			+/-0.162						
QC1202771681 MB										
Uranium-234			U	-0.0191	pCi/L				LYS1	11/12/1210:50
	Uncert:			+/-0.00958						
	TPU:			+/-0.00958						
Uranium-235/236			U	0.00611	pCi/L					
	Uncert:			+/-0.00611						
	TPU:			+/-0.00613						
Uranium-238			U	0.00	pCi/L					
	Uncert:			+/-0.00606						
	TPU:			+/-0.00606						
**Uranium-232 Tracer	2.19			1.56	pCi/L		71.4	(50%-105%)		
	Uncert:			+/-0.0742						
	TPU:			+/-0.162						
Batch 1259851										
QC1202771686 314443005 DUP										
Plutonium-238	U	0.00497	U	-0.00289	pCi/L	0.344		(0-1)	LYS1	11/12/1210:59
	Uncert:	+/-0.00497		+/-0.00647						

QC Summary

Workorder: 314340

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1259851										
	TPU:	+/-0.00497		+/-0.00647						
Plutonium-239/240	U	-0.00248	U	0.00868	pCi/L	0.464		(0-1)		
	Uncert:	+/-0.00555		+/-0.00647						
	TPU:	+/-0.00556		+/-0.00648						
**Plutonium-242 Tracer	2.43	2.16		1.87	pCi/L		77.1	(50%-105%)		
	Uncert:	+/-0.0779		+/-0.0843						
	TPU:	+/-0.130		+/-0.138						
QC1202771688 LCS										
Plutonium-238			U	0.00506	pCi/L			(80%-120%)	LYS1	11/12/1210:59
	Uncert:			+/-0.0062						
	TPU:			+/-0.0062						
Plutonium-239/240	2.03			2.27	pCi/L		112	(80%-120%)		
	Uncert:			+/-0.0759						
	TPU:			+/-0.130						
**Plutonium-242 Tracer	1.94			1.36	pCi/L		70.1	(50%-105%)		
	Uncert:			+/-0.0705						
	TPU:			+/-0.114						
QC1202771684 MB										
Plutonium-238			U	-0.00491	pCi/L				LYS1	11/12/1210:59
	Uncert:			+/-0.00491						
	TPU:			+/-0.00491						
Plutonium-239/240			U	-0.00245	pCi/L					
	Uncert:			+/-0.00425						
	TPU:			+/-0.00425						
**Plutonium-242 Tracer	1.94			1.41	pCi/L		72.3	(50%-105%)		
	Uncert:			+/-0.0692						
	TPU:			+/-0.113						
Batch 1259852										
QC1202771691 314443005 DUP										
Americium-241	U	0.00252	U	-0.00298	pCi/L	0.255		(0-1)	LYS1	11/12/1210:59
	Uncert:	+/-0.00564		+/-0.00516						
	TPU:	+/-0.00564		+/-0.00517						
**Americium-243 Tracer	2.60	2.42		1.96	pCi/L		75.3	(50%-105%)		
	Uncert:	+/-0.0808		+/-0.0877						
	TPU:	+/-0.138		+/-0.146						
QC1202771693 LCS										
Americium-241	1.41			1.49	pCi/L		106	(80%-120%)	LYS1	11/12/1210:59
	Uncert:			+/-0.0544						
	TPU:			+/-0.0833						
**Americium-243 Tracer	2.08			1.83	pCi/L		88.1	(50%-105%)		
	Uncert:			+/-0.0638						
	TPU:			+/-0.109						
QC1202771689 MB										
Americium-241			U	0.00	pCi/L				LYS1	11/12/1210:59
	Uncert:			+/-0.00561						
	TPU:			+/-0.00561						
**Americium-243 Tracer	2.08			1.84	pCi/L		88.5	(50%-105%)		
	Uncert:			+/-0.0639						
	TPU:			+/-0.109						

QC Summary

Workorder: 314340

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1260199										
QC1202772495 314528001 DUP										
Cesium-137	U	1.76	U	-0.106	pCi/L	0.378		(0-1)	KXG3	11/08/1208:59
	Uncert:	+/-1.34		+/-1.13						
	TPU:	+/-1.34		+/-1.13						
Cobalt-60	U	0.442	U	-1.04	pCi/L	0.293		(0-1)		
	Uncert:	+/-1.30		+/-1.24						
	TPU:	+/-1.30		+/-1.24						
Neptunium-237	U	-0.20	U	1.91	pCi/L	0.217		(0-1)		
	Uncert:	+/-2.48		+/-2.37						
	TPU:	+/-2.48		+/-2.37						
Potassium-40	U	-29.9	U	-1.61	pCi/L	0.459		(0-1)		
	Uncert:	+/-16.8		+/-14.0						
	TPU:	+/-16.8		+/-14.0						
Sodium-22	U	-1.35	U	-1.23	pCi/L	0.0237		(0-1)		
	Uncert:	+/-1.46		+/-0.974						
	TPU:	+/-1.46		+/-0.974						
QC1202772496 LCS										
Americium-241	2780			2920	pCi/L		105	(80%-120%)	KXG3	11/08/1212:19
	Uncert:			+/-163						
	TPU:			+/-163						
Cesium-137	6090			6310	pCi/L		104	(80%-120%)		
	Uncert:			+/-264						
	TPU:			+/-264						
Cobalt-60	5670			5730	pCi/L		101	(80%-120%)		
	Uncert:			+/-241						
	TPU:			+/-241						
Neptunium-237			U	32.7	pCi/L					
	Uncert:			+/-21.0						
	TPU:			+/-21.0						
Potassium-40			U	-60.9	pCi/L					
	Uncert:			+/-46.6						
	TPU:			+/-46.6						
Sodium-22			U	-0.12	pCi/L					
	Uncert:			+/-6.61						
	TPU:			+/-6.61						
QC1202772494 MB										
Cesium-137			U	-0.192	pCi/L				KXG3	11/07/1210:58
	Uncert:			+/-1.11						
	TPU:			+/-1.11						
Cobalt-60			U	2.16	pCi/L					
	Uncert:			+/-1.07						
	TPU:			+/-1.07						
Neptunium-237			U	-0.975	pCi/L					
	Uncert:			+/-2.08						
	TPU:			+/-2.08						
Potassium-40			U	-6.92	pCi/L					
	Uncert:			+/-13.7						
	TPU:			+/-13.7						
Sodium-22			U	0.849	pCi/L					

QC Summary

Workorder: 314340

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1260199										
Uncert:				+/-0.975						
TPU:				+/-0.975						
Rad Gas Flow										
Batch 1260884										
QC1202774231 314445001 DUP										
Strontium-90	U	0.224	U	-0.222	pCi/L	0.800		(0-1)	VXC2	11/24/1211:55
Uncert:		+/-0.147		+/-0.130						
TPU:		+/-0.148		+/-0.130						
**Strontium Carrier	7.17	6.40		6.20	mg		86.5	(50%-105%)		
QC1202774233 LCS										
Strontium-90	24.8			24.1	pCi/L		96.9	(80%-120%)	VXC2	11/21/1217:03
Uncert:				+/-0.597						
TPU:				+/-2.04						
**Strontium Carrier	7.17			6.00	mg		83.7	(50%-105%)		
QC1202774230 MB										
Strontium-90			U	-0.0606	pCi/L				VXC2	11/21/1217:02
Uncert:				+/-0.0614						
TPU:				+/-0.0614						
**Strontium Carrier	7.17			6.60	mg		92.1	(50%-105%)		
QC1202774232 314445001 MS										
Strontium-90	124 U	0.224		126	pCi/L		101	(75%-125%)	VXC2	11/21/1217:03
Uncert:		+/-0.147		+/-2.95						
TPU:		+/-0.148		+/-10.4						
**Strontium Carrier	7.17	6.40		6.40	mg		89.3	(50%-105%)		
Batch 1260898										
QC1202774276 314136001 DUP										
Alpha	U	0.899	U	0.189	pCi/L	0.288		(0-1)	BXF1	11/17/1216:40
Uncert:		+/-0.682		+/-0.545						
TPU:		+/-0.686		+/-0.545						
Beta	U	0.924	U	-1.31	pCi/L	0.667		(0-1)		11/16/1208:56
Uncert:		+/-0.855		+/-0.816						
TPU:		+/-0.859		+/-0.816						
QC1202774279 LCS										
Alpha	12.0			11.5	pCi/L		96	(80%-120%)	BXF1	11/18/1219:49
Uncert:				+/-0.620						
TPU:				+/-1.15						
Beta	49.7			45.8	pCi/L		92.2	(80%-120%)		11/15/1213:21
Uncert:				+/-0.882						
TPU:				+/-3.90						
QC1202774275 MB										
Alpha			U	0.00668	pCi/L				BXF1	11/17/1216:41
Uncert:				+/-0.0924						
TPU:				+/-0.0925						
Beta			U	0.0423	pCi/L					11/15/1213:19
Uncert:				+/-0.096						
TPU:				+/-0.0961						
QC1202774277 314136001 MS										
Alpha	481 U	0.899		408	pCi/L		84.7	(75%-125%)	BXF1	11/17/1216:40

QC Summary

Workorder: 314340

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1260898										
	Uncert:	+/-0.682		+/-23.0						
	TPU:	+/-0.686		+/-41.4						
Beta	1990 U	0.924		1730	pCi/L		87.2	(75%-125%)		11/15/1213:20
	Uncert:	+/-0.855		+/-34.2						
	TPU:	+/-0.859		+/-151						
QC1202774278 314136001 MSD										
Alpha	481 U	0.899		370	pCi/L	0.236	76.9	(0-1)	BXF1	11/17/1216:40
	Uncert:	+/-0.682		+/-21.5						
	TPU:	+/-0.686		+/-37.6						
Beta	1990 U	0.924		1850	pCi/L	0.193	93.2	(0-1)		11/15/1213:21
	Uncert:	+/-0.855		+/-36.3						
	TPU:	+/-0.859		+/-158						
Rad Liquid Scintillation										
Batch 1260474										
QC1202773258 314529001 DUP										
Tritium	U	56.6	U	55.7	pCi/L	0.00467		(0-1)	BYS1	11/11/1221:23
	Uncert:	+/-45.7		+/-46.7						
	TPU:	+/-46.0		+/-47.0						
QC1202773260 LCS										
Tritium	2010			2150	pCi/L		107	(80%-120%)	BYS1	11/11/1223:40
	Uncert:			+/-200						
	TPU:			+/-291						
QC1202773257 MB										
Tritium			U	-17.1	pCi/L				BYS1	11/11/1219:21
	Uncert:			+/-45.2						
	TPU:			+/-45.2						
QC1202773259 314529001 MS										
Tritium	2010 U	56.6		1650	pCi/L		82.1	(75%-125%)	BYS1	11/11/1223:24
	Uncert:	+/-45.7		+/-178						
	TPU:	+/-46.0		+/-241						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value

QC Summary

Workorder: **314340**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time

FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

University of Illinois

University of Illinois, Dept. of Geology, MC-102, 245 Natural History Bldg. 1301 W. Gr
Urbana IL 61801

Chain of Custody/Analysis Request

COC/Lab Request #: 12-1565

Client Contact:

Lab Agreement # : (217) 244-2002

Project Number :

Analysis Turnaround Time:

- 24 Hour - ☐
- Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-CR52/53
CASA-12-14081	May 22 2012	13:03	W	1
CASA-12-14082	May 22 2012	15:00	W	1

Special Instructions:

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
Melissa Montoya		5/25/12 3:00		
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3891 **EVENT NAME:** Sandia Q3 Additional Samples (TO8, FCN 26)

SAMPLE ID: CASA-12-14081 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		05/22/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1303	MEDIA:	WGR	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-43 S1	↓	FIELD PREP:	F	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P1A	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CR52/53	1 LITER POLY	1	ICE	Y	NA
NA	WSP-N15/O18-NO3	40 ML SEPTUM AMBER GLASS	2	ICE	Y	NA

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS: POL 05/22/12

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

See CASA-12-14058

COLLECTED BY (PRINT) Bobbie Rappe

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	05/22/12 1605	(Printed Name) S Sherwood (Signature) Sheri Sherwood	05/22/12 1605
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 05/10/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3891 **EVENT NAME:** Sandia Q3 Additional Samples (TO8, FCN 26)

SAMPLE ID: CASA-12-14082 **WORK ORDER:** NA

		AS PLANNED	AS COLLECTED			AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):			05/22/2012	FIELD MATRIX:	WG		OK
TIME COLLECTED (HH:MM):			1500	MEDIA:	WGR		↓
PRS ID:			OK	SAMPLE TECH CODE:	UA		GSP
LOCATION ID:	R-43 S2		↓	FIELD PREP:	F		OK
LOCATION TYPE:	MON		↓	FIELD QC TYPE:	REG		↓
PORT:	P2A		↓	SAMPLE USAGE:	INV		↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CR52/53	1 LITER POLY	1	ICE	Y	NA
NA	WSP-N15/O18-NO3	40 ML SEPTUM AMBER GLASS	2	ICE	Y	NA

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

See CASA-12-14059

COLLECTED BY (PRINT) Bobbie Rapp

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	05/22/12 1605	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	05/22/12 1605
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**
(Printed Name) (Signature)		(Printed Name) (Signature)	

Report Date 05/10/2012

Greene, Keith R

From: Johnson, Thomas Martin [tmjohnsn@illinois.edu]
Sent: Wednesday, December 05, 2012 8:54 AM
To: Greene, Keith R
Subject: Re: Cr stable isotope results

Yes, we can run more.
-Tom

On Dec 5, 2012, at 9:48 AM, Greene, Keith R wrote:

Yes still bill GEL, can we send you some more ?

From: Johnson, Thomas Martin [mailto:tmjohnsn@illinois.edu]
Sent: Wednesday, December 05, 2012 8:47 AM
To: Greene, Keith R
Cc: Heikoop, Jeff
Subject: Cr stable isotope results

Keith,

Results from Cr stable isotope analysis:

Sample ID LANL concentration
UIUC Conc. Delta53Cr
CASA-12-14081 34.5 ug/l
37.9 0.97‰
CASA-12-14082 3.45 ug/L
3.30 1.64‰
CAMO-12-14078 135 ug/L 126 1.05‰

12-1564
12-1565

Question: Are we still billing through Valerie Davis at GEL?

Regards,
Tom Johnson

Thomas M. Johnson
University of Illinois at Urbana-Champaign
Professor and Department Head
Department of Geology, MC-102
208 Natural History Building
1301 West Green Street
Urbana, IL 61801
http://www.geology.illinois.edu/
Phone (217) 244-2002

University of Illinois

University of Illinois, Dept. of Geology, MC-102, 245 Natural History Bldg. 1301 W. Gr
Urbana IL 61801

Chain of Custody/Analysis Request

COC/Lab Request #: 12-1564

Client Contact:

Lab Agreement # : (217) 244-2002

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-CR52/53	Special Instructions:
CAMO-12-14078	Jun 6 2012	12:31	W	1	

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
Melissa Montoya		9/25/12 3:00		
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 3890 **EVENT NAME:** Mortandad Q3 Additional Samples (TO8, FCN 24 and FCN 26)

SAMPLE ID: CAMO-12-14078 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		06/06/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1231	MEDIA:	WGR	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-62	↓	FIELD PREP:	F	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CR52/53	1 LITER POLY	1	ICE	Y	NA
↓	WSP-N15/O18-NO3	40 ML SEPTUM AMBER GLASS	2	ICE	↓	↓

SAMPLE COMMENTS:

LOCATION COMMENTS: See CAMO-12-14018

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) S. Muggleton

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
Williamson	6/6/12 1420		6/6/12 1420
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 05/10/2012

Greene, Keith R

From: Johnson, Thomas Martin [tmjohnsn@illinois.edu]
Sent: Wednesday, December 05, 2012 8:54 AM
To: Greene, Keith R
Subject: Re: Cr stable isotope results

Yes, we can run more.
-Tom

On Dec 5, 2012, at 9:48 AM, Greene, Keith R wrote:

Yes still bill GEL, can we send you some more ?

From: Johnson, Thomas Martin [mailto:tmjohnsn@illinois.edu]
Sent: Wednesday, December 05, 2012 8:47 AM
To: Greene, Keith R
Cc: Heikoop, Jeff
Subject: Cr stable isotope results

Keith,

Results from Cr stable isotope analysis:

Sample ID LANL concentration
UIUC Conc. Delta53Cr
CASA-12-14081 34.5 ug/l
37.9 0.97‰
CASA-12-14082 3.45 ug/L
3.30 1.64‰
CAMO-12-14078 135 ug/L 126 1.05‰

12-1564
12-1565

Question: Are we still billing through Valerie Davis at GEL?

Regards,
Tom Johnson

Thomas M. Johnson
University of Illinois at Urbana-Champaign
Professor and Department Head
Department of Geology, MC-102
208 Natural History Building
1301 West Green Street
Urbana, IL 61801
http://www.geology.illinois.edu/
Phone (217) 244-2002

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-258

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-H-3	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CAMO-13-24241	Oct 31 2012	13:53	W			1				1	1	
CAMO-13-24258	Oct 31 2012	13:53	W	1	1			1	1			
CAMO-13-24243	Oct 31 2012	11:03	W			1	1			1	1	
CAMO-13-24260	Oct 31 2012	11:03	W	1	1			1	1			

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
		11/1/12 3:00		
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24241

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/31/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1353	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	ok
LOCATION ID:	R-13	↓	FIELD PREP:	UF	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: see CAMO-13-24258

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) D. Woody

RELINQUISHED BY (Printed Name) Meegan Green **(Signature)**	**Date/Time** 10/31/12 1515	**RECEIVED BY (Printed Name)** **(Signature)**	**Date/Time** 10/31/12 1515
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24258 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/31/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1353	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	68P
LOCATION ID:	R-13	↓	FIELD PREP:	F	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
↓	WSP-GENINORG	1 LITER POLY	1	ICE	↓	↓
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Samples collected within 50ft of diesel generator

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 6.36 mg/L Oxidation-Reduction Potential 217.2 MV pH 8.21 SU

Specific Conductance 146 uS/cm Temperature 21.40 deg C Turbidity 0.29 NTU

COLLECTED BY (PRINT) D. Woody

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Megan Green (Signature)	10/31/12 1515	(Printed Name) (Signature)	10/31/12 1515
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24243 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/31/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1103	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-28	↓	FIELD PREP:	UF	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
↓	WSP-H-3	250 ML AMBER GLASS	1	ICE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: See CAMO-13-24243

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) D. Woody

RELINQUISHED BY (Printed Name) Megan Green (Signature)	**Date/Time** 10/31/12 1515	**RECEIVED BY** (Printed Name) (Signature) M. Martin	**Date/Time** 10/31/12 1515
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24260

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/31/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1103	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GJP
LOCATION ID:	R-28	↓	FIELD PREP:	F	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
ok	WSP-CL04	250 ML POLY	1	ICE	Y	NA
↓	WSP-GENINORG	1 LITER POLY	1	ICE	↓	↓
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Samples collected within 50ft of diesel generator

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 6.55 mg/L Oxidation-Reduction Potential 183.7 MV pH 7.63 SU

Specific Conductance 435 uS/cm Temperature 20.48 deg C Turbidity 0.45 NTU

COLLECTED BY (PRINT) D. Woody

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Maya Green (Signature)	10/31/12 1515	(Printed Name) M. Martinez (Signature)	10/31/12 1515
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-258

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
314445	EPA:120.1	2				
314445	EPA:150.1	2				
314445	EPA:160.1	2				
314445	EPA:245.2	2				
314445	EPA:300.0	2				
314445	EPA:310.1	2				
314445	EPA:350.1	2				
314445	EPA:351.2	2				
314445	EPA:353.2	2				
314445	EPA:365.4	2				
314445	EPA:900	2				
314445	EPA:901.1	2				
314445	EPA:905.0	2				
314445	EPA:906.0	1				
314445	HASL-300:AM-241	2				
314445	HASL-300:ISOPU	2				
314445	HASL-300:ISOU	2				
314445	SM:A2340B	2				
314445	SW-846:6010B	2				
314445	SW-846:6020	2				
314445	SW-846:6850	2				
314445	SW-846:9060	2				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
314445	EPA:120.1	1265081	1265081	2							
314445	EPA:150.1	1260327	1260327	2							
314445	EPA:160.1	1260149	1260149	2					1		
314445	EPA:245.2	1264600	1264596	2					1	2	
314445	EPA:300.0	1259659	1259659	2					1		
314445	EPA:310.1	1262572	1262572	2					2	1	
314445	EPA:350.1	1260275	1260272	2					1	2	2
314445	EPA:351.2	1260284	1260283	2					1	1	1
314445	EPA:353.2	1260239	1260239	2					1		
314445	EPA:365.4	1260281	1260280	2					1	1	1
314445	EPA:900	1260898	1260898	2					1	1	1
314445	EPA:901.1	1260199	1260199	2					1		
314445	EPA:905.0	1260884	1260884	2					1	1	
314445	EPA:906.0	1260474	1260474	1					1	1	
314445	HASL-300:AM-241	1259852	1259852	2					1		
314445	HASL-300:ISOPU	1259851	1259851	2					1		
314445	HASL-300:ISOU	1259850	1259850	2					1		
314445	SM:A2340B	1266665	1266665	2							
314445	SW-846:6010B	1260610	1260609	2					1	1	
314445	SW-846:6020	1260607	1260605	2					1	1	
314445	SW-846:6850	1260140	1260138	2					1	1	1
314445	SW-846:9060	1260735	1260735	2					1		

Data Validation Report for:

Chain Of Custody No. 2013-258

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				2			
		1				1			
		1				2			
		1				2			
		1				1			
		2				1			
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1							
		1				1			

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24255	1202784135	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24258	1202784136	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24258	314445002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24260	314445004	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202784137	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24258	1202772818	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24258	314445002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24260	314445004	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202772819	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24258	314445002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24260	1202772397	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24260	314445004	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CASA-13-24223	1202772398	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202772399	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202772396	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783063	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783067	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783064	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783068	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24258	314445002	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24260	314445004	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202783069	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202783062	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24255	1202771232	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24258	314445002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24260	314445004	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202771234	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202771231	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24255	1202778371	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24255	1202778372	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24258	314445002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24260	314445004	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202778366	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202778927	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202778365	MB	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202778926	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	1202772677	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	1202772679	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	1202772681	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	1202772678	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	1202772680	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	1202772682	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24258	314445002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24260	314445004	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202772683	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202772676	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	1202772708	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	1202772709	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	1202772710	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24241	314445001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24243	314445003	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202772711	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202772707	MB	1	0	0	0

EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24255	1202772608	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24258	314445002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24260	314445004	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202772612	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202772605	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	1202772696	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	1202772698	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	1202772700	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24258	314445002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24260	314445004	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202772701	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202772694	MB	1	0	0	0
EPA:900	RAD	CAMO-13-24241	314445001	REG	2	0	0	0
EPA:900	RAD	CAMO-13-24243	314445003	REG	2	0	0	0
EPA:900	RAD	CAPA-12-23808	1202774276	DUP	2	0	0	0
EPA:900	RAD	CAPA-12-23808	1202774277	MS	0	0	2	0
EPA:900	RAD	CAPA-12-23808	1202774278	MSD	0	0	2	0
EPA:900	RAD	LCS	1202774279	LCS	0	0	2	0
EPA:900	RAD	MB	1202774275	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24241	314445001	REG	5	0	0	0
EPA:901.1	RAD	CAMO-13-24243	314445003	REG	5	0	0	0
EPA:901.1	RAD	CAMO-13-24279	1202772495	DUP	6	0	0	0
EPA:901.1	RAD	LCS	1202772496	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202772494	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24241	1202774231	DUP	1	0	0	0
EPA:905.0	RAD	CAMO-13-24241	1202774232	MS	0	0	1	0
EPA:905.0	RAD	CAMO-13-24241	314445001	REG	1	0	0	0
EPA:905.0	RAD	CAMO-13-24243	314445003	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202774233	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202774230	MB	1	0	0	0
EPA:906.0	RAD	CAMO-13-24243	314445003	REG	1	0	0	0
EPA:906.0	RAD	CASA-13-24215	1202773258	DUP	1	0	0	0
EPA:906.0	RAD	CASA-13-24215	1202773259	MS	0	0	1	0
EPA:906.0	RAD	LCS	1202773260	LCS	0	0	1	0
EPA:906.0	RAD	MB	1202773257	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24225	1202771691	DUP	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24241	314445001	REG	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24243	314445003	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202771693	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202771689	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24225	1202771686	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24241	314445001	REG	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24243	314445003	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202771688	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202771684	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24225	1202771682	DUP	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24241	314445001	REG	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24243	314445003	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202771683	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202771681	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24258	314445002	REG	1	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24260	314445004	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24258	314445002	REG	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24260	314445004	REG	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24283	1202773562	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24283	1202773563	MS	0	0	17	0
SW-846:6010B	INORGANIC	LCS	1202773561	LCS	0	0	17	0

SW-846:6010B	INORGANIC	MB	1202773560	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24258	314445002	REG	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24260	314445004	REG	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24283	1202773554	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24283	1202773555	MS	0	0	11	0
SW-846:6020	INORGANIC	LCS	1202773553	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202773552	MB	11	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24258	314445002	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24259	1202772360	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24259	1202772361	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24260	314445004	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202772359	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202772358	MB	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24241	1202773872	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24241	314445001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24243	314445003	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202773876	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202773871	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202772694	METHOD BLANK	EPA:365.4	W	Total Phosphate as Phosphorus	0.0459	J	mg/L	0.05
MB	1202772707	METHOD BLANK	EPA:351.2	W	Total Kjeldahl Nitrogen	0.0602	J	mg/L	0.1
MB	1202773560	METHOD BLANK	SW-846:6010B	W	Sodium	236	J	ug/L	300
MB	1202773560	METHOD BLANK	SW-846:6010B	W	Strontium	1.55	J	ug/L	5
MB	1202773871	METHOD BLANK	SW-846:9060	W	Total Organic Carbon	0.488	J	mg/L	1

Any samples affected by the presence of contaminants in blanks?

Field Sample ID	Blank Field Sample ID	Blank Lab Sample ID	Blank Type	Analytical Method	Parameter Name	Units	Blank Result	Sample Result	Lab Qualifier	Detect Limit	Detected
CAMO-13-24241	MB	1202772707	METHOD BLANK	EPA:351.2	Total Kjeldahl Nitrogen	mg/L	0.0602	0.0756	J	0.1	Y
CAMO-13-24243	MB	1202772707	METHOD BLANK	EPA:351.2	Total Kjeldahl Nitrogen	mg/L	0.0602	0.19		0.1	Y
CAMO-13-24258	MB	1202772694	METHOD BLANK	EPA:365.4	Total Phosphate as Phosphorus	mg/L	0.0459	0.0418	J	0.05	Y

Correction Factor (ND)	Correction Factor (J)	Use Factors
5		Y
5		Y
5		Y

CAMO-13-24260	MB	1202772694	METHOD BLANK	EPA:365.4	Total Phosphate as Phosphorus	mg/L	0.0459	0.019	J	0.05	Y
CAMO-13-24241	MB	1202773871	METHOD BLANK	SW-846:9060	Total Organic Carbon	mg/L	0.488	0.68	J	1	Y
CAMO-13-24243	MB	1202773871	METHOD BLANK	SW-846:9060	Total Organic Carbon	mg/L	0.488	1.28		1	Y

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CAMO-13-24238	1202772709	1202772710	EPA:351.2	Total Kjeldahl Nitrogen	1260283	11/6/2012	W	84.8	96	110	90

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-13	2013-258	CAMO-13-24241	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-13	2013-258	CAMO-13-24241	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-13	2013-258	CAMO-13-24241	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-13	2013-258	CAMO-13-24241	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-13	2013-258	CAMO-13-24241	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-13	2013-258	CAMO-13-24241	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-13	2013-258	CAMO-13-24241	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-13	2013-258	CAMO-13-24241	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-13	2013-258	CAMO-13-24241	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-13	2013-258	CAMO-13-24241	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-13	2013-258	CAMO-13-24241	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-13	2013-258	CAMO-13-24241	REG	INIT	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	J	U	I4	N

5		Y
5		Y
5		Y

Rejection Limit	RPD	RPD Limit
10	11.6	20

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
0.0077	pCi/L	0.0077	pCi/L	0.0292	0.00574	W	10/31/2012		1259852	VAL	Y
-1.91	pCi/L	-1.91	pCi/L	4.23	1.31	W	10/31/2012		1260199	VAL	Y
-0.158	pCi/L	-0.158	pCi/L	4.07	1.1	W	10/31/2012		1260199	VAL	Y
0.631	pCi/L	0.631	pCi/L	2.6	0.7	W	10/31/2012		1260898	VAL	Y
-0.196	pCi/L	-0.196	pCi/L	2.87	0.775	W	10/31/2012		1260898	VAL	Y
-1.1	pCi/L	-1.1	pCi/L	7.66	2.19	W	10/31/2012		1260199	VAL	Y
0	pCi/L	0	pCi/L	0.035	0.00728	W	10/31/2012		1259851	VAL	Y
0.00364	pCi/L	0.00364	pCi/L	0.0581	0.00814	W	10/31/2012		1259851	VAL	Y
21.5	pCi/L	21.5	pCi/L	58.3	14.9	W	10/31/2012		1260199	VAL	Y
-0.961	pCi/L	-0.961	pCi/L	3.85	1.14	W	10/31/2012		1260199	VAL	Y
0.224	pCi/L	0.224	pCi/L	0.489	0.147	W	10/31/2012		1260884	VAL	Y
0.0756	mg/L	0.0756	mg/L			W	10/31/2012		1260284	VAL	Y

R-13	2013-258	CAMO-13-24241	REG	INIT	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	J	U	I4	N
R-13	2013-258	CAMO-13-24241	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-28	2013-258	CAMO-13-24243	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-28	2013-258	CAMO-13-24243	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-28	2013-258	CAMO-13-24243	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-28	2013-258	CAMO-13-24243	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-28	2013-258	CAMO-13-24243	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-28	2013-258	CAMO-13-24243	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-28	2013-258	CAMO-13-24243	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-28	2013-258	CAMO-13-24243	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-28	2013-258	CAMO-13-24243	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-28	2013-258	CAMO-13-24243	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-28	2013-258	CAMO-13-24243	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-28	2013-258	CAMO-13-24243	REG	INIT	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen		U	I4	N
R-28	2013-258	CAMO-13-24243	REG	INIT	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon		U	I4	N
R-28	2013-258	CAMO-13-24243	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-13	2013-258	CAMO-13-24258	REG	INIT	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	J	U	I4	N
R-28	2013-258	CAMO-13-24260	REG	INIT	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	J	U	I4	N

Reason Code	Description
I4	the sample result is =<5x the concentration of related analyte in the method blank.
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24241	R-13	REG	EPA:351.2	0	1
CAMO-13-24241	R-13	REG	EPA:900	0	2
CAMO-13-24241	R-13	REG	EPA:901.1	0	5
CAMO-13-24241	R-13	REG	EPA:905.0	0	1
CAMO-13-24241	R-13	REG	HASL-300:AM-241	0	1
CAMO-13-24241	R-13	REG	HASL-300:ISOPU	0	2
CAMO-13-24241	R-13	REG	HASL-300:ISOU	0	3
CAMO-13-24241	R-13	REG	SW-846:9060	0	1
CAMO-13-24243	R-28	REG	EPA:351.2	0	1
CAMO-13-24243	R-28	REG	EPA:900	0	2
CAMO-13-24243	R-28	REG	EPA:901.1	0	5
CAMO-13-24243	R-28	REG	EPA:905.0	0	1
CAMO-13-24243	R-28	REG	EPA:906.0	0	1
CAMO-13-24243	R-28	REG	HASL-300:AM-241	0	1
CAMO-13-24243	R-28	REG	HASL-300:ISOPU	0	2
CAMO-13-24243	R-28	REG	HASL-300:ISOU	0	3
CAMO-13-24243	R-28	REG	SW-846:9060	0	1
CAMO-13-24258	R-13	REG	EPA:120.1	0	1
CAMO-13-24258	R-13	REG	EPA:150.1	0	1

0.68	mg/L	0.68	mg/L			W	10/31/2012		1260735	VAL	Y
0.0196	pCi/L	0.0196	pCi/L	0.0573	0.012	W	10/31/2012		1259850	VAL	Y
0.0047	pCi/L	0.0047	pCi/L	0.0268	0.00576	W	10/31/2012		1259852	VAL	Y
0.00362	pCi/L	0.00362	pCi/L	4.61	1.25	W	10/31/2012		1260199	VAL	Y
-0.795	pCi/L	-0.795	pCi/L	4.8	1.32	W	10/31/2012		1260199	VAL	Y
1.61	pCi/L	1.61	pCi/L	2.71	0.89	W	10/31/2012		1260898	VAL	Y
2.2	pCi/L	2.2	pCi/L	2.52	0.837	W	10/31/2012		1260898	VAL	Y
-0.568	pCi/L	-0.568	pCi/L	8.76	2.5	W	10/31/2012		1260199	VAL	Y
-0.00691	pCi/L	-0.00691	pCi/L	0.0332	0.00691	W	10/31/2012		1259851	VAL	Y
-0.00691	pCi/L	-0.00691	pCi/L	0.0552	0.00846	W	10/31/2012		1259851	VAL	Y
-22.4	pCi/L	-22.4	pCi/L	51.6	14.7	W	10/31/2012		1260199	VAL	Y
-1.24	pCi/L	-1.24	pCi/L	5.02	1.42	W	10/31/2012		1260199	VAL	Y
0.207	pCi/L	0.207	pCi/L	0.426	0.129	W	10/31/2012		1260884	VAL	Y
0.19	mg/L	0.19	mg/L			W	10/31/2012		1260284	VAL	Y
1.28	mg/L	1.28	mg/L			W	10/31/2012		1260735	VAL	Y
0.0139	pCi/L	0.0139	pCi/L	0.0408	0.00986	W	10/31/2012		1259850	VAL	Y
0.0418	mg/L	0.0418	mg/L			W	10/31/2012		1260281	VAL	Y
0.019	mg/L	0.019	mg/L			W	10/31/2012		1260281	VAL	Y

CAMO-13-24258	R-13	REG	EPA:160.1	0	1
CAMO-13-24258	R-13	REG	EPA:245.2	0	1
CAMO-13-24258	R-13	REG	EPA:300.0	0	4
CAMO-13-24258	R-13	REG	EPA:310.1	0	2
CAMO-13-24258	R-13	REG	EPA:350.1	0	1
CAMO-13-24258	R-13	REG	EPA:353.2	0	1
CAMO-13-24258	R-13	REG	EPA:365.4	0	1
CAMO-13-24258	R-13	REG	SM:A2340B	0	1
CAMO-13-24258	R-13	REG	SW-846:6010B	0	17
CAMO-13-24258	R-13	REG	SW-846:6020	0	11
CAMO-13-24258	R-13	REG	SW-846:6850	0	1
CAMO-13-24260	R-28	REG	EPA:120.1	0	1
CAMO-13-24260	R-28	REG	EPA:150.1	0	1
CAMO-13-24260	R-28	REG	EPA:160.1	0	1
CAMO-13-24260	R-28	REG	EPA:245.2	0	1
CAMO-13-24260	R-28	REG	EPA:300.0	0	4
CAMO-13-24260	R-28	REG	EPA:310.1	0	2
CAMO-13-24260	R-28	REG	EPA:350.1	0	1
CAMO-13-24260	R-28	REG	EPA:353.2	0	1
CAMO-13-24260	R-28	REG	EPA:365.4	0	1
CAMO-13-24260	R-28	REG	SM:A2340B	0	1
CAMO-13-24260	R-28	REG	SW-846:6010B	0	17
CAMO-13-24260	R-28	REG	SW-846:6020	0	11
CAMO-13-24260	R-28	REG	SW-846:6850	0	1

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

November 28, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 314445
SDG: 2013-258

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 02, 2012, and analyzed for General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-258
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 314445
SDG: 2013-258

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....9

Perchlorates by LCMSMS Analysis.....11

Case Narrative.....12

Sample Data Summary.....18

Quality Control Summary.....21

Quality Control Data.....24

Miscellaneous.....30

Metals Analysis.....32

Case Narrative.....33

Sample Data Summary.....39

Quality Control Summary.....45

General Chem Analysis.....59

Case Narrative.....60

Sample Data Summary.....88

Quality Control Summary.....96

Miscellaneous.....101

Radiological Analysis.....104

Sample Data Summary.....118

Quality Control Data.....123

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 314445
SDG # : 2013-258

November 28, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 02, 2012 for analysis.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
314445001	CAMO-13-24241
314445002	CAMO-13-24258
314445003	CAMO-13-24243
314445004	CAMO-13-24260

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Hope Taylor for
Valerie Davis
Project Manager

List of current GEL Certifications as of 28 November 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

314445

COC/Lab Request #: 2013-258

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Site Name: Los Alamos National Laboratory

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-H-3	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CAMO-13-24241	Oct 31 2012	13:53	W			1				1	1	
CAMO-13-24258	Oct 31 2012	13:53	W	1	1			1	1			
CAMO-13-24243	Oct 31 2012	11:03	W			1	1			1	1	
CAMO-13-24260	Oct 31 2012	11:03	W	1	1			1	1			

Special Instructions:

Relinquished by:		Date/Time: 11/1/12 3:00	Received by:	110212@0905
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/AR/COC/Work Order:** 203-258
Received By: H. Taylor	**Date Received:** 110212

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Ice bags (Blue ice) Dry ice None Other (describe) 3,4,19 *all temperatures are recorded in Celsius
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: 0152464 Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	✓			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
7	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	✓			~~ID's and tests affected:~~
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			
14	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 5462 9832 4820-3 4830-4 4841-4 4819-19

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials HT Date 110312 Page 1 of 1

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 01NOV12
ACTWGT: 46.0 LB MAN
CAD: 0044176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

3

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

50DC1/9CCB/10BC

FedEx Express

J111311060 60125

2 of 3
MPS# 0263 5462 9832 4820
Mstr# 5462 9832 4819

FRI - 02 NOV A1
PRIORITY OVERNIGHT
0201

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 01NOV12
ACTWGT: 45.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

4

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

50DC1/9CCB/10BC

FedEx Express

J111311060 60125

3 of 3
MPS# 0263 5462 9832 4830
Mstr# 5462 9832 4819

FRI - 02 NOV A1
PRIORITY OVERNIGHT
0201

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 01NOV12
ACTWGT: 30.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

4

FedEx Express

J111311060601 25

TRK# 0201 5462 9832 4841

FRI - 02 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RITZ 08/10

50DC1/SCCB/10BC

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP
ACTI
CAD

BILL

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

19

FedEx Express

J111311060601 25

1 of 3

TRK# 0201 5462 9832 4819

MASTER

FRI - 2 NOV A1
PRIORIT OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RITZ 08/10

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC/MSMS
ARS International (ARSL)
SDG 2013-258

Method/Analysis Information

Procedure:	**Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method:	SW846 6850 Modified
Prep Method:	SW846 6850 Modified
Analytical Batch Number:	1260140
Prep Batch Number:	1260138

Sample Analysis

Sample ID	Client ID
314445002	CAMO-13-24258
314445004	CAMO-13-24260
1202772362	Interference Check Sample (ICS)
1202772358	Method Blank (MB)
1202772359	Laboratory Control Sample (LCS)
1202772360	314443002(CAMO-13-24259) Matrix Spike (MS)
1202772361	314443002(CAMO-13-24259) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 9.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

ICV Requirements
All associated initial calibration verification standards (ICV) met the acceptance criteria.

CCB Requirements
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

CCV Requirements
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

Low Level Standard (CRI) Requirements
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Interference Check Sample (ICS)
The interference check sample (ICS) met all recovery acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Client sample 314443002 (CAMO-13-24259) from SDG 2013-259 was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
A negative recovery of -28.4% was observed for Perchlorate-101 in MS (1202772360). The acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

Matrix Spike Duplicate (MSD) Recovery Statement
Low recoveries were observed for Perchlorate and Perchlorate-101 in MSD (1202772361). The recoveries were 63% and 3.9% respectively and the acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits.

Retention Time Standard Area Acceptance
The retention time standard areas were within the required acceptance criteria for all samples and QC.

Retention Time
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
QC samples 1202772360 (CAMO-13-24259MS) and 1202772361 (CAMO-13-24259MSD) were diluted to bring the over range concentrations within the calibration range.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG.

Miscellaneous Information

Data Exception (DER) Documentation
Data Exception Report 1138672 was generated for this SDG.

A negative recovery of -28.4% was observed for Perchlorate-101 in MS (1202772360). The acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

Low recoveries were observed for Perchlorate and Perchlorate-101 in MSD (1202772361). The recoveries were 63% and 3.9% respectively and the acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

Additional Comments
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples.

Please see the isotope ratio criteria in the Miscellaneous Section.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-258 GEL Work Order: 314445

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 12 NOV 2012 **Title: Group Leader**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24258

Date Received: 02-NOV-12

GEL Job No (SDG): 2013-258

GEL Sample ID: 314445002

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.403	ug/L		1	08-NOV-12 18:01	per1108025a
	Perchlorate Isotope Ratio			2.99			1	08-NOV-12 18:01	per1108025a
14797-73-0	Perchlorate-101	.05	.2	0.436	ug/L		1	08-NOV-12 18:01	per1108025a
	Perchlorate-O(18)			0.499	ug/L		1	08-NOV-12 18:01	per1108025a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24260

Date Received: 02-NOV-12

GEL Job No (SDG): 2013-258

GEL Sample ID: 314445004

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.930	ug/L		1	08-NOV-12 18:09	per1108026a
	Perchlorate Isotope Ratio			3.2			1	08-NOV-12 18:09	per1108026a
14797-73-0	Perchlorate-101	.05	.2	0.941	ug/L		1	08-NOV-12 18:09	per1108026a
	Perchlorate-O(18)			0.512	ug/L		1	08-NOV-12 18:09	per1108026a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2013-258

Extract Batch Code: 1260138

Date Filtered: 07-NOV-12

Matrix: WATER

Sample ID: 1202772359

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.213	ug/L	107		85 - 115
Perchlorate Isotope Ratio		3.25				-
Perchlorate-101	0.200	.212	ug/L	106		85 - 115
Perchlorate-O(18)		.479	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2013-258

Extract Batch Code: 1260138

Date Extracted: 07-NOV-12

GEL MS/PS ID: 1202772360

Client ID: CAMO-13-24259

GEL MSD/PSD ID: 1202772361

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Recovery Limit
Perchlorate	0.200	7.86	ug/L	8.04	93.3		7.98	62.6	*	.766		30	75 - 125
Perchlorate Isotope Ratio	0	3.18		3.28			3.23			1.57			-
Perchlorate-101	0.200	8.09	ug/L	8.03	-28.4	*	8.09	3.89	*	.802		30	75 - 125
Perchlorate-O(18)	0	4.99	ug/L	4.97			4.95			.302			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-258

GEL Sample ID: 1202772358

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	08-NOV-12 16:16	per1108012a
	Perchlorate Isotope Ratio						1	08-NOV-12 16:16	per1108012a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	08-NOV-12 16:16	per1108012a
	Perchlorate-O(18)			0.471	ug/L		1	08-NOV-12 16:16	per1108012a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-258

GEL Sample ID: 1202772359

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.213	ug/L		1	08-NOV-12 16:24	per1108013a
	Perchlorate Isotope Ratio			3.25			1	08-NOV-12 16:24	per1108013a
14797-73-0	Perchlorate-101	.05	.2	0.212	ug/L		1	08-NOV-12 16:24	per1108013a
	Perchlorate-O(18)			0.479	ug/L		1	08-NOV-12 16:24	per1108013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2013-258

GEL Sample ID: 1202772362

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.202	ug/L		1	08-NOV-12 16:33	per1108014a
	Perchlorate Isotope Ratio			3.12			1	08-NOV-12 16:33	per1108014a
14797-73-0	Perchlorate-101	.05	.2	0.209	ug/L		1	08-NOV-12 16:33	per1108014a
	Perchlorate-O(18)			0.502	ug/L		1	08-NOV-12 16:33	per1108014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24259MS

Date Received: 02-NOV-12

GEL Job No (SDG): 2013-258

GEL Sample ID: 1202772360

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	8.04	ug/L		10	09-NOV-12 13:31	per1109015a
	Perchlorate Isotope Ratio			3.28			10	09-NOV-12 13:31	per1109015a
14797-73-0	Perchlorate-101	.5	2	8.03	ug/L		10	09-NOV-12 13:31	per1109015a
	Perchlorate-O(18)			4.97	ug/L		10	09-NOV-12 13:31	per1109015a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24259MSD

Date Received: 02-NOV-12

GEL Job No (SDG): 2013-258

GEL Sample ID: 1202772361

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	7.98	ug/L		10	09-NOV-12 13:39	per1109016a
	Perchlorate Isotope Ratio			3.23			10	09-NOV-12 13:39	per1109016a
14797-73-0	Perchlorate-101	.5	2	8.09	ug/L		10	09-NOV-12 13:39	per1109016a
	Perchlorate-O(18)			4.95	ug/L		10	09-NOV-12 13:39	per1109016a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
10-NOV-12	Federal	Others	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LC-MS/MS	SW846-6850 Modified	Liquid	ARSL001
Batch ID:	**Sample Numbers:**		
1260140	See below		

Potentially affected work order(s)(SDG): 314340(2013-246),314341(2013-247),314443(2013-259),314445(2013-258),314529(2013-264)

Application Issues:

Failed Recovery for MS/PS

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. A negative recovery was observed for Perchlorate-101 at -28.4% in the MS (1202772360). The acceptance range is 75-125%. 2. Low recoveries were observed for Perchlorate and Perchlorate-101 in the MSD (1202772361). The recoveries were 63% and 3.9% respectively and the acceptance range is 75-125% for both.	1. & 2. The low and negative recoveries observed in the matrix spikes may be the result of the background concentration present in the parent sample, 314443002, and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER.

Originator's Name:

Charles Wilson 10-NOV-12

Data Validator/Group Leader:

Michael Penny 10-NOV-12

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-258

Sample Analysis

Sample ID	Client ID
314445002	CAMO-13-24258
314445004	CAMO-13-24260
1202773560	Method Blank (MB) **ICP**
1202773561	Laboratory Control Sample (LCS)
1202773564	314528002(CAMO-13-24283L) Serial Dilution (SD)
1202773562	314528002(CAMO-13-24283D) Sample Duplicate (DUP)
1202773563	314528002(CAMO-13-24283S) Matrix Spike (MS)
1202773552	Method Blank (MB) **ICP-MS**
1202773553	Laboratory Control Sample (LCS)
1202773556	314528002(CAMO-13-24283L) Serial Dilution (SD)
1202773554	314528002(CAMO-13-24283D) Sample Duplicate (DUP)
1202773555	314528002(CAMO-13-24283S) Matrix Spike (MS)
1202783062	Method Blank (MB) **CVAA**
1202783069	Laboratory Control Sample (LCS)
1202783066	314445002(CAMO-13-24258L) Serial Dilution (SD)
1202783064	314445002(CAMO-13-24258D) Sample Duplicate (DUP)
1202783068	314445002(CAMO-13-24258S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1260610, 1260607, 1264600 and 1266665
Prep Batch :	1260609, 1260605 and 1264596
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 7
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B
Prep Method :	SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standards met the advisory control limits with the exception of potassium that recovered outside of the advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance

criteria for all applicable analytes with the exception of sodium. The CCB recovered high for sodium but samples were 10x greater than the PQL.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 314528002 (CAMO-13-24283)-ICP and ICP-MS and 314445002 (CAMO-13-24258)-CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations 25x the IDL/MDL for CVAA, 50X the IDL/MDL for ICP and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the established criteria of less than 10% difference (%D) with the exceptions of sodium and strontium.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instruments. Dilutions were required for this SDG in order to minimize tin suppression due to matrix interferences for sample 314445004. The sample 314445004 required dilution in order to bring over range chromium concentrations within the linear calibration range of the instrument.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 11.28.12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-258 GEL Work Order: 314445

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 11-28-12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-258 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314445002 **BASIS:** As Received **DATE COLLECTED** 31-OCT-12

CLIENT ID: CAMO-13-24258 **LEVEL:** Low **DATE RECEIVED** 02-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/15/12 23:17	111512-1	1260610
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/15/12 20:43	121115-3	1260607
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/15/12 20:43	121115-3	1260607
7440-39-3	Barium	25.1	ug/L		1	5	5	1	P	HSC	11/15/12 23:17	111512-1	1260610
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/15/12 23:17	111512-1	1260610
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	11/15/12 23:17	111512-1	1260610
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/16/12 10:05	121115-8	1260607
7440-70-2	Calcium	13600	ug/L		50	200	200	1	P	HSC	11/15/12 23:17	111512-1	1260610
7440-47-3	Chromium	4.91	ug/L	J	2	10	10	1	MS	BAJ	11/16/12 11:24	121116-9	1260607
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/15/12 23:17	111512-1	1260610
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/15/12 23:17	111512-1	1260610
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/15/12 23:17	111512-1	1260610
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/16/12 10:05	121115-8	1260607
7439-95-4	Magnesium	3480	ug/L		110	300	300	1	P	HSC	11/15/12 23:17	111512-1	1260610
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/15/12 23:17	111512-1	1260610
7439-98-7	Molybdenum	1.05	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/16/12 10:05	121115-8	1260607
7440-02-0	Nickel	0.509	ug/L	J	0.5	2	2	1	MS	BAJ	11/16/12 11:24	121116-9	1260607
7440-09-7	Potassium	1240	ug/L		50	150	150	1	P	HSC	11/15/12 23:17	111512-1	1260610
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/15/12 20:43	121115-3	1260607
7631-86-9	Silica	71100	ug/L		53	213	213	1	P	HSC	11/15/12 23:17	111512-1	1260610
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/16/12 10:05	121115-8	1260607
7440-23-5	Sodium	9810	ug/L		100	300	300	1	P	HSC	11/15/12 23:17	111512-1	1260610
7440-24-6	Strontium	51	ug/L		1	5	5	1	P	HSC	11/15/12 23:17	111512-1	1260610
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/15/12 20:43	121115-3	1260607
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/15/12 23:17	111512-1	1260610
7440-61-1	Uranium	0.435	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/16/12 10:05	121115-8	1260607
7440-62-2	Vanadium	5.58	ug/L		1	5	5	1	P	HSC	11/15/12 23:17	111512-1	1260610
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	11/15/12 23:17	111512-1	1260610

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-258 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314445002 **BASIS:** As Received **DATE COLLECTED** 31-OCT-12

CLIENT ID: CAMO-13-24258 **LEVEL:** Low **DATE RECEIVED** 02-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/20/12 09:38	112012W1-10	1264600

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-258 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314445002 **BASIS:** As Received **DATE COLLECTED** 31-OCT-12

CLIENT ID: CAMO-13-24258 **LEVEL:** Low **DATE RECEIVED** 02-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	48.2	mg/L		0.453	1.24	1.24	1		JJ2	11/28/12 14:20		1266665

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1260607	1260605	SW846 3005A	50	mL	50	mL	11/09/12	MTM1
1260610	1260609	SW846 3005A	50	mL	50	mL	11/09/12	MTM1
1264600	1264596	EPA 245.1/245.2 Prep	20	mL	20	mL	11/19/12	AXS5

***Analytical Methods:**

MS	**SW846 3005/6020 DOE-AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-258 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314445004 **BASIS:** As Received **DATE COLLECTED** 31-OCT-12

CLIENT ID: CAMO-13-24260 **LEVEL:** Low **DATE RECEIVED** 02-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/15/12 23:26	111512-1	1260610
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/15/12 20:48	121115-3	1260607
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/15/12 20:48	121115-3	1260607
7440-39-3	Barium	66.3	ug/L		1	5	5	1	P	HSC	11/15/12 23:26	111512-1	1260610
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/15/12 23:26	111512-1	1260610
7440-42-8	Boron	23.7	ug/L	J	15	50	50	1	P	HSC	11/15/12 23:26	111512-1	1260610
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/16/12 10:09	121115-8	1260607
7440-70-2	Calcium	45200	ug/L		50	200	200	1	P	HSC	11/15/12 23:26	111512-1	1260610
7440-47-3	Chromium	415	ug/L		20	100	100	10	MS	BAJ	11/16/12 11:34	121116-9	1260607
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/15/12 23:26	111512-1	1260610
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/15/12 23:26	111512-1	1260610
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/15/12 23:26	111512-1	1260610
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/16/12 10:09	121115-8	1260607
7439-95-4	Magnesium	11700	ug/L		110	300	300	1	P	HSC	11/15/12 23:26	111512-1	1260610
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/15/12 23:26	111512-1	1260610
7439-98-7	Molybdenum	0.822	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/16/12 10:09	121115-8	1260607
7440-02-0	Nickel	21.1	ug/L		0.5	2	2	1	MS	BAJ	11/16/12 11:27	121116-9	1260607
7440-09-7	Potassium	1700	ug/L		50	150	150	1	P	HSC	11/15/12 23:26	111512-1	1260610
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/15/12 20:48	121115-3	1260607
7631-86-9	Silica	74400	ug/L		53	213	213	1	P	HSC	11/15/12 23:26	111512-1	1260610
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/16/12 10:09	121115-8	1260607
7440-23-5	Sodium	15300	ug/L		100	300	300	1	P	HSC	11/15/12 23:26	111512-1	1260610
7440-24-6	Strontium	172	ug/L		1	5	5	1	P	HSC	11/15/12 23:26	111512-1	1260610
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/15/12 20:48	121115-3	1260607
7440-31-5	Tin	100	ug/L	U	25	100	100	10	P	HSC	11/21/12 10:34	112112-2	1260610
7440-61-1	Uranium	1.54	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/16/12 10:09	121115-8	1260607
7440-62-2	Vanadium	5.93	ug/L		1	5	5	1	P	HSC	11/15/12 23:26	111512-1	1260610
7440-66-6	Zinc	3.67	ug/L	J	3.3	10	10	1	P	HSC	11/15/12 23:26	111512-1	1260610

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-258 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314445004 **BASIS:** As Received **DATE COLLECTED** 31-OCT-12

CLIENT ID: CAMO-13-24260 **LEVEL:** Low **DATE RECEIVED** 02-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/20/12 09:45	112012W1-10	1264600

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-258 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314445004 **BASIS:** As Received **DATE COLLECTED** 31-OCT-12

CLIENT ID: CAMO-13-24260 **LEVEL:** Low **DATE RECEIVED** 02-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	161	mg/L		0.453	1.24	1.24	1		JJ2	11/28/12 14:20		1266665

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1260607	1260605	SW846 3005A	50	mL	50	mL	11/09/12	MTM1
1260610	1260609	SW846 3005A	50	mL	50	mL	11/09/12	MTM1
1264600	1264596	EPA 245.1/245.2 Prep	20	mL	20	mL	11/19/12	AXS5

***Analytical Methods:**

MS	**SW846 3005/6020 DOE-AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−258

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202773552								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202773560								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	50	ug/L	+/−150	U	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	236	ug/L	+/−300	J	P	100	300
	Strontium	1.55	ug/L	+/−5	J	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202783062								
	Mercury	0.067	ug/L	+/−0.2	U	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−258 **Client ID** CAMO−13−24283S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314528002 **Spike ID:** 1202773555

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	223		1	U	200	111		MS
Arsenic	ug/L	75−125	77.7		1.7	U	80	95.8		MS
Cadmium	ug/L	75−125	9.86		0.11	U	10	98.6		MS
Chromium	ug/L	75−125	50.1		5.44	J	50	89.3		MS
Lead	ug/L	75−125	38.7		0.5	U	40	96.8		MS
Molybdenum	ug/L	75−125	54.6		1.2		50	107		MS
Nickel	ug/L	75−125	45.7		1.11	J	50	89.2		MS
Selenium	ug/L	75−125	20.1		1.5	U	20	99.1		MS
Silver	ug/L	75−125	55.2		0.2	U	50	110		MS
Thallium	ug/L	75−125	100		0.45	U	100	99.8		MS
Uranium	ug/L	75−125	51.9		0.582		50	103		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−258 **Client ID** CAMO−13−24283S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314528002 **Spike ID:** 1202773563

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	4970		68	U	5000	99		P
Barium	ug/L	75−125	513		25.8		500	97.5		P
Beryllium	ug/L	75−125	504		1	U	500	101		P
Boron	ug/L	75−125	502		15	U	500	98.4		P
Calcium	ug/L	75−125	15800		11000		5000	97.2		P
Cobalt	ug/L	75−125	493		1	U	500	98.4		P
Copper	ug/L	75−125	512		3	U	500	102		P
Iron	ug/L	75−125	5020		30	U	5000	100		P
Magnesium	ug/L	75−125	8870		3840		5000	101		P
Manganese	ug/L	75−125	495		2	U	500	99		P
Potassium	ug/L	75−125	6340		1690		5000	93		P
Silica	ug/L		85700		74500		10700	105	N/A	P
Sodium	ug/L	75−125	14900		9960		5000	99.5		P
Strontium	ug/L	75−125	529		50.3		500	95.7		P
Tin	ug/L	75−125	498		2.5	U	500	99.6		P
Vanadium	ug/L	75−125	517		8.72		500	102		P
Zinc	ug/L	75−125	492		3.3	U	500	98.2		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−258 **Client ID** CAMO−13−24258S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314445002 **Spike ID:** 1202783068

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	1.95		0.067	U	2	97.3		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−258 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24283D

Matrix: LIQUID **Level:** Low

Sample ID: 314528002 **Duplicate ID:** 1202773554 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	5.44	J	4.83	J	11.8		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.2		1.1		9.23		MS
Nickel	ug/L	+/−2	1.11	J	1.06	J	4.15		MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.582		0.576		1.04		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−258 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24283D

Matrix: LIQUID **Level:** Low

Sample ID: 314528002 **Duplicate ID:** 1202773562 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−20%	25.8		25		3.09		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	15	U			P
Calcium	ug/L	+/−20%	11000		10600		3.28		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L		3	U	3	U			P
Iron	ug/L		30	U	30	U			P
Magnesium	ug/L	+/−20%	3840		3560		7.62		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	1690		1660		2.19		P
Silica	ug/L	+/−20%	74500		71900		3.46		P
Sodium	ug/L	+/−20%	9960		9630		3.31		P
Strontium	ug/L	+/−20%	50.3		48.6		3.27		P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L	+/−5	8.72		8.25		5.44		P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−258 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24258D

Matrix: LIQUID **Level:** Low

Sample ID: 314445002 **Duplicate ID:** 1202783064 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−258

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202773553								
	Antimony	ug/L	50	58.9		118	80−120	MS
	Arsenic	ug/L	50	58.2		116	80−120	MS
	Cadmium	ug/L	50	54.8		110	80−120	MS
	Chromium	ug/L	50	54.8		110	80−120	MS
	Lead	ug/L	50	55.8		112	80−120	MS
	Molybdenum	ug/L	50	54.3		109	80−120	MS
	Nickel	ug/L	50	56.5		113	80−120	MS
	Selenium	ug/L	50	58.8		118	80−120	MS
	Silver	ug/L	50	57.7		115	80−120	MS
	Thallium	ug/L	50	59.7		119	80−120	MS
	Uranium	ug/L	50	56.3		113	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−258

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202773561								
	Aluminum	ug/L	5000	4910		98.1	80−120	P
	Barium	ug/L	500	479		95.8	80−120	P
	Beryllium	ug/L	500	487		97.5	80−120	P
	Boron	ug/L	500	476		95.2	80−120	P
	Calcium	ug/L	5000	4900		98.1	80−120	P
	Cobalt	ug/L	500	486		97.3	80−120	P
	Copper	ug/L	500	488		97.7	80−120	P
	Iron	ug/L	5000	4910		98.2	80−120	P
	Magnesium	ug/L	5000	5030		101	80−120	P
	Manganese	ug/L	500	488		97.6	80−120	P
	Potassium	ug/L	5000	4640		92.8	80−120	P
	Silica	ug/L	10700	10300		96.5	80−120	P
	Sodium	ug/L	5000	5070		101	80−120	P
	Strontium	ug/L	500	476		95.1	80−120	P
	Tin	ug/L	500	496		99.3	80−120	P
	Vanadium	ug/L	500	496		99.2	80−120	P
	Zinc	ug/L	500	477		95.5	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−258

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783069								
	Mercury	ug/L	2	2.08		104	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−258 **Client ID** CAMO−13−24283L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314528002 **Serial Dilution ID:** 1202773556

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	5.44	J	10	U	100			MS
Lead	.5	U	2.5	U				MS
Molybdenum	1.2		1.29	J	6.99			MS
Nickel	1.11	J	2.5	U	100			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.582		.535	J	8.08			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−258 **Client ID** CAMO−13−24283L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314528002 **Serial Dilution ID:** 1202773564

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	25.8		27.5		6.33			P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	11000		11100		.743		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	3840		3840		.095			P
Manganese	2	U	10	U				P
Potassium	1690		1740		2.67			P
Silica	74500		76100		2.23		10	P
Sodium	9960		11100		11.2	E	10	P
Strontium	50.3		57		13.5	E	10	P
Tin	2.5	U	12.5	U				P
Vanadium	8.72		11	J	26.5			P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−258 **Client ID** CAMO−13−24258L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314445002 **Serial Dilution ID:** 1202783066

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-258

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1260735 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
314445001	CAMO-13-24241
314445003	CAMO-13-24243
1202773871	Method Blank (MB)
1202773872	314445001(CAMO-13-24241) Sample Duplicate (DUP)
1202773874	314445001(CAMO-13-24241) Post Spike (PS)
1202773876	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314445001 (CAMO-13-24241).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages

electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1265081	**Method:**	EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
314445002	CAMO-13-24258
314445004	CAMO-13-24260
1202784135	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202784136	314445002(CAMO-13-24258) Sample Duplicate (DUP)
1202784137	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314340002 (CAMO-13-24255) and 314445002 (CAMO-13-24258).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1260327 **Method:** EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
314445002	CAMO-13-24258
314445004	CAMO-13-24260
1202772818	314445002(CAMO-13-24258) Sample Duplicate (DUP)
1202772819	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314445002 (CAMO-13-24258).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following samples from this sample group were received by the lab outside of the method specified holding time: 314445002 (CAMO-13-24258) and 314445004 (CAMO-13-24260).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1140480 314445002 (CAMO-13-24258) and 314445004 (CAMO-13-24260).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1259659	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
314445002	CAMO-13-24258
314445004	CAMO-13-24260
1202771231	Method Blank (MB)
1202771232	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202771233	314340002(CAMO-13-24255) Post Spike (PS)
1202771234	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The following sample in this sample group was diluted due to high concentration: 314445004 (CAMO-13-24260).

Sample Re-analysis
The following samples were re-analyzed due to CCV failure: 1202771231 (MB), 1202771232 (CAMO-13-24255), 1202771233 (CAMO-13-24255), 1202771234 (LCS), 314445002 (CAMO-13-24258) and 314445004 (CAMO-13-24260).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202771232 (CAMO-13-24255), 1202771233 (CAMO-13-24255), 314445002 (CAMO-13-24258) and 314445004 (CAMO-13-24260).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1260275	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1260272	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
314445002	CAMO-13-24258
314445004	CAMO-13-24260
1202772676	Method Blank (MB)
1202772677	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202772678	314341002(CAMO-13-24257) Sample Duplicate (DUP)
1202772679	314340002(CAMO-13-24255) Matrix Spike (MS)
1202772680	314341002(CAMO-13-24257) Matrix Spike (MS)
1202772681	314340002(CAMO-13-24255) Matrix Spike Duplicate (MSD)
1202772682	314341002(CAMO-13-24257) Matrix Spike Duplicate (MSD)
1202772683	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314340002 (CAMO-13-24255) and 314341002 (CAMO-13-24257).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries for this sample set were within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202772677 (CAMO-13-24255).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1260284	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1260283	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
314445001	CAMO-13-24241
314445003	CAMO-13-24243
1202772707	Method Blank (MB)
1202772708	314340001(CAMO-13-24238) Sample Duplicate (DUP)
1202772709	314340001(CAMO-13-24238) Matrix Spike (MS)
1202772710	314340001(CAMO-13-24238) Matrix Spike Duplicate (MSD)
1202772711	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340001 (CAMO-13-24238).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1202772709 (CAMO-13-24238).

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202772708 (CAMO-13-24238).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following samples were re-analyzed due to CCV failure: 314445001 (CAMO-13-24241) and 314445003 (CAMO-13-24243).

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1137073 1202772709 (CAMO-13-24238).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1260239	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
314445002	CAMO-13-24258
314445004	CAMO-13-24260
1202772605	Method Blank (MB)
1202772608	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202772611	314340002(CAMO-13-24255) Post Spike (PS)
1202772612	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202772608 (CAMO-13-24255), 1202772611 (CAMO-13-24255) and 314445004 (CAMO-13-24260).

Sample Re-analysis
The following samples were re-analyzed due to CCV failure: 1202772608 (CAMO-13-24255) and 1202772611 (CAMO-13-24255).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1260281	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1260280	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
314445002	CAMO-13-24258
314445004	CAMO-13-24260
1202772694	Method Blank (MB)
1202772696	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202772698	314340002(CAMO-13-24255) Matrix Spike (MS)
1202772700	314340002(CAMO-13-24255) Matrix Spike Duplicate (MSD)
1202772701	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Solids, Total Dissolved**

Analytical Batch: 1260149 **Method:** EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
314445002	CAMO-13-24258
314445004	CAMO-13-24260
1202772396	Method Blank (MB)
1202772397	314445004(CAMO-13-24260) Sample Duplicate (DUP)
1202772398	314529002(CASA-13-24223) Sample Duplicate (DUP)
1202772399	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314445004 (CAMO-13-24260) and 314529002 (CASA-13-24223).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Alkalinity**

Analytical Batch: 1262572 **Method:** EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
314445002	CAMO-13-24258
314445004	CAMO-13-24260
1202778366	Laboratory Control Sample (LCS)
1202778371	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202778372	314340002(CAMO-13-24255) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____28Nov12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-258 GEL Work Order: 314445

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-258

Client Sample ID:	CAMO-13-24241	Project:	ESHL00210
Sample ID:	314445001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	31-OCT-12 13:53		
Receive Date:	02-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.680	0.330	1.00	mg/L	1	TSM	11/08/12	2258	1260735	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	J	0.0756	0.035	0.100	mg/L	1	KLP1	11/06/12	1438	1260284	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/05/12	1700	1260283

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-258

Client Sample ID:	CAMO-13-24258	Project:	ESHL00210
Sample ID:	314445002	Client ID:	ARSL001
Matrix:	W		
Collect Date:	31-OCT-12 13:53		
Receive Date:	02-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		141	1.00	1.00	umhos/cm	1	TXT1	11/20/12	1122	1265081	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 13.3C	H	8.06	0.010	0.100	SU	1	LXA1	11/06/12	0829	1260327	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Chloride		2.41	0.067	0.200	mg/L	1	MAR1	11/13/12	0251	1259659	3
Fluoride		0.301	0.033	0.100	mg/L	1					
Sulfate		3.14	0.133	0.400	mg/L	1					
Bromide	J	0.0682	0.067	0.200	mg/L	1	MAR1	11/13/12	2316	1259659	4
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	J	0.031	0.017	0.050	mg/L	1	KLP1	11/06/12	0946	1260275	5
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.682	0.017	0.050	mg/L	1	AXH3	11/05/12	1346	1260239	6
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	J	0.0418	0.017	0.050	mg/L	1	KLP1	11/06/12	1638	1260281	7
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		133	3.40	14.3	mg/L		LYG1	11/05/12	0758	1260149	8
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		62.2	0.725	1.00	mg/L		LXA1	11/12/12	1506	1262572	9
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/05/12	1600	1260272
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/05/12	1700	1260280

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-258
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24258	Project:	ESHL00210
Sample ID:	314445002	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 300.0	
5	EPA 350.1	
6	EPA 353.2	
7	EPA 365.4	
8	EPA 160.1	
9	EPA 310.1	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-258

Client Sample ID:	CAMO-13-24243	Project:	ESHL00210
Sample ID:	314445003	Client ID:	ARSL001
Matrix:	W		
Collect Date:	31-OCT-12 11:03		
Receive Date:	02-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average		1.28	0.330	1.00	mg/L	1	TSM	11/09/12	0000	1260735	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl		0.190	0.035	0.100	mg/L	1	KLP1	11/06/12	1439	1260284	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/05/12	1700	1260283

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-258

Client Sample ID:	CAMO-13-24260	Project:	ESHL00210
Sample ID:	314445004	Client ID:	ARSL001
Matrix:	W		
Collect Date:	31-OCT-12 11:03		
Receive Date:	02-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		415	1.00	1.00	umhos/cm	1	TXT1	11/20/12	1123	1265081	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 13.2C	H	7.94	0.010	0.100	SU	1	LXA1	11/06/12	0832	1260327	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Fluoride		0.308	0.033	0.100	mg/L	1	MAR1	11/13/12	0320	1259659	3
Chloride		35.8	0.335	1.00	mg/L	5	MAR1	11/13/12	2345	1259659	4
Sulfate		51.3	0.665	2.00	mg/L	5					
Bromide		0.278	0.067	0.200	mg/L	1	MAR1	11/14/12	0014	1259659	5
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.0573	0.017	0.050	mg/L	1	KLP1	11/06/12	0947	1260275	6
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		3.63	0.085	0.250	mg/L	5	AXH3	11/05/12	1347	1260239	7
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	J	0.019	0.017	0.050	mg/L	1	KLP1	11/06/12	1643	1260281	8
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		303	3.40	14.3	mg/L		LYG1	11/05/12	0758	1260149	9
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		77.2	0.725	1.00	mg/L		LXA1	11/12/12	1510	1262572	10
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/05/12	1600	1260272
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/05/12	1700	1260280

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-258
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24260	Project:	ESHL00210
Sample ID:	314445004	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 300.0	
5	EPA 300.0	
6	EPA 350.1	
7	EPA 353.2	
8	EPA 365.4	
9	EPA 160.1	
10	EPA 310.1	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 28, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **314445**

Parmname	NOM		Sample	Qual	QC	Units	RPD%		REC%	Range	Anlst	Date Time
Carbon Analysis												
Batch 1260735												
QC1202773872 314445001 DUP												
Total Organic Carbon Average		J	0.680	J	0.815	mg/L	18.1	^		(+/-1.00)	TSM	11/08/12 23:32
QC1202773876 LCS												
Total Organic Carbon Average	10.0				9.75	mg/L			97.5	(85%-115%)		11/08/12 18:41
QC1202773871 MB												
Total Organic Carbon Average				J	0.488	mg/L						11/08/12 18:32
QC1202773874 314445001 PS												
Total Organic Carbon Average	10.0	J	0.680		10.4	mg/L			97.7	(65%-120%)		11/08/12 23:52
Conductivity Analysis												
Batch 1265081												
QC1202784135 314340002 DUP												
Conductivity			195		196	umhos/cm	0.307			(0%-10%)	TXT1	11/20/12 11:15
QC1202784136 314445002 DUP												
Conductivity			141		140	umhos/cm	0.142			(0%-10%)		11/20/12 11:23
QC1202784137 LCS												
Conductivity	1410				1420	umhos/cm			101	(95%-105%)		11/20/12 10:55
Electrode Analysis												
Batch 1260327												
QC1202772818 314445002 DUP												
pH		H	8.06	H	8.04	SU	0.248			(0%-10%)	LXA1	11/06/12 08:30
QC1202772819 LCS												
pH	7.00				7.03	SU			100	(99%-101%)		11/06/12 08:15
Ion Chromatography												
Batch 1259659												
QC1202771232 314340002 DUP												
Bromide		J	0.143	J	0.143	mg/L	0.00	^		(+/-0.200)	MAR1	11/13/12 18:56
Chloride			7.86		7.94	mg/L	1.03			(0%-20%)		11/12/12 23:00
Fluoride			0.224		0.220	mg/L	1.44	^		(+/-0.100)		
Sulfate			13.3		13.2	mg/L	0.107			(0%-20%)		
QC1202771234 LCS												
Bromide	2.50				2.47	mg/L			98.8	(90%-110%)		11/13/12 17:58
Chloride	10.0				9.24	mg/L			92.4	(90%-110%)		11/12/12 22:02
Fluoride	5.00				4.82	mg/L			96.5	(90%-110%)		
Sulfate	20.0				18.9	mg/L			94.7	(90%-110%)		
QC1202771231 MB												
Bromide				U	ND	mg/L						11/13/12 17:29
Chloride				U	ND	mg/L						11/12/12 21:33
Fluoride				U	ND	mg/L						
Sulfate				U	ND	mg/L						
QC1202771233 314340002 PS												

QC Summary

Workorder: 314445

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1259659											
Bromide	2.50	J	0.143		2.68	mg/L		101	(90%-110%)		11/13/12 19:25
Chloride	10.0		7.86		18.5	mg/L		107	(90%-110%)	MAR1	11/12/12 23:29
Fluoride	5.00		0.224		5.11	mg/L		97.7	(90%-110%)		
Sulfate	20.0		13.3		34.1	mg/L		104	(90%-110%)		
Nutrient Analysis											
Batch 1260239											
QC1202772608 314340002 DUP											
Nitrogen, Nitrate/Nitrite			3.89		3.78	mg/L	2.87		(0%-20%)	AXH3	11/05/12 13:31
QC1202772612 LCS											
Nitrogen, Nitrate/Nitrite	1.00				0.978	mg/L		97.8	(90%-110%)		11/05/12 12:13
QC1202772605 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					11/05/12 12:07
QC1202772611 314340002 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.389		1.36	mg/L		97.1	(90%-110%)		11/05/12 13:32
Batch 1260275											
QC1202772677 314340002 DUP											
Nitrogen, Ammonia		U	ND	U	ND	mg/L	N/A			KLP1	11/06/12 09:34
QC1202772678 314341002 DUP											
Nitrogen, Ammonia		U	ND	U	ND	mg/L	N/A				11/06/12 09:37
QC1202772683 LCS											
Nitrogen, Ammonia	1.00				1.06	mg/L		106	(90%-110%)		11/06/12 09:30
QC1202772676 MB											
Nitrogen, Ammonia				U	ND	mg/L					11/06/12 09:29
QC1202772679 314340002 MS											
Nitrogen, Ammonia	1.00	U	ND		1.09	mg/L		108	(90%-110%)		11/06/12 09:34
QC1202772680 314341002 MS											
Nitrogen, Ammonia	1.00	U	ND		1.02	mg/L		101	(90%-110%)		11/06/12 09:42
QC1202772681 314340002 MSD											
Nitrogen, Ammonia	1.00	U	ND		1.08	mg/L	0.922	107	(0%-15%)		11/06/12 09:35
QC1202772682 314341002 MSD											
Nitrogen, Ammonia	1.00	U	ND		0.980	mg/L	4.00	97.4	(0%-15%)		11/06/12 09:43
Batch 1260281											
QC1202772696 314340002 DUP											
Phosphorus, Total as P			0.327		0.331	mg/L	1.22		(0%-31%)	KLP1	11/06/12 16:31
QC1202772701 LCS											
Phosphorus, Total as P	1.00				1.07	mg/L		107	(76%-120%)		11/06/12 16:21
QC1202772694 MB											
Phosphorus, Total as P				J	0.0459	mg/L					11/06/12 16:20
QC1202772698 314340002 MS											
Phosphorus, Total as P	1.00		0.327		1.20	mg/L		87.3	(62%-139%)		11/06/12 16:32
QC1202772700 314340002 MSD											
Phosphorus, Total as P	1.00		0.327		1.18	mg/L	1.68	85.3	(0%-20%)		11/06/12 16:33
Batch 1260284											
QC1202772708 314340001 DUP											
Nitrogen, Total Kjeldahl		J	0.0596	J	0.0894	mg/L	40.0 ^		(+/-0.100)	KLP1	11/06/12 14:13
QC1202772711 LCS											

QC Summary

Workorder: 314445

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis											
Batch 1260284											
Nitrogen, Total Kjeldahl	1.00				0.942	mg/L		94.2	(90%-110%)		11/06/12 14:12
QC1202772707 MB											
Nitrogen, Total Kjeldahl				J	0.0602	mg/L				KLP1	11/06/12 14:11
QC1202772709 314340001 MS											
Nitrogen, Total Kjeldahl	1.00	J	0.0596		0.908	mg/L		84.8 *	(90%-110%)		11/06/12 14:14
QC1202772710 314340001 MSD											
Nitrogen, Total Kjeldahl	1.00	J	0.0596		1.02	mg/L	11.6	96	(0%-20%)		11/06/12 14:15
Solids Analysis											
Batch 1260149											
QC1202772397 314445004 DUP											
Total Dissolved Solids			303		317	mg/L	4.61		(0%-10%)	LYG1	11/05/12 07:58
QC1202772398 314529002 DUP											
Total Dissolved Solids			456		439	mg/L	3.83		(0%-10%)		11/05/12 07:58
QC1202772399 LCS											
Total Dissolved Solids	300				287	mg/L		95.7	(95%-105%)		11/05/12 07:58
QC1202772396 MB											
Total Dissolved Solids				U	ND	mg/L					11/05/12 07:58
Titration Analysis											
Batch 1262572											
QC1202778371 314340002 DUP											
Alkalinity, Total as CaCO3			53.1		53.6	mg/L	1.01		(0%-20%)	LXA1	11/12/12 14:32
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A				
QC1202778366 LCS											
Alkalinity, Total as CaCO3	50.0				53.1	mg/L		106	(90%-110%)		11/12/12 12:31
QC1202778372 314340002 MS											
Alkalinity, Total as CaCO3	50.0		53.1		105	mg/L		104	(80%-120%)		11/12/12 14:34

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E Organics--Concentration of the target analyte exceeds the instrument calibration range
- F Estimated Value
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed

QC Summary

Workorder: **314445**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

	invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
06-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1260284	See Below		

Potentially affected work order(s)(SDG): **314340(2013-246),314341(2013-247),314443(2013-259),314445(2013-258),314528(2013-265),314529(2013-264)**

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS/PS: QC 1202772709MS	1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits.

Originator's Name:

Kristen Parson 06-NOV-12

Data Validator/Group Leader:

Thomas Lewis 27-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
15-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ESHL, FBWP, TRIA
Batch ID:	**Sample Numbers:**		
1260327	See below.		

Potentially affected work order(s)(SDG): **314440(2013-263),314443(2013-259),314445(2013-258),314506,314519,314528(2013-265),314529(2013-264)**

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 314440 001 314443 002,005,007 314445 002,004 314506 001 314519 006,013 314528 002 314529 002	1. Samples were received out of holding.

Originator's Name:
Lisa Gregory 15-NOV-12

Data Validator/Group Leader:
Julia Hamilton 15-NOV-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-258
Work Order 314445

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1259850

Sample ID	Client ID
314445001	CAMO-13-24241
314445003	CAMO-13-24243
1202771681	Method Blank (MB)
1202771682	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202771683	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202771681 (MB) and 1202771683 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314443005 (CAMO-13-24225). The QC was from ARSL work order 314443.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1259851

Sample ID	Client ID
314445001	CAMO-13-24241
314445003	CAMO-13-24243
1202771684	Method Blank (MB)
1202771686	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202771688	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202771684 (MB) and 1202771688 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314443005 (CAMO-13-24225). The QC was from ARSL work order 314443.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER 1142000 was generated due to RDL less than MDA. 1. Samples 314443006, 314445001, 314445003, and 314529001 did not meet the detection limits for Pu-239/240 due to the high standard deviation and lower tracer yield recovery. 1. When a blank population is performed, the MDA is greater than the RDL due to the high standard deviation. Samples do meet the client requested yield requirements and were counted for 1000 minutes. Reporting results.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1259852

Sample ID	Client ID
314445001	CAMO-13-24241
314445003	CAMO-13-24243
1202771689	Method Blank (MB)
1202771691	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202771693	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202771689 (MB) and 1202771693 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314443005 (CAMO-13-24225). The QC was from ARSL work order

314443.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1260199

Sample ID	Client ID
314445001	CAMO-13-24241
314445003	CAMO-13-24243
1202772494	Method Blank (MB)
1202772495	314528001(CAMO-13-24279) Sample Duplicate (DUP)
1202772496	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in May 2012, June 2012, July 2012 and August 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314528001 (CAMO-13-24279). The QC was from ARSL work order 314528.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank 1202772494 (MB) result is greater than 1.65 times the CSU but less than the MDC for Co-60.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank 1202772494 (MB) result is greater than the decision level but less than the MDC for Co-60.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1260884

Sample ID	Client ID
314445001	CAMO-13-24241
314445003	CAMO-13-24243
1202774230	Method Blank (MB)
1202774231	314445001(CAMO-13-24241) Sample Duplicate (DUP)
1202774232	314445001(CAMO-13-24241) Matrix Spike (MS)
1202774233	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202774230 (MB) and 1202774233 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314445001 (CAMO-13-24241). The QC was from ARSL work order 314445.

QC Information

All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202774231 (CAMO-13-24241) was recounted due to high MDC. The recount is reported. Sample 314445001 (CAMO-13-24241) was recounted due to a suspected false positive. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202774232 (CAMO-13-24241), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1260898

Sample ID	Client ID
314445001	CAMO-13-24241
314445003	CAMO-13-24243
1202774275	Method Blank (MB)
1202774276	314136001(CAPA-12-23808) Sample Duplicate (DUP)
1202774277	314136001(CAPA-12-23808) Matrix Spike (MS)
1202774278	314136001(CAPA-12-23808) Matrix Spike Duplicate (MSD)
1202774279	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in September 2011. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202774275 (MB) and 1202774279 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314136001 (CAPA-12-23808). The QC was from ARSL work order 314136.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202774276 (CAPA-12-23808) was recounted due to high MDC. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike and matrix spike duplicate, 1202774277 (CAPA-12-23808) and 1202774278 (CAPA-12-23808), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-H-3**
Analytical Method:	EPA 906.0 Modified
Analytical Batch Number:	1260474

Sample ID	Client ID
314445003	CAMO-13-24243
1202773257	Method Blank (MB)
1202773258	314529001(CASA-13-24215) Sample Duplicate (DUP)
1202773259	314529001(CASA-13-24215) Matrix Spike (MS)
1202773260	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-002 REV# 20.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in August 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314529001 (CASA-13-24215). The QC was from ARSL work order 314529.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 314445003 (CAMO-13-24243) was recounted to verify sample results. The recount is similar to the original count. The original count is being reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-258 GEL Work Order: 314445

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Kate Gellatly**

Date: 27 NOV 2012 **Title: Analyst I**

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
19-NOV-12	Radiochemistry	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ALPHA SPECTROMETER	DOE EML HASL-300, Pu-11-RC Modified	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1259851	See Below		

Potentially affected work order(s)(SDG): **314340(2013-246),314341(2013-247),314443(2013-259),314445(2013-258),314528(2013-265),314529(2013-264)**

Application Issues:

RDL less than MDA

Specification and Requirements Exception Description:	DER Disposition:
1. Samples 314443006, 314445001, 314445003, and 314529001 did not meet the detection limits for Pu-239/240 due to the high standard deviation and lower tracer yield recovery.	1. When a blank population is performed, the MDA is greater than the RDL due to the high standard deviation. Samples do meet the client requested yield requirements and were counted for 1000 minutes. Reporting results.

Originator's Name:
Jessica Downey 19-NOV-12

Data Validator/Group Leader:
Jessica Davis 21-NOV-12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 27, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24241
Sample ID: 314445001
Matrix: W
Collect Date: 31-OCT-12
Receive Date: 02-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.0077	+/-0.00574	0.0292	+/-0.00575	0.050	pCi/L		LYS1	11/12/12	1058	1259852	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.00	+/-0.00728	0.035	+/-0.00729	0.050	pCi/L		LYS1	11/12/12	1059	1259851	2
Plutonium-239/240	U	0.00364	+/-0.00814	0.0581	+/-0.00814	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.241	+/-0.0361	0.0919	+/-0.0399	1.00	pCi/L		LYS1	11/12/12	1050	1259850	3
Uranium-235/236	U	0.0196	+/-0.012	0.0573	+/-0.0121	1.00	pCi/L						
Uranium-238		0.139	+/-0.026	0.0624	+/-0.0276	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-1.91	+/-1.31	4.23	+/-1.31	8.00	pCi/L		KXG3	11/07/12	1018	1260199	4
Cobalt-60	U	-0.158	+/-1.10	4.07	+/-1.10	8.00	pCi/L						
Neptunium-237	U	-1.1	+/-2.19	7.66	+/-2.19	10.0	pCi/L						
Potassium-40	U	21.5	+/-14.9	58.3	+/-14.9	10.0	pCi/L						
Sodium-22	U	-0.961	+/-1.14	3.85	+/-1.14	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.224	+/-0.147	0.489	+/-0.148	0.500	pCi/L		VXC2	11/24/12	1151	1260884	5
WSP-GrossA/B "As Received"													
Beta	U	-0.196	+/-0.775	2.87	+/-0.775	3.00	pCi/L		BXF1	11/15/12	1318	1260898	6
Alpha	U	0.631	+/-0.700	2.60	+/-0.702	3.00	pCi/L		BXF1	11/17/12	1641	1260898	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1259852	89.0	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1259851	57.9	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1259850	54.2	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1260884	89.3	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 27, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24241
Sample ID: 314445001

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 27, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24243
Sample ID: 314445003
Matrix: W
Collect Date: 31-OCT-12
Receive Date: 02-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.0047	+/-0.00576	0.0268	+/-0.00577	0.050	pCi/L		LYS1	11/12/12	1058	1259852	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	-0.00691	+/-0.00691	0.0332	+/-0.00691	0.050	pCi/L		LYS1	11/12/12	1059	1259851	2
Plutonium-239/240	U	-0.00691	+/-0.00846	0.0552	+/-0.00846	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		1.15	+/-0.0587	0.0654	+/-0.0957	1.00	pCi/L		LYS1	11/12/12	1050	1259850	3
Uranium-235/236	U	0.0139	+/-0.00986	0.0408	+/-0.0099	1.00	pCi/L						
Uranium-238		0.488	+/-0.0373	0.0444	+/-0.049	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	0.00362	+/-1.25	4.61	+/-1.25	8.00	pCi/L		KXG3	11/07/12	1057	1260199	4
Cobalt-60	U	-0.795	+/-1.32	4.80	+/-1.32	8.00	pCi/L						
Neptunium-237	U	-0.568	+/-2.50	8.76	+/-2.50	10.0	pCi/L						
Potassium-40	U	-22.4	+/-14.7	51.6	+/-14.7	10.0	pCi/L						
Sodium-22	U	-1.24	+/-1.42	5.02	+/-1.42	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.207	+/-0.129	0.426	+/-0.130	0.500	pCi/L		VXC2	11/20/12	1904	1260884	5
WSP-GrossA/B "As Received"													
Beta	U	2.20	+/-0.837	2.52	+/-0.857	3.00	pCi/L		BXF1	11/15/12	1312	1260898	6
Alpha	U	1.61	+/-0.890	2.71	+/-0.900	3.00	pCi/L		BXF1	11/17/12	1639	1260898	7
Rad Liquid Scintillation Analysis													
WSP-H-3 "As Received"													
Tritium		178	+/-47.3	150	+/-50.4	200	pCi/L		BYS1	11/11/12	1519	1260474	8

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310
8	EPA 906.0 Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1259852	94.2	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1259851	63.7	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1259850	77.2	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 27, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24243
Sample ID: 314445003

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1260884	97.7	(50%-105%)

Notes:
TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

QC Summary

Report Date: November 27, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico
Contact: **Keith Greene**

Workorder: **314445**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1259850										
QC1202771682 314443005 DUP										
Uranium-234	U	-0.0173	U	-0.00844	pCi/L	0.187		(0-1)	LYS1	11/12/1210:50
	Uncert:	+/-0.00984		+/-0.0139						
	TPU:	+/-0.00984		+/-0.0139						
Uranium-235/236	U	0.00733	U	0.00735	pCi/L	0.000488		(0-1)		
	Uncert:	+/-0.00733		+/-0.009						
	TPU:	+/-0.00735		+/-0.00901						
Uranium-238	U	0.00	U	0.00	pCi/L	0.00		(0-1)		
	Uncert:	+/-0.00593		+/-0.00841						
	TPU:	+/-0.00594		+/-0.00841						
**Uranium-232 Tracer	2.73	2.06		1.93	pCi/L		70.8	(50%-105%)		
	Uncert:	+/-0.0913		+/-0.0907						
	TPU:	+/-0.201		+/-0.201						
QC1202771683 LCS										
Uranium-234				2.73	pCi/L				LYS1	11/12/1210:50
	Uncert:			+/-0.0831						
	TPU:			+/-0.199						
Uranium-235/236				0.117	pCi/L					
	Uncert:			+/-0.0204						
	TPU:			+/-0.0218						
Uranium-238	2.70			2.80	pCi/L		103	(80%-120%)		
	Uncert:			+/-0.0836						
	TPU:			+/-0.202						
**Uranium-232 Tracer	2.19			1.49	pCi/L		68.4	(50%-105%)		
	Uncert:			+/-0.0746						
	TPU:			+/-0.162						
QC1202771681 MB										
Uranium-234			U	-0.0191	pCi/L				LYS1	11/12/1210:50
	Uncert:			+/-0.00958						
	TPU:			+/-0.00958						
Uranium-235/236			U	0.00611	pCi/L					
	Uncert:			+/-0.00611						
	TPU:			+/-0.00613						
Uranium-238			U	0.00	pCi/L					
	Uncert:			+/-0.00606						
	TPU:			+/-0.00606						
**Uranium-232 Tracer	2.19			1.56	pCi/L		71.4	(50%-105%)		
	Uncert:			+/-0.0742						
	TPU:			+/-0.162						
Batch 1259851										
QC1202771686 314443005 DUP										
Plutonium-238	U	0.00497	U	-0.00289	pCi/L	0.344		(0-1)	LYS1	11/12/1210:59
	Uncert:	+/-0.00497		+/-0.00647						

QC Summary

Workorder: 314445

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1259851										
	TPU:	+/-0.00497		+/-0.00647						
Plutonium-239/240	U	-0.00248	U	0.00868	pCi/L	0.464		(0-1)		
	Uncert:	+/-0.00555		+/-0.00647						
	TPU:	+/-0.00556		+/-0.00648						
**Plutonium-242 Tracer	2.43	2.16		1.87	pCi/L		77.1	(50%-105%)		
	Uncert:	+/-0.0779		+/-0.0843						
	TPU:	+/-0.130		+/-0.138						
QC1202771688 LCS										
Plutonium-238			U	0.00506	pCi/L			(80%-120%)	LYS1	11/12/1210:59
	Uncert:			+/-0.0062						
	TPU:			+/-0.0062						
Plutonium-239/240	2.03			2.27	pCi/L		112	(80%-120%)		
	Uncert:			+/-0.0759						
	TPU:			+/-0.130						
**Plutonium-242 Tracer	1.94			1.36	pCi/L		70.1	(50%-105%)		
	Uncert:			+/-0.0705						
	TPU:			+/-0.114						
QC1202771684 MB										
Plutonium-238			U	-0.00491	pCi/L				LYS1	11/12/1210:59
	Uncert:			+/-0.00491						
	TPU:			+/-0.00491						
Plutonium-239/240			U	-0.00245	pCi/L					
	Uncert:			+/-0.00425						
	TPU:			+/-0.00425						
**Plutonium-242 Tracer	1.94			1.41	pCi/L		72.3	(50%-105%)		
	Uncert:			+/-0.0692						
	TPU:			+/-0.113						
Batch 1259852										
QC1202771691 314443005 DUP										
Americium-241	U	0.00252	U	-0.00298	pCi/L	0.255		(0-1)	LYS1	11/12/1210:59
	Uncert:	+/-0.00564		+/-0.00516						
	TPU:	+/-0.00564		+/-0.00517						
**Americium-243 Tracer	2.60	2.42		1.96	pCi/L		75.3	(50%-105%)		
	Uncert:	+/-0.0808		+/-0.0877						
	TPU:	+/-0.138		+/-0.146						
QC1202771693 LCS										
Americium-241	1.41			1.49	pCi/L		106	(80%-120%)	LYS1	11/12/1210:59
	Uncert:			+/-0.0544						
	TPU:			+/-0.0833						
**Americium-243 Tracer	2.08			1.83	pCi/L		88.1	(50%-105%)		
	Uncert:			+/-0.0638						
	TPU:			+/-0.109						
QC1202771689 MB										
Americium-241			U	0.00	pCi/L				LYS1	11/12/1210:59
	Uncert:			+/-0.00561						
	TPU:			+/-0.00561						
**Americium-243 Tracer	2.08			1.84	pCi/L		88.5	(50%-105%)		
	Uncert:			+/-0.0639						
	TPU:			+/-0.109						

QC Summary

Workorder: 314445

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1260199										
QC1202772495 314528001 DUP										
Cesium-137	U	1.76	U	-0.106	pCi/L	0.378		(0-1)	KXG3	11/08/1208:59
	Uncert:	+/-1.34		+/-1.13						
	TPU:	+/-1.34		+/-1.13						
Cobalt-60	U	0.442	U	-1.04	pCi/L	0.293		(0-1)		
	Uncert:	+/-1.30		+/-1.24						
	TPU:	+/-1.30		+/-1.24						
Neptunium-237	U	-0.20	U	1.91	pCi/L	0.217		(0-1)		
	Uncert:	+/-2.48		+/-2.37						
	TPU:	+/-2.48		+/-2.37						
Potassium-40	U	-29.9	U	-1.61	pCi/L	0.459		(0-1)		
	Uncert:	+/-16.8		+/-14.0						
	TPU:	+/-16.8		+/-14.0						
Sodium-22	U	-1.35	U	-1.23	pCi/L	0.0237		(0-1)		
	Uncert:	+/-1.46		+/-0.974						
	TPU:	+/-1.46		+/-0.974						
QC1202772496 LCS										
Americium-241	2780			2920	pCi/L		105	(80%-120%)	KXG3	11/08/1212:19
	Uncert:			+/-163						
	TPU:			+/-163						
Cesium-137	6090			6310	pCi/L		104	(80%-120%)		
	Uncert:			+/-264						
	TPU:			+/-264						
Cobalt-60	5670			5730	pCi/L		101	(80%-120%)		
	Uncert:			+/-241						
	TPU:			+/-241						
Neptunium-237			U	32.7	pCi/L					
	Uncert:			+/-21.0						
	TPU:			+/-21.0						
Potassium-40			U	-60.9	pCi/L					
	Uncert:			+/-46.6						
	TPU:			+/-46.6						
Sodium-22			U	-0.12	pCi/L					
	Uncert:			+/-6.61						
	TPU:			+/-6.61						
QC1202772494 MB										
Cesium-137			U	-0.192	pCi/L				KXG3	11/07/1210:58
	Uncert:			+/-1.11						
	TPU:			+/-1.11						
Cobalt-60			U	2.16	pCi/L					
	Uncert:			+/-1.07						
	TPU:			+/-1.07						
Neptunium-237			U	-0.975	pCi/L					
	Uncert:			+/-2.08						
	TPU:			+/-2.08						
Potassium-40			U	-6.92	pCi/L					
	Uncert:			+/-13.7						
	TPU:			+/-13.7						
Sodium-22			U	0.849	pCi/L					

QC Summary

Workorder: 314445

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1260199										
Uncert:				+/-0.975						
TPU:				+/-0.975						
Rad Gas Flow										
Batch 1260884										
QC1202774231 314445001 DUP										
Strontium-90	U	0.224	U	-0.222	pCi/L	0.800		(0-1)	VXC2	11/24/1211:55
Uncert:		+/-0.147		+/-0.130						
TPU:		+/-0.148		+/-0.130						
**Strontium Carrier	7.17	6.40		6.20	mg		86.5	(50%-105%)		
QC1202774233 LCS										
Strontium-90	24.8			24.1	pCi/L		96.9	(80%-120%)	VXC2	11/21/1217:03
Uncert:				+/-0.597						
TPU:				+/-2.04						
**Strontium Carrier	7.17			6.00	mg		83.7	(50%-105%)		
QC1202774230 MB										
Strontium-90			U	-0.0606	pCi/L				VXC2	11/21/1217:02
Uncert:				+/-0.0614						
TPU:				+/-0.0614						
**Strontium Carrier	7.17			6.60	mg		92.1	(50%-105%)		
QC1202774232 314445001 MS										
Strontium-90	124 U	0.224		126	pCi/L		101	(75%-125%)	VXC2	11/21/1217:03
Uncert:		+/-0.147		+/-2.95						
TPU:		+/-0.148		+/-10.4						
**Strontium Carrier	7.17	6.40		6.40	mg		89.3	(50%-105%)		
Batch 1260898										
QC1202774276 314136001 DUP										
Alpha	U	0.899	U	0.189	pCi/L	0.288		(0-1)	BXF1	11/17/1216:40
Uncert:		+/-0.682		+/-0.545						
TPU:		+/-0.686		+/-0.545						
Beta	U	0.924	U	-1.31	pCi/L	0.667		(0-1)		11/16/1208:56
Uncert:		+/-0.855		+/-0.816						
TPU:		+/-0.859		+/-0.816						
QC1202774279 LCS										
Alpha	12.0			11.5	pCi/L		96	(80%-120%)	BXF1	11/18/1219:49
Uncert:				+/-0.620						
TPU:				+/-1.15						
Beta	49.7			45.8	pCi/L		92.2	(80%-120%)		11/15/1213:21
Uncert:				+/-0.882						
TPU:				+/-3.90						
QC1202774275 MB										
Alpha			U	0.00668	pCi/L				BXF1	11/17/1216:41
Uncert:				+/-0.0924						
TPU:				+/-0.0925						
Beta			U	0.0423	pCi/L					11/15/1213:19
Uncert:				+/-0.096						
TPU:				+/-0.0961						
QC1202774277 314136001 MS										
Alpha	481 U	0.899		408	pCi/L		84.7	(75%-125%)	BXF1	11/17/1216:40

QC Summary

Workorder: 314445

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1260898										
	Uncert:	+/-0.682		+/-23.0						
	TPU:	+/-0.686		+/-41.4						
Beta	1990 U	0.924		1730	pCi/L		87.2	(75%-125%)		11/15/1213:20
	Uncert:	+/-0.855		+/-34.2						
	TPU:	+/-0.859		+/-151						
QC1202774278 314136001 MSD										
Alpha	481 U	0.899		370	pCi/L	0.236	76.9	(0-1)	BXF1	11/17/1216:40
	Uncert:	+/-0.682		+/-21.5						
	TPU:	+/-0.686		+/-37.6						
Beta	1990 U	0.924		1850	pCi/L	0.193	93.2	(0-1)		11/15/1213:21
	Uncert:	+/-0.855		+/-36.3						
	TPU:	+/-0.859		+/-158						
Rad Liquid Scintillation										
Batch 1260474										
QC1202773258 314529001 DUP										
Tritium	U	56.6	U	55.7	pCi/L	0.00467		(0-1)	BYS1	11/11/1221:23
	Uncert:	+/-45.7		+/-46.7						
	TPU:	+/-46.0		+/-47.0						
QC1202773260 LCS										
Tritium	2010			2150	pCi/L		107	(80%-120%)	BYS1	11/11/1223:40
	Uncert:			+/-200						
	TPU:			+/-291						
QC1202773257 MB										
Tritium			U	-17.1	pCi/L				BYS1	11/11/1219:21
	Uncert:			+/-45.2						
	TPU:			+/-45.2						
QC1202773259 314529001 MS										
Tritium	2010 U	56.6		1650	pCi/L		82.1	(75%-125%)	BYS1	11/11/1223:24
	Uncert:	+/-45.7		+/-178						
	TPU:	+/-46.0		+/-241						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value

QC Summary

Workorder: **314445**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-362

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

- 24 Hour - ☐ Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3
CASA-13-24212	Nov 14 2012	13:48	W	1
CASA-13-24208	Nov 14 2012	13:48	W	1

Special Instructions:

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time: 11/19/12 3:00	Received by:	
Relinquished by:		Date/Time:	Received by:	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24206 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/14/2012	FIELD MATRIX: WG		OK
TIME COLLECTED (HH:MM):		1348	MEDIA: UA		OK
PRS ID:		OK	SAMPLE TECH CODE: UA		651
LOCATION ID: R-36			FIELD PREP: UF		OK
LOCATION TYPE:			FIELD QC TYPE: FD		
PORT: SINGLE COMPLETION			SAMPLE USAGE: QC		

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
	WSP-8270C-SVOA	1 LITER AMBER GLASS	2 3	IW 11/14/12 ICE		
	WSP-GrossA/B	1 LITER POLY	1	NONE		
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

See CASA-13-24212

COLLECTED BY (PRINT) A Stocker

RELINQUISHED BY (Printed Name) D Woody **(Signature)** David Woody	**Date/Time** 11/14/12 1400	**RECEIVED BY (Printed Name)** M. Martin **(Signature)**	**Date/Time** 11/14/12 1400
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24212

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		DW 11/14/12 11/14/~~12~~ 2012	FIELD MATRIX: WG		OK
TIME COLLECTED (HH:MM):		1348	MEDIA: UA		OK
PRS ID:		OK	SAMPLE TECH CODE: UA		GSP
LOCATION ID: R-36			FIELD PREP: UF		OK
LOCATION TYPE: MON			FIELD QC TYPE: REG		
PORT: SINGLE COMPLETION			SAMPLE USAGE: INV		

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
	WSP-8270C-SVOA	1 LITER AMBER GLASS	~~3~~ 2	DW 11/14/12 ICE		
	WSP-GrossA/B	1 LITER POLY	1	NONE		
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 50 feet of a running diesel generator

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 5.97 mg/L Oxidation-Reduction Potential 208.7 MV pH 7.33 SU

Specific Conductance 195 uS/cm Temperature 19.84 deg C Turbidity 0.89 NTU

COLLECTED BY (PRINT) A Stocker

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) D Woody	11/14/12 1440	(Printed Name) (Signature)	11/14/12 1440
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-362

1. Distribution Of Samples In EDD.

	Analytical	Regular	Field	Trip	Field	Equipment
SDG	Method	Samples	Duplicates	Blanks	Blanks	Blanks
ARS1-12-02341	Generic:Low_Level_Tritium	1	1			

	Analytical	Analysis	Prep	Regular	Field	Trip	Field	Equipment	Method	Matrix	Matrix
SDG	Method	Lot ID	Lot ID	Samples	Duplicates	Blanks	Blanks	Blanks	Blanks	Spikes	Spike Dups
ARS1-12-02341	Generic:Low_Level_Tritium	ARS1-B12-02782	ARS1-B12-02782	1	1				1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
Generic:Low_Level_Tritium	RAD							
LCS	ARS1-B12-02782-01	LCS	0	0	1	0		
Generic:Low_Level_Tritium	RAD	CASA-13-24206	ARS1-B12-02782-09	FD	1	0	0	0
Generic:Low_Level_Tritium	RAD	CASA-13-24212	ARS1-B12-02782-08	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	LCSD	ARS1-B12-02782-02	LCSD	0	0	1	0
Generic:Low_Level_Tritium	RAD	MB	ARS1-B12-02782-03	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

No.

Any samples affected by the presence of contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

No.

Data Validation Report for: Chain Of Custody No. 2013-362

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1	1						

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

No.

Reason Code	Description
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CASA-13-24206	R-36	FD	Generic:Low_Level_Tritium	0	1
CASA-13-24212	R-36	REG	Generic:Low_Level_Tritium	0	1

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Request Number: 2013-362

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-362

Original COC

American Radiation Services - Primary

1726 Wooddale Court

Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-362

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐

7 Day - ☐

14 Day - ☐

21 Day - ☐

28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3
CASA-13-24212	Nov 14 2012	13:48	W	1
CASA-13-24206	Nov 14 2012	13:48	W	1

Special Instructions:

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time: 11/19/12 3:00	Received by:	11/20/12 1050
Relinquished by:		Date/Time:	Received by:	

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-362

Case Narrative

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

December 19, 2012

LANL
Keith Greene
PO Box 1663 MS M992
Los Alamos, NM 87545

Request Number: **2013-362**
LANL Sample ID: **CASA-13-24212; CASA-13-24206.**

Dear Mr. Greene;

On November 20, 2012, ARS International received two (2) water samples to be analyzed for Low Level Tritium.

The samples underwent enrichment and were counted using the appropriate counting equipment and QA/QC for this type of analysis. Results of the analysis and QA/QC are attached in the data package.

The client and QA/QC samples were counted with a count time sufficient to meet quality control parameters for counting equipment and were within acceptance criteria and statistical sound detection limits.

If you have any questions please do not hesitate to call at 225.381.2991 or email LANL@amrad.com.

Sincerely,

James D. Lee

Laboratory Management
ARS International

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

COVER PAGE

PROJECT SAMPLE IDENTIFICATION CROSS-REFERENCE TO ARS SAMPLE LABORATORY IDs

Subcontract (LANL Agreement Number) 63641-001-10

Request Number	LANL PROJECT SAMPLE ID NUMBER	American Radiation Services SAMPLE ID NUMBER(S)
2013-362	CASA-13-24212	ARS1-12-02341-001
2013-362	CASA-13-24206	ARS1-12-02341-002

ANALYTICAL METHODS

Tritium analyses were performed using **ARS-040 Tritium Assay in Water Samples Using Electrolytic Enrichment.**

ANALYTICAL RESULTS

The result data that are flagged with "U" indicate that the activity is below the MDC.

American Radiation Services Project Manager/Laboratory Director's Comments:

"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

"I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the LANL specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."

James D. [illegible]	Laboratory Management, ARS International	12-19-12
Signature	**Title**	**Date**

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02341	**Request or PO Number:**	2013-362
Client Sample ID:	CASA-13-24212	**ARS Sample ID:**	ARS1-12-02341-001
Sample Collection Date:	11/14/12	**Date Received:**	11/20/12
Sample Matrix:	Aqueous	**Report Date:**	12/19/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	12.281	2.075	2.547	1.235		pCi/L	ARS-040	12/13/12 20:50	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02341	**Request or PO Number:**	2013-362
Client Sample ID:	CASA-13-24206	**ARS Sample ID:**	ARS1-12-02341-002
Sample Collection Date:	11/14/12	**Date Received:**	11/20/12
Sample Matrix:	Aqueous	**Report Date:**	12/19/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	15.346	2.521	2.643	1.282		pCi/L	ARS-040	12/14/12 01:01	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

QC Results Report

Sample Delivery Group: ARS1-12-02341
Date Received: 11/20/2012

Laboratory Control Sample Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Percent Recovery (%)	LCS Acceptance Range
ARS1-B12-02782	LCS	H3	22.397	3.533	2.537	25.722		pCi/L	ARS-040	12/12/12 13:33	RJU	87	80%-120%

Blank Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician
ARS1-B12-02782	MBL	H3	-0.548	0.714	2.441	NA	U	pCi/L	ARS-040	12/12/12 13:33	RJU

Sample RER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (2s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	RER	RER AcceptanceRange
ARS1-B12-02782	LCSD	H3	22.397	3.533	20.697	3.248		pCi/L	ARS-040	12/12/12 13:33	RJU	0.25	< 1

Sample DER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (2s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	DER	DER AcceptanceRange
ARS1-B12-02782	LCSD	H3	22.397	3.533	20.697	3.248		pCi/L	ARS-040	12/12/12 13:33	RJU	0.71	< 3

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of ARS International.

LELAP Certificate# 01949 NELAP Certificate # E87558

QC Evaluation

EPA Method: ARS-040
Batch ID: ARS1-B12-02782
SDG's: ARS1-12-02339; 2340; 2341

LCS	22.3970	**CSU (2s)**	6.9240
LCSD	20.6970	**CSU-D (2s)**	6.3670

DER = abs(LSC-LSCD) / sqr((2s CSU/2)^2)+((2s CSU-D/2)^2) *at 1 sigma* = **< 3**

DER 1.7 / 4.703203 = 0.361456 **< 3**

% RPD= ABS(LCS - LSCD) / (LCS+LCSD)/2 * 100 = **< 25%**

%RPD 1.7 / 21.547 *100 = 7.889729 **< 25%**

The *RPD* shall be less than 25% or other client-applied criteria

RER= abs((LCS-LCSD)) / (CSU)+(CSD) *at 2 sigma* = **<1** ***<--LANL Requirement***

RER = 1.7 / 13.2910 0.127906102 **<1**

Blank Information

	Act	CSU(2s)	MDA	Act>MDA
AM-241				
U-234				
U-235				
U-238				
Pu-238				
Pu-239/240				
Th-228				
Th-230				
Th-232				
H3	-0.548	1.399	2.441	
Ra-226				
Ra-228				
Total U				
Pb-210				
Po-209				
Sr-90				
TC-99				
NI-63				

*MDA should be below RDL
*Blank activity must be below MDA
*Blank activity must be < 1.65*CSU (DOE only)

ACT = -0.548
CSU = 1.399
Is ACT<1.65*CSU? YES

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

AMRAD
AMERICAN RADIATION SERVICES, LLC

Analysis Batch ID **ARS1-B12-02782**

Method **ARS-040** **Analysis** **LSC-A-022** **Matrix** **AQ**

Description **Low Level Tritium by Electrolytic Enrichment**

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02782-01	LCS	B-14831								
ARS1-B12-02782-02	LCSD	B-14832								
ARS1-B12-02782-03	MBL									
ARS1-B12-02782-04	TRG				**ARS1-12-02339**	001	1	CAMO-13-24251	STD	12/16/12
ARS1-B12-02782-05	TRG				**ARS1-12-02339**	002	1	CAMO-13-24252	STD	12/16/12
ARS1-B12-02782-06	TRG				**ARS1-12-02340**	001	1	CAMO-13-24278	STD	12/16/12
ARS1-B12-02782-07	TRG				**ARS1-12-02340**	002	1	CAMO-13-24271	STD	12/16/12
ARS1-B12-02782-08	TRG				**ARS1-12-02341**	001	1	CASA-13-24212	STD	12/16/12
ARS1-B12-02782-09	TRG				**ARS1-12-02341**	002	1	CASA-13-24206	STD	12/16/12

129059
12-02339-001-1
WRAD

129061
12-02339-002-1
WRAD

129063
12-02340-001-1
WRAD

129065
12-02340-002-1
WRAD

129067
12-02341-001-1
WRAD

129069
12-02341-002-1
WRAD

American Radiation Services
Baton Rouge Laboratory

LCS Report
Analytical Batch: ARS1-B12-02782

BlindID	ABatch	ABatchSampleID	BlindGroup	StdID	Isotope	ExpectedAddition	ExpectedValue	EmptyWt	GrossWt	NetWt	UserID	ModDate	ExpectedValue_CT	MidPointCountDate	KnownValue
B-14831	ARS1-B12-02782	ARS1-B12-02782-01	B-H3	S-0279	H-3	5	2.549416506	13.201	18.268	5.067	AMRAD\BSTEFFENS	11/21/2012	2.541182902	12/12/2012	12.87617376
B-14832	ARS1-B12-02782	ARS1-B12-02782-02	B-H3	S-0279	H-3	5	2.549416506	13.468	18.544	5.076	AMRAD\BSTEFFENS	11/21/2012	2.541182902	12/12/2012	12.89904441

15 of 81

ID_g1001_040	ABatch	AnalysisCode	ABatchSampleID	ClientID	IC_ID	S01_1_EnrichCellNo	S01_2_TareCell	S01_3_TareResv	S02_GrossWtResv	S03_1_WtNa2O2	C_GrossSampleAdded
465	ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-01			3	334.49	198.24	698.82	2.09	500.58
466	ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-02			86	330.87	205.96	712.65	2.06	506.69
467	ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-03			11	332.72	202.13	711.08	2	508.95
468	ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-04	CAMO-13-24251		19	333.21	199.53	700.89	2	501.36
469	ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-05	CAMO-13-24252		41	332.03	212.56	717.91	2.08	505.35
470	ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-06	CAMO-13-24278		63	326.63	202.66	704.28	2.08	501.62
471	ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-07	CAMO-13-24271		21	331.93	214.5	715.82	2.05	501.32
472	ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-08	CASA-13-24212		48	336.53	212.05	715.43	2.06	503.38
473	ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-09	CASA-13-24206		77	334.98	196.48	700.9	2.09	504.42

12-12-12

S04_1_ElectrolSD	S04_2_StartAmp	S04_3_StartBathC	S05_1_ElectrolED	S05_2_EndBathC	S05_3_EndCellWt	C_GrossSmplRec	C_EnrichmentF	S06_TareWt	S07_GrossWt	C_RecoveredWa
11/21/2012 13:00:00	5	2	12/04/2012 14:56:00	2.1	548.7	15.97	31.34502192	104.16	115.77	11.61
11/21/2012 13:00:00	5	2	12/10/2012 10:15:00	2	551.09	14.26	35.53225806	97.51	108.95	11.44
11/21/2012 13:00:00	5	2	12/04/2012 15:12:00	2.1	551.33	16.48	30.88288835	109.78	122.83	13.05
11/21/2012 13:00:00	5	2	12/10/2012 10:18:00	2	548.9	16.16	31.02475248	122.08	134.42	12.34
11/21/2012 13:00:00	5	2	12/10/2012 11:58:00	2	560.42	15.83	31.92356286	101.79	113.72	11.93
11/21/2012 13:00:00	5	2	12/10/2012 10:19:00	2	546.06	16.77	29.91174717	109.22	122.96	13.74
11/21/2012 13:00:00	5	2	12/04/2012 15:13:00	2.1	562.31	15.88	31.56926952	109.54	123.18	13.64
11/21/2012 13:00:00	5	2	12/04/2012 13:14:00	2.1	565.52	16.94	29.71546635	111.9	125.6	13.7
11/21/2012 13:00:00	5	2	12/10/2012 10:14:00	2	549.01	17.55	28.74188034	109.8	123.38	13.58

12-12-12

17 of 81

S08_TearWtLSCVial	S09_VialPlusSmpl	C_NetSample	S10_1_WtVislSmplDrWatFill	C_NetDeadWaterAdded	C_TareWtBFCocktail	S10_2_GrossWtVSC	C_NetWtCocktailAdded	UserID	ModDate
6.58	16.59	10.01	0	0	16.59	26.89	10.3	AMRAD\RUSEY	12/11/2012 12:05:30
6.48	16.5	10.02	0	0	16.5	27.69	11.19	AMRAD\RUSEY	12/11/2012 12:07:46
6.43	16.44	10.01	0	0	16.44	26.82	10.38	AMRAD\RUSEY	12/11/2012 12:10:30
6.52	16.54	10.02	0	0	16.54	26.84	10.3	AMRAD\RUSEY	12/11/2012 12:12:41
6.51	16.53	10.02	0	0	16.53	26.77	10.24	AMRAD\RUSEY	12/11/2012 14:42:15
6.61	16.68	10.07	0	0	16.68	26.97	10.29	AMRAD\RUSEY	12/11/2012 14:43:56
6.45	16.46	10.01	0	0	16.46	26.76	10.3	AMRAD\RUSEY	12/11/2012 14:46:31
6.48	16.49	10.01	0	0	16.49	26.74	10.25	AMRAD\RUSEY	12/11/2012 14:49:17
6.5	16.53	10.03	0	0	16.53	26.71	10.18	AMRAD\RUSEY	12/12/2012 11:20:04

12-12-12

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121212_0912
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121212_0912\20121212_0912.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121212_0912\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121212_0912\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

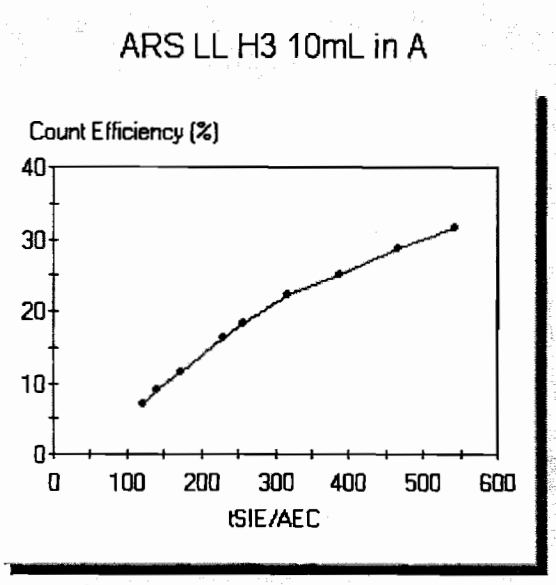
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	BACKGROUND	1.458	5.79	392.59	25.20	240.00	12/12/2012	9:21:06 AM	
2	2	B12-02782-01	4.759	19.99	357.88	23.81	240.00	12/12/2012	1:33:03 PM	
2	3	B12-02782-02	5.014	20.72	368.17	24.20	240.00	12/12/2012	5:44:02 PM	
2	4	B12-02782-03	1.374	5.49	388.73	25.01	240.00	12/12/2012	9:55:03 PM	*
2	5	B12-02782-04	6.276	24.82	394.49	25.29	240.00	12/13/2012	2:06:01 AM	*
2	6	B12-02782-05	1.802	7.09	397.31	25.42	240.00	12/13/2012	6:17:00 AM	*
2	7	B12-02782-06	1.357	5.37	394.54	25.29	240.00	12/13/2012	10:27:59 AM	
2	8	B12-02782-07	1.100	4.35	394.65	25.29	240.00	12/13/2012	2:38:56 PM	
2	9	B12-02782-08	3.261	13.06	387.95	24.97	240.00	12/13/2012	6:49:54 PM	
2	10	B12-02782-09	3.629	14.59	385.50	24.87	240.00	12/13/2012	11:00:52 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121214_0305
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121214_0305\20121214_0305.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121214_0305\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121214_0305\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
   Quench Indicator: tSIE/AEC
   External Std Terminator (sec): 0.5 2s%
   Pre-Count Delay (min): 0.00
Quench Set:
   Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 2
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

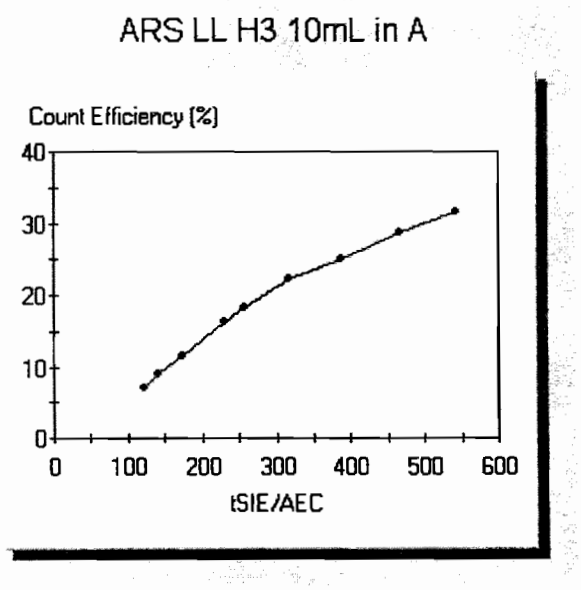
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				
B				
C				

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21

257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME
MESSAGES									
10	1	B12-02782-04	5.735	22.64	395.38	25.33	240.00	12/14/2012	7:25:18 AM

AMRAD
AMERICAN RADIATION SERVICES, LLC

LSC Instrument Data Transfer Report

\\Packard3170\Results\H3 Low Level\Low Level H3\2

Batch Sample ID	Non-BKG Samples Transferred	Samples Eligible To Save	
ARS1-B12-02782	9	9	LSC 1

LIMS Batch Sample ID	LSC P#	LSC PID	LSC S#	LSC SMPL_ID	LSC Count Date	LSC CPMA	LSC tSIE	LSC EFF	LSC Count Dur	Analysis Batch	LIMS SDG	LIMS Run
BKG	2		1	BACKGROUND	12/12/12 09:21	1.46	392.59	25.2000	240.00	ARS1-B12-02782		
ARS1-B12-02782-01	2		2	B12-02782-01	12/12/12 13:33	4.76	357.88	23.8100	240.00	ARS1-B12-02782		
ARS1-B12-02782-02	2		3	B12-02782-02	12/12/12 17:44	5.01	368.17	24.2000	240.00	ARS1-B12-02782		
ARS1-B12-02782-03	2		4	B12-02782-03	12/12/12 21:55	1.37	388.73	25.0100	240.00	ARS1-B12-02782		
ARS1-B12-02782-04	2		5	B12-02782-04	12/13/12 02:06	6.28	394.49	25.2900	240.00	ARS1-B12-02782	ARS1-12-02339	1
ARS1-B12-02782-05	2		6	B12-02782-05	12/13/12 06:17	1.80	397.31	25.4200	240.00	ARS1-B12-02782	ARS1-12-02339	1
ARS1-B12-02782-06	2		7	B12-02782-06	12/13/12 10:27	1.36	394.54	25.2900	240.00	ARS1-B12-02782	ARS1-12-02340	1
ARS1-B12-02782-07	2		8	B12-02782-07	12/13/12 14:38	1.10	394.65	25.2900	240.00	ARS1-B12-02782	ARS1-12-02340	1
ARS1-B12-02782-08	2		9	B12-02782-08	12/13/12 18:49	3.26	387.95	24.9700	240.00	ARS1-B12-02782	ARS1-12-02341	1
ARS1-B12-02782-09	2		10	B12-02782-09	12/13/12 23:00	3.63	385.50	24.8700	240.00	ARS1-B12-02782	ARS1-12-02341	1

ARS-040 Calculation Results

ARS1-B12-02782

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Initial_Mass_sample_g	Mass_Na2O2_added_g	Final_mass_electrolyzed_sample_NaOH_g	Mass_equivalent_NaOH_g	Final_Mass_Electrolyzed_sample_g	VolumeFactor_X	Enrichment_Factor_Y
LSC-A-022	ARS1-B12-02782-01	500.580	2.090	15.970	2.144	13.826	0.028	28.270
LSC-A-022	ARS1-B12-02782-02	506.690	2.060	14.260	2.114	12.146	0.024	32.392
LSC-A-022	ARS1-B12-02782-03	508.950	2.000	16.480	2.052	14.428	0.028	27.571
LSC-A-022	ARS1-B12-02782-04	501.360	2.000	16.160	2.052	14.108	0.028	27.768
LSC-A-022	ARS1-B12-02782-05	505.350	2.080	15.830	2.134	13.696	0.027	28.789
LSC-A-022	ARS1-B12-02782-06	501.620	2.080	16.770	2.134	14.636	0.029	26.818
LSC-A-022	ARS1-B12-02782-07	501.320	2.050	15.880	2.103	13.777	0.027	28.407
LSC-A-022	ARS1-B12-02782-08	503.380	2.060	16.940	2.114	14.826	0.029	26.576
LSC-A-022	ARS1-B12-02782-09	504.420	2.090	17.550	2.144	15.406	0.031	25.666

ARS-040 Calculation Results

ARS1-B12-02782

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Average_Sample_CPM	Bkg_CPM	tSIE	Detector_Eff_decimal	Aliquot	AliqUnits	Activity_reference_date	Start_Date_of_Count	Sample_Count_Duration_min
LSC-A-022	ARS1-B12-02782-01	4.759	1.458	357.880	0.238	0.01001	L	9/7/2012	12/12/2012	240.000
LSC-A-022	ARS1-B12-02782-02	5.014	1.458	368.170	0.242	0.01002	L	9/7/2012	12/12/2012	240.000
LSC-A-022	ARS1-B12-02782-03	1.374	1.458	388.730	0.250	0.01001	L	12/11/2012	12/12/2012	240.000
LSC-A-022	ARS1-B12-02782-04	6.276	1.458	394.490	0.253	0.01002	L	11/15/2012	12/13/2012	240.000
LSC-A-022	ARS1-B12-02782-05	1.802	1.458	397.310	0.254	0.01002	L	11/15/2012	12/13/2012	240.000
LSC-A-022	ARS1-B12-02782-06	1.357	1.458	394.540	0.253	0.01007	L	11/16/2012	12/13/2012	240.000
LSC-A-022	ARS1-B12-02782-07	1.100	1.458	394.650	0.253	0.01001	L	11/16/2012	12/13/2012	240.000
LSC-A-022	ARS1-B12-02782-08	3.261	1.458	387.950	0.250	0.01001	L	11/14/2012	12/13/2012	240.000
LSC-A-022	ARS1-B12-02782-09	3.629	1.458	385.500	0.249	0.01003	L	11/14/2012	12/13/2012	240.000

ARS-040 Calculation Results

ARS1-B12-02782

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Total_Bkg_Count_Duration_min	DF	Sample_Activity_Conc	Standard_Counting_Uncertainty	CU_1	CSU_1	CU_1_96	CSU_1_96	MDC	DLC	ActivityReportUnits
LSC-A-022	ARS1-B12-02782-01	240.000	0.98532	22.397	1.092	1.092	3.533	2.140	6.924	2.537	1.230	pCi
LSC-A-022	ARS1-B12-02782-02	240.000	0.98532	20.697	0.956	0.956	3.248	1.873	6.367	2.176	1.055	pCi
LSC-A-022	ARS1-B12-02782-03	240.000	0.99969	-0.548	0.709	0.709	0.714	1.390	1.399	2.441	1.184	pCi
LSC-A-022	ARS1-B12-02782-04	240.000	0.99570	30.976	1.154	1.154	4.788	2.262	9.384	2.404	1.166	pCi
LSC-A-022	ARS1-B12-02782-05	240.000	0.99570	2.122	0.719	0.719	0.786	1.409	1.541	2.307	1.119	pCi
LSC-A-022	ARS1-B12-02782-06	240.000	0.99585	-0.669	0.717	0.717	0.724	1.406	1.420	2.477	1.201	pCi
LSC-A-022	ARS1-B12-02782-07	240.000	0.99585	-2.252	0.649	0.649	0.732	1.273	1.435	2.352	1.141	pCi
LSC-A-022	ARS1-B12-02782-08	240.000	0.99554	12.281	0.955	0.955	2.075	1.872	4.067	2.547	1.235	pCi
LSC-A-022	ARS1-B12-02782-09	240.000	0.99539	15.346	1.029	1.029	2.521	2.017	4.942	2.643	1.282	pCi

ARS-040 Calculation Results

ARS1-B12-02782

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	AliquotReportUnits	UserID	ModDate
LSC-A-022	ARS1-B12-02782-01	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-02	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-03	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-04	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-05	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-06	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-07	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-08	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-09	L	AMRAD\RUSEY	12/14/2012

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-5-12	1604	B12-02721-09	B12-02721	1649	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
12-7-12	1026	B12-02721-18	B12-02721	1755	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]
12-12-12	0733	SNC-16	Q4	Q4	[illegible]
12-12-12	0855	Background	B12-02782	0918	[illegible]
↓	↓	B12-02782-01	↓	↓	[illegible]
↓	↓	B12-02782-02	↓	↓	[illegible]
↓	↓	B12-02782-03	↓	↓	[illegible]
↓	↓	B12-02782-04	↓	↓	[illegible]
↓	↓	B12-02782-05	↓	↓	[illegible]
↓	↓	B12-02782-06	↓	↓	[illegible]
↓	↓	B12-02782-07	↓	↓	[illegible]
↓	↓	B12-02782-08	↓	↓	[illegible]
↓	↓	B12-02782-09	↓	↓	[illegible]
12-12-12	0955	SNC-16	Q4	Q4	[illegible]
* 12-13-12	0950	B12-02782-04	B12-02782	0305	[illegible]

*Set to count before SNC from 12-12-12. [illegible] 12-13-12

Reviewed By: [illegible] Date: 12-19-12
Initials

ARS Batch Number: ARS1-B12 - 02782

Enter these Values for LCS

		Report Name	Field Name on the Report
Current ACT	5.6414	Standards Report	ACT at Date Above (dpm/g)
NetWt	5.0670	LCS Report	NetWt
Aliquot	0.5006	Tritium Enrichment Data	Gross Sample Added/1000

Enter these Values for LCSD

		Report Name	Field Name on the Report
Current ACT	5.6414	Standards Report	ACT at Date Above (dpm/g)
NetWt	5.0760	LCS Report	NetWt
Aliquot	0.5067	Tritium Enrichment Data	Gross Sample Added/1000

Expected Value Calculations

ARS Batch Number: ARS1-B11 - 02782

LCS **CALCULATED EXPECTED VALUE** = 25.722

Range 20.578 – 30.867

LCSD **CALCULATED EXPECTED VALUE** = 25.457

Range 20.366 – 30.549

EXIT Exit

AMRAD AMERICAN RADIATION SERVICES, LLC

Standards Activity as of: 12/12/12 13:33

Active	Std ID	Isotope	PSCLT	Verification Date	Exp Date	Status	Ref Date	Ref ACT (dpm)	ACT at Date Above (dpm/g)	Halflife (days)	Parent ID	Expended Date	Comments
A	**S-0279**	H-3	**SL**	09/10/12	09/10/13	OK	09/07/12	5.7255E+00	**5.6414**	4.500E+03	**S-0237**		H3 LCS standard. Dilution performed as stated above by B Steffens. -B

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

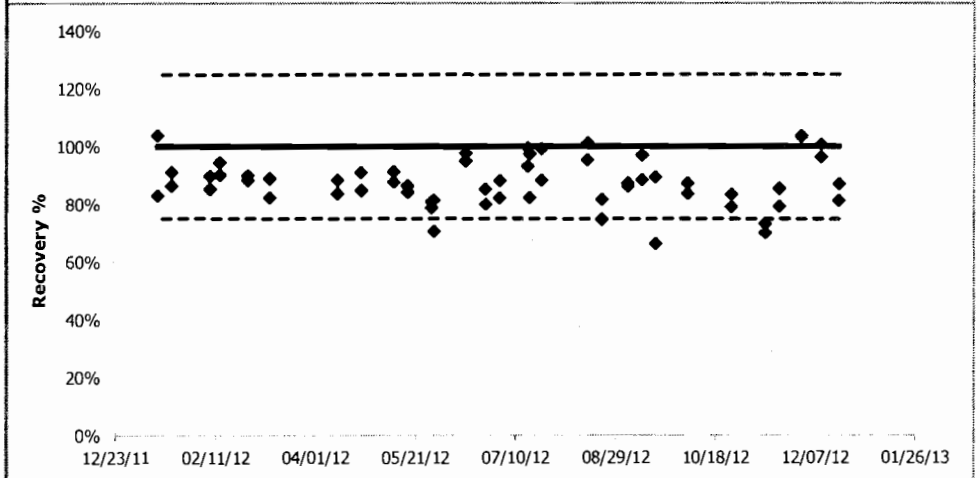
Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Control Charts

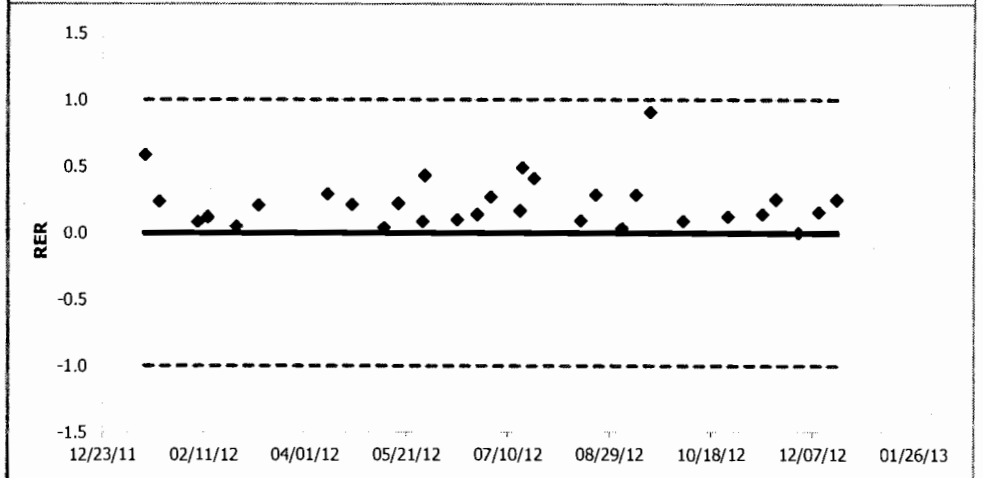
QC Chart

LLH-3 LCS



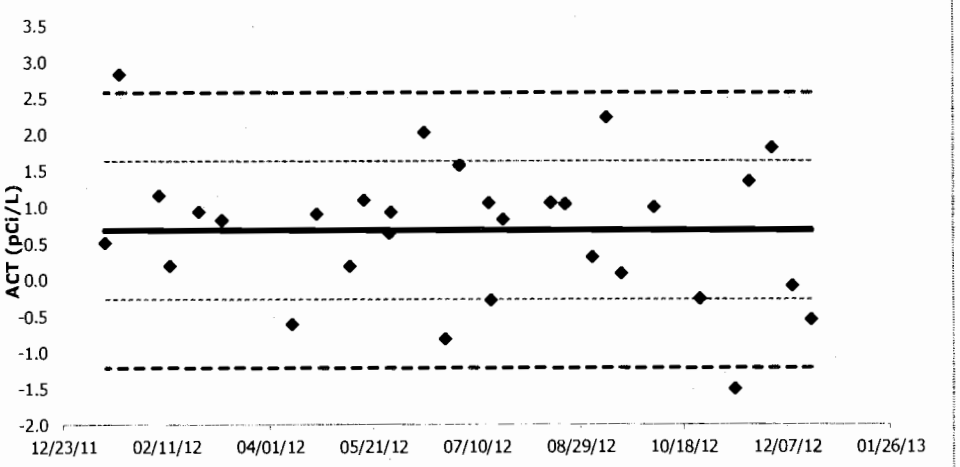
Average	STDEV	n	UCL	LCL
0.8756	0.0829	30	1.2500	0.7500

LLH-3 RER



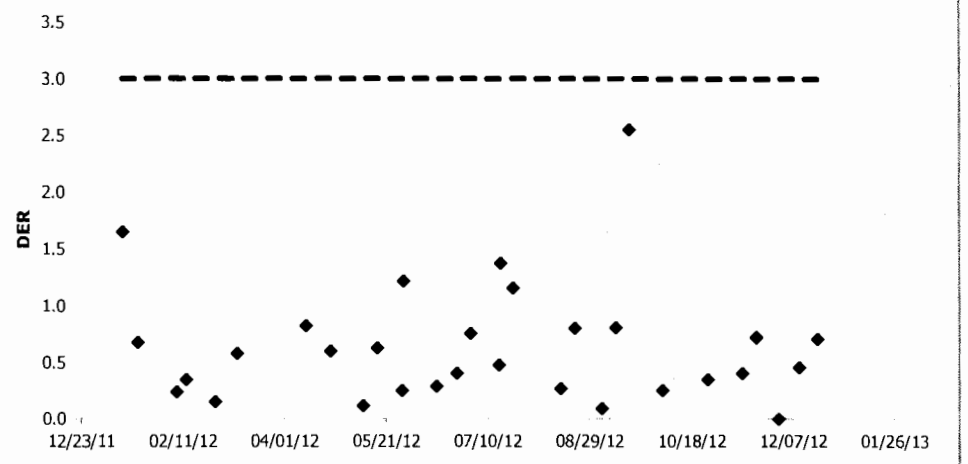
		n	UCL	LCL
		30	1.0000	-1.0000

LLH-3 Blank



Average	STDEV	n	UCL	LCL
0.6825	0.9484	30	2.5792	-1.2142

LLH-3 DER



		n	UCL	
		30	3.0000	

3H Efficiency
Total # pts : 5554
Valid # pts : 106
Mean : 62.95
SD : 0.22

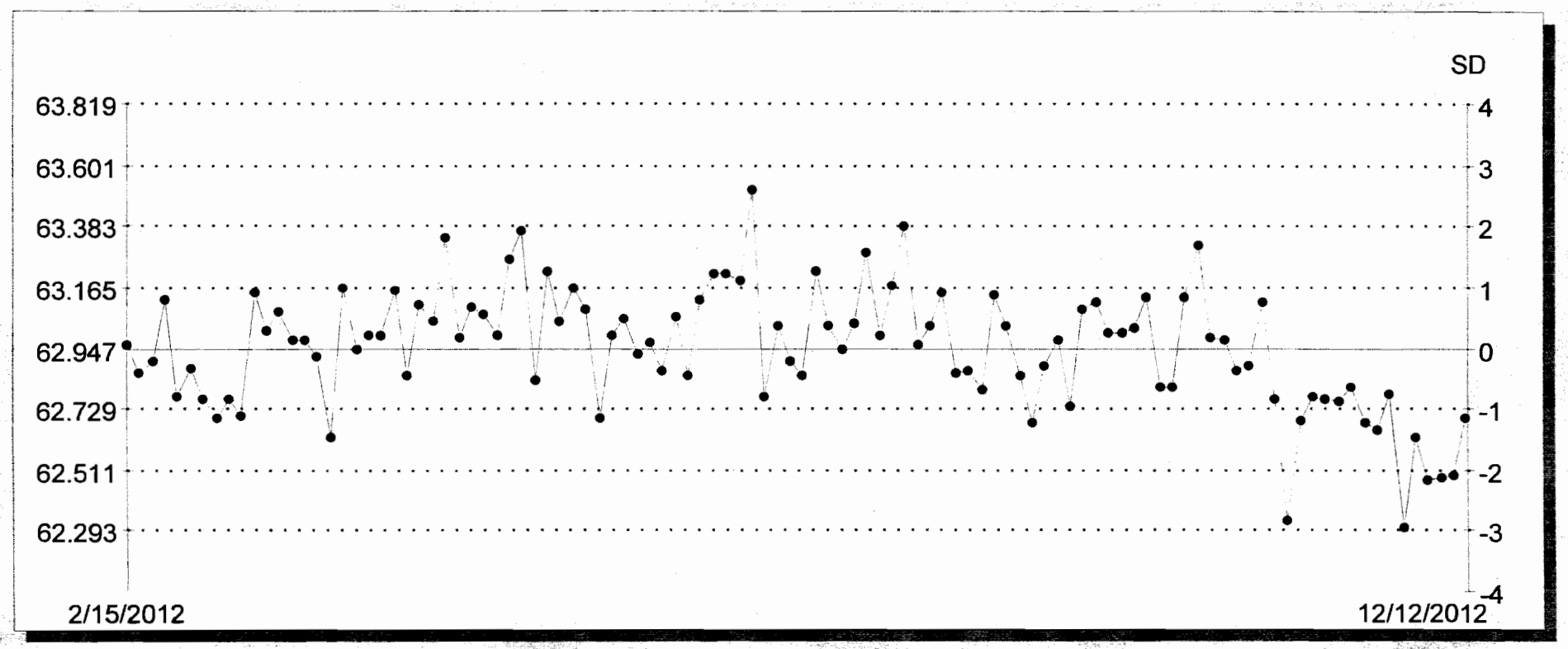
Date	Value	Valid Pt
Feb 15, 2012	62.96	X
Feb 16, 2012	62.86	X
Feb 17, 2012	62.90	X
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X
Jun 30, 2012	62.97	X

Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X
Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 22, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X
Nov 12, 2012	62.77	X

Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X
Nov 18, 2012	62.68	X
Nov 19, 2012	62.65	X
Nov 19, 2012	62.78	X
Nov 20, 2012	62.30	X
Nov 26, 2012	62.63	X
Nov 23, 2012	62.47	X
Dec 04, 2012	62.48	X
Dec 08, 2012	62.49	X
Dec 12, 2012	62.70	X

3016

3H Efficiency
Total # pts : 5554
Valid # pts : 106
Mean : 62.95
SD : 0.22



3H Background
Total # pts : 5480
Valid # pts : 106
Mean : 2.13
SD : 0.16

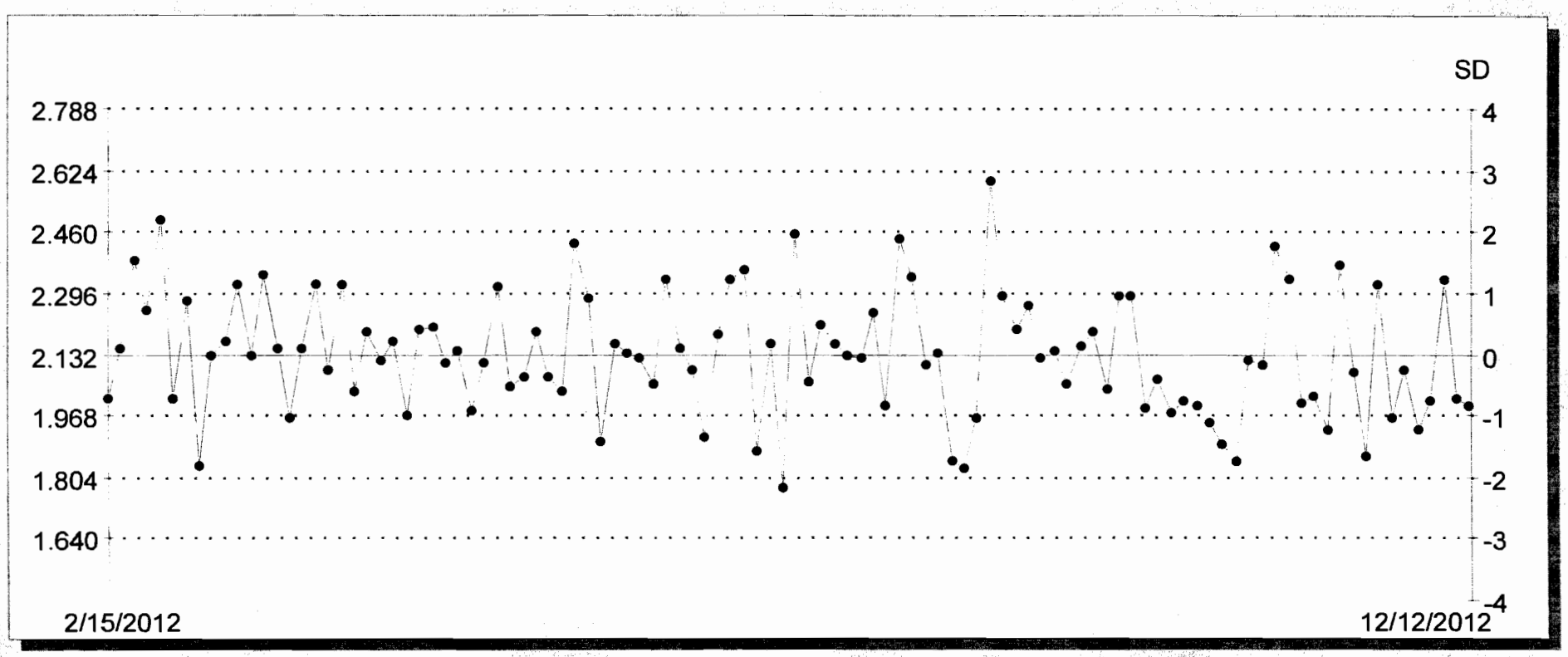
Date	Value	Valid Pt
Feb 15, 2012	2.01	X
Feb 16, 2012	2.15	X
Feb 17, 2012	2.39	X
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X
Jun 30, 2012	2.12	X

Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X
Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 22, 2012	2.19	X
Jul 26, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 09, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X
Nov 12, 2012	2.02	X

Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X
Nov 18, 2012	1.86	X
Nov 19, 2012	2.32	X
Nov 19, 2012	1.96	X
Nov 20, 2012	2.09	X
Nov 26, 2012	1.93	X
Nov 23, 2012	2.01	X
Dec 04, 2012	2.34	X
Dec 08, 2012	2.02	X
Dec 12, 2012	2.00	X

40011

3H Background
Total # pts : 5480
Valid # pts : 106
Mean : 2.13
SD : 0.16



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium- Screening by Low Level Liquid Scintillation Counting

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Samples

Procedures: **ARS-060** **ARS-040** *Section 14.1 Tritium Screen in Clean Water without Distillation*

ARS File ID Numbers: ARS1-12-02339; 2340; 2341
ARS Batch ID: ARS1-B12-02779

	Sample ID:	COUNT TIME	CPMA	Background CPMA	Eff Nucl In A	Aliquot (grams)	ACTIVITY	units	MDA	Sample Must be analyzed as LSC-A-001
1	B12-02779-04	120	2.477	1.524	24.55	10.00	174.859	pCi/L	122.1564	YES, analyze by LSC-A-001.
2	B12-02779-05	120	1.728	1.524	24.35	10.00	37.738	pCi/L	123.1597	NO
3	B12-02779-06	120	1.607	1.524	24.79	10.02	15.052	pCi/L	120.7323	NO
4	B12-02779-07	120	2.166	1.524	24.67	10.00	117.223	pCi/L	121.5622	NO
5	B12-02779-08	120	1.852	1.524	24.67	10.05	59.592	pCi/L	120.9574	NO
6	B12-02779-09	120	1.662	1.524	24.56	10.04	25.209	pCi/L	121.6202	NO
7							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
8	B12-02779-04	120	1.347	1.524	24.16	10.00	-33.001	pCi/L	124.1283	NO
9	B12-02779-07	120	1.736	1.524	24.66	10.00	38.725	pCi/L	121.6115	NO
10							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
11							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
12							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
13							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
14							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
15							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
16							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
17							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
18							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
19							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
20							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
21							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
22							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
23							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!

Run all for LSC-A-022
SOL
11-21-12

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

AMRAD AMERICAN RADIATION SERVICES, LLC

Analysis Batch ID **ARS1-B12-02779**

Method	ARS-054	Analysis	LSC-A-021	Matrix	AQ
Description	Low Level Tritium Screening				

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02779-01	LCS									
ARS1-B12-02779-02	LCSD									
ARS1-B12-02779-03	MBL									
ARS1-B12-02779-04	TRG				**ARS1-12-02339**	001	1	CAMO-13-24251	STD	12/16/12
ARS1-B12-02779-05	TRG				**ARS1-12-02339**	002	1	CAMO-13-24252	STD	12/16/12
ARS1-B12-02779-06	TRG				**ARS1-12-02340**	001	1	CAMO-13-24278	STD	12/16/12
ARS1-B12-02779-07	TRG				**ARS1-12-02340**	002	1	CAMO-13-24271	STD	12/16/12
ARS1-B12-02779-08	TRG				**ARS1-12-02341**	001	1	CASA-13-24212	STD	12/16/12
ARS1-B12-02779-09	TRG				**ARS1-12-02341**	002	1	CASA-13-24206	STD	12/16/12

127000
12-02339-001-1
WRAD

127001
12-02339-002-1
WRAD

127002
12-02340-001-1
WRAD

127003
12-02340-002-1
WRAD

127004
12-02341-001-1
WRAD

127005
12-02341-002-1
WRAD

47 of 81

ID_21001_054	ABatch	ABatchSampleID	ClientID	Aliquot1	AliquotUnits1	IC_ID1	Aliquot2	AliquotUnits2	IC_ID2	UserID	ModDate
12006	ARS1-B12-02779	ARS1-B12-02779-01		1	g					AMRAD\RUSEY	11/20/2012 14:56:20
12007	ARS1-B12-02779	ARS1-B12-02779-02		1	g					AMRAD\RUSEY	11/20/2012 14:56:20
12008	ARS1-B12-02779	ARS1-B12-02779-03		1	g					AMRAD\RUSEY	11/20/2012 14:56:20
12009	ARS1-B12-02779	ARS1-B12-02779-04	CAMO-13-24251	10	g	127000				AMRAD\RUSEY	11/20/2012 14:56:20
12010	ARS1-B12-02779	ARS1-B12-02779-05	CAMO-13-24252	10	g	127001				AMRAD\RUSEY	11/20/2012 14:56:20
12011	ARS1-B12-02779	ARS1-B12-02779-06	CAMO-13-24278	10.02	g	127002				AMRAD\RUSEY	11/20/2012 14:56:20
12012	ARS1-B12-02779	ARS1-B12-02779-07	CAMO-13-24271	10	g	127003				AMRAD\RUSEY	11/20/2012 14:56:20
12013	ARS1-B12-02779	ARS1-B12-02779-08	CASA-13-24212	10.05	g	127004				AMRAD\RUSEY	11/20/2012 14:56:21
12014	ARS1-B12-02779	ARS1-B12-02779-09	CASA-13-24206	10.04	g	127005				AMRAD\RUSEY	11/20/2012 14:56:21

Assay Definition-

Assay Description:
Low Low Level Tritium

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20121120_1646
Raw Results Path: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20121120_1646\20121120_1646.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20121120_1646\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20121120_1646\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Low Level Tritium.lsa

Count Conditions-

Nuclide: H-3 LL
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

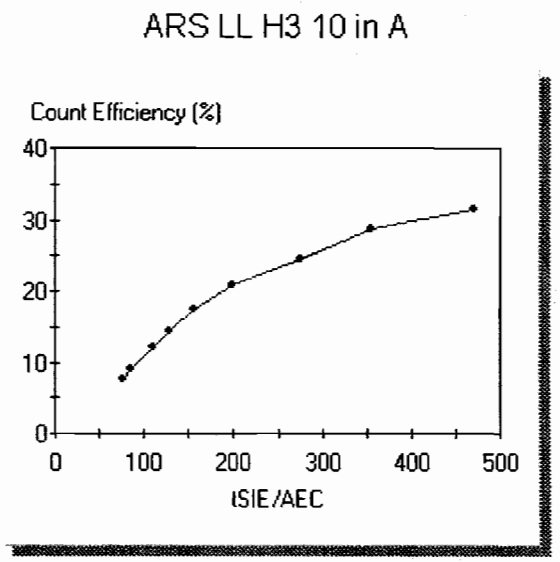
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 07/12/2012
Date Modified:
ARS LL H3 10 in A

tSIE/AEC	Count Efficiency (%)
469.86	31.67
355.16	28.64
276.20	24.37
198.58	20.90
156.80	17.54
129.38	14.41
110.19	12.01
86.31	8.98
76.97	7.55

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
41	1	BACKGROUND	1.524	6.400	263.84	23.82	120.00	11/20/2012	4:55:36 PM	
41	2	B12-02779-04	2.477	10.090	279.54	24.55	120.00	11/20/2012	7:07:37 PM	
41	3	B12-02779-05	1.728	7.097	275.87	24.35	120.00	11/20/2012	9:19:37 PM	
41	4	B12-02779-06	1.607	6.481	284.04	24.79	120.00	11/20/2012	11:31:39 PM	
41	5	B12-02779-07	2.166	8.780	281.71	24.67	120.00	11/21/2012	1:43:42 AM	
41	6	B12-02779-08	1.852	7.507	281.84	24.67	120.00	11/21/2012	3:55:45 AM	
41	7	B12-02779-09	1.662	6.770	279.72	24.56	120.00	11/21/2012	6:07:47 AM	

Assay Definition-

Assay Description:
Low Level H3

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium 2\20121121_0813
Raw Results Path: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium 2\20121121_0813\20121121_0813.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium 2\20121121_0813\Report1.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium 2\20121121_0813\Report1.txt
Assay File Name: C:\Packard\TriCarb\Assays\Low Low Level Tritium 2.lsa

Count Conditions-

Nuclide: H-3 LL
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

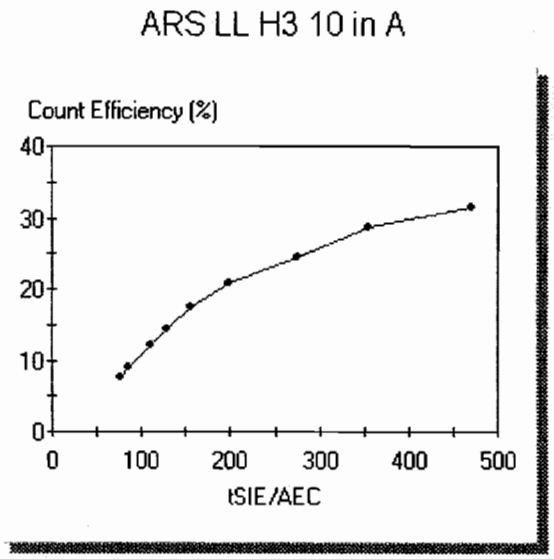
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 07/12/2012
Date Modified:
ARS LL H3 10 in A

tSIE/AEC	Count Efficiency (%)
469.86	31.67
355.16	28.64
276.20	24.37
198.58	20.90
156.80	17.54
129.38	14.41
110.19	12.01
86.31	8.98
76.97	7.55

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
49	1	B12-02779-04	1.347	5.575	271.65	24.16	120.00	11/21/2012	8:22:43 AM	
49	2	B12-02779-07	1.736	7.041	281.62	24.66	120.00	11/21/2012	10:34:45 AM	

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
11-15-12	1203	B12-02687-06	B12-02687	1354	[illegible]
↓	↓	B12-02687-07	↓	↓	[illegible]
↓	↓	B12-02687-08	↓	↓	[illegible]
↓	↓	B12-02687-09	↓	↓	[illegible]
↓	↓	B12-02687-10	↓	↓	[illegible]
↓	↓	B12-02687-11	↓	↓	[illegible]
↓	↓	B12-02687-12	↓	↓	[illegible]
↓	↓	B12-02687-13	↓	↓	[illegible]
↓	↓	B12-02687-14	↓	↓	[illegible]
11-20-12	1501	SNC KS	QA	QA	[illegible]
11-20-12	1502	Background	B12-02779	1646	[illegible]
↓	↓	B12-02779-04	↓	↓	[illegible]
↓	↓	B12-02779-05	↓	↓	[illegible]
↓	↓	B12-02779-06	↓	↓	[illegible]
↓	↓	B12-02779-07	↓	↓	[illegible]
↓	↓	B12-02779-08	↓	↓	[illegible]
↓	↓	B12-02779-09	↓	↓	[illegible]
11-21-12	0720	B12-02779-04	B12-02779	0813	[illegible]
↓	↓	B12-02779-07	↓	↓	[illegible]
				[illegible] 11-21-12	

Reviewed By: [illegible] Date: 12-19-12
Initials

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Control Charts

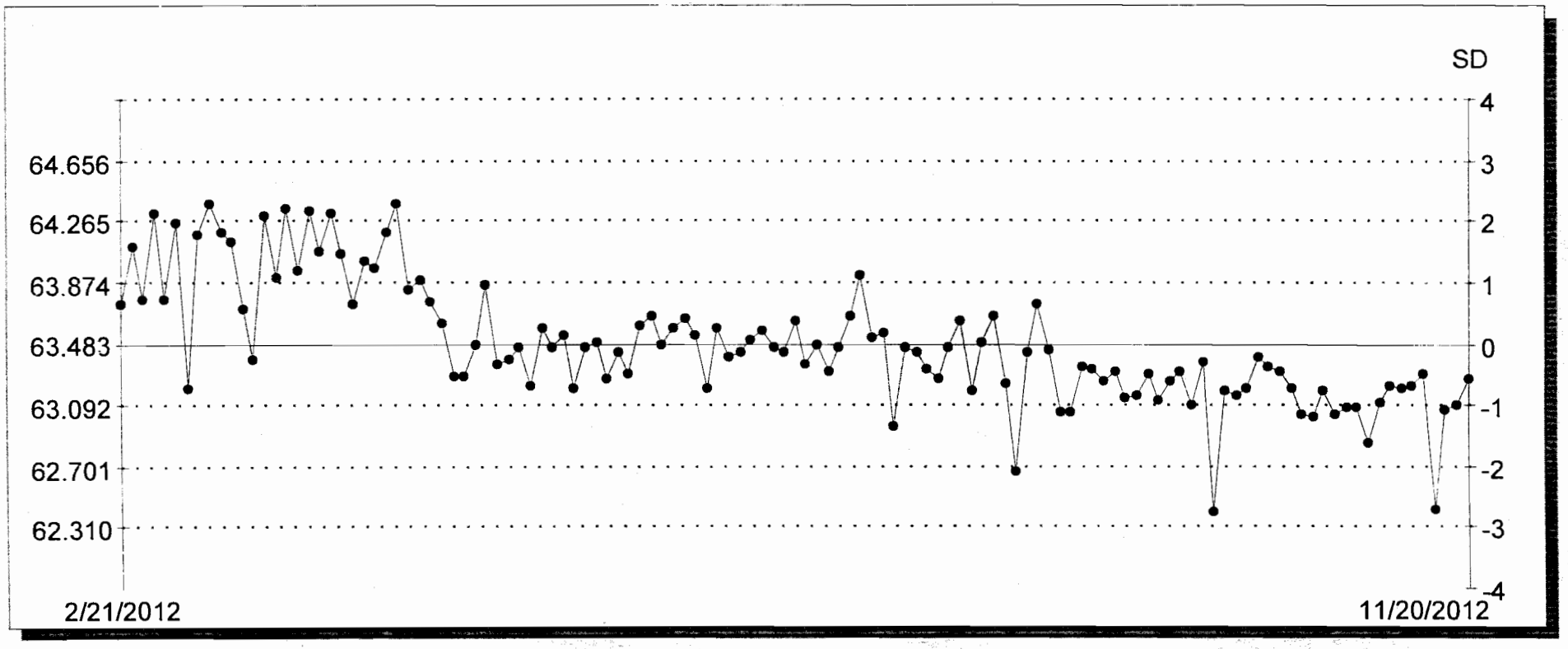
3H Efficiency
Total # pts : 1872
Valid # pts : 123
Mean : 63.48
SD : 0.39

Date	Value	Valid Pt
Feb 21, 2012	63.73	X
Feb 23, 2012	64.10	X
Feb 28, 2012	63.77	X
Mar 02, 2012	64.32	X
Mar 05, 2012	63.77	X
Mar 08, 2012	64.25	X
Mar 13, 2012	63.20	X
Mar 13, 2012	64.18	X
Mar 15, 2012	64.37	X
Mar 20, 2012	64.19	X
Mar 23, 2012	64.13	X
Mar 27, 2012	63.71	X
Mar 27, 2012	63.39	X
Mar 30, 2012	64.29	X
Apr 03, 2012	63.89	X
Apr 10, 2012	64.34	X
Apr 13, 2012	63.95	X
Apr 16, 2012	64.32	X
Apr 20, 2012	64.07	X
Apr 23, 2012	64.31	X
Apr 27, 2012	64.05	X
Apr 30, 2012	63.74	X
Apr 30, 2012	64.01	X
May 04, 2012	63.97	X
May 07, 2012	64.20	X
May 14, 2012	64.37	X
May 16, 2012	63.83	X
May 17, 2012	63.89	X
Jun 01, 2012	63.75	X
Jun 01, 2012	63.62	X
Jun 01, 2012	63.27	X
Jun 01, 2012	63.28	X
Jun 01, 2012	63.47	X
Jun 02, 2012	63.86	X
Jun 02, 2012	63.35	X
Jun 02, 2012	63.39	X
Jun 02, 2012	63.46	X
Jun 02, 2012	63.21	X
Jun 02, 2012	63.59	X
Jun 02, 2012	63.46	X
Jun 02, 2012	63.54	X
Jun 02, 2012	63.20	X
Jun 02, 2012	63.46	X
Jun 02, 2012	63.50	X
Jun 02, 2012	63.27	X
Jun 02, 2012	63.43	X
Jun 02, 2012	63.29	X

Jun 02, 2012	63.60	X
Jun 03, 2012	63.65	X
Jun 03, 2012	63.47	X
Jun 03, 2012	63.57	X
Jun 03, 2012	63.65	X
Jun 03, 2012	63.53	X
Jun 03, 2012	63.21	X
Jun 03, 2012	63.58	X
Jun 03, 2012	63.39	X
Jun 03, 2012	63.43	X
Jun 03, 2012	63.50	X
Jun 03, 2012	63.56	X
Jun 03, 2012	63.46	X
Jun 03, 2012	63.43	X
Jun 03, 2012	63.63	X
Jun 03, 2012	63.36	X
Jun 04, 2012	63.47	X
Jun 04, 2012	63.31	X
Jun 04, 2012	63.46	X
Jun 04, 2012	63.66	X
Jun 04, 2012	63.91	X
Jun 13, 2012	63.52	X
Jun 14, 2012	63.56	X
Jun 21, 2012	62.96	X
Jun 22, 2012	63.46	X
Jun 26, 2012	63.43	X
Jun 27, 2012	63.32	X
Jun 28, 2012	63.27	X
Jul 03, 2012	63.45	X
Jul 09, 2012	63.63	X
Jul 12, 2012	63.19	X
Jul 13, 2012	63.49	X
Jul 13, 2012	63.66	X
Jul 16, 2012	63.24	X
Jul 18, 2012	62.67	X
Jul 18, 2012	63.42	X
Jul 19, 2012	63.73	X
Jul 20, 2012	63.44	X
Jul 23, 2012	63.05	X
Jul 26, 2012	63.04	X
Jul 28, 2012	63.34	X
Jul 30, 2012	63.33	X
Jul 30, 2012	63.25	X
Jul 31, 2012	63.31	X
Aug 03, 2012	63.15	X
Aug 06, 2012	63.16	X
Aug 08, 2012	63.30	X
Aug 08, 2012	63.13	X
Aug 24, 2012	63.24	X
Sep 05, 2012	63.31	X
Sep 07, 2012	63.10	X
Sep 10, 2012	63.36	X
Sep 12, 2012	62.40	X
Sep 14, 2012	63.19	X
Sep 14, 2012	63.16	X
Sep 17, 2012	63.19	X
Sep 19, 2012	63.39	X

Sep 26, 2012	63.33	X
Sep 27, 2012	63.31	X
Sep 29, 2012	63.20	X
Oct 10, 2012	63.04	X
Oct 16, 2012	63.02	X
Oct 19, 2012	63.19	X
Oct 24, 2012	63.03	X
Oct 26, 2012	63.07	X
Oct 29, 2012	63.07	X
Oct 30, 2012	62.84	X
Oct 30, 2012	63.11	X
Nov 01, 2012	63.22	X
Nov 04, 2012	63.20	X
Nov 06, 2012	63.21	X
Nov 09, 2012	63.29	X
Nov 10, 2012	62.43	X
Nov 14, 2012	63.07	X
Nov 15, 2012	63.09	X
Nov 20, 2012	63.26	X

3H Efficiency
Total # pts : 1872
Valid # pts : 123
Mean : 63.48
SD : 0.39



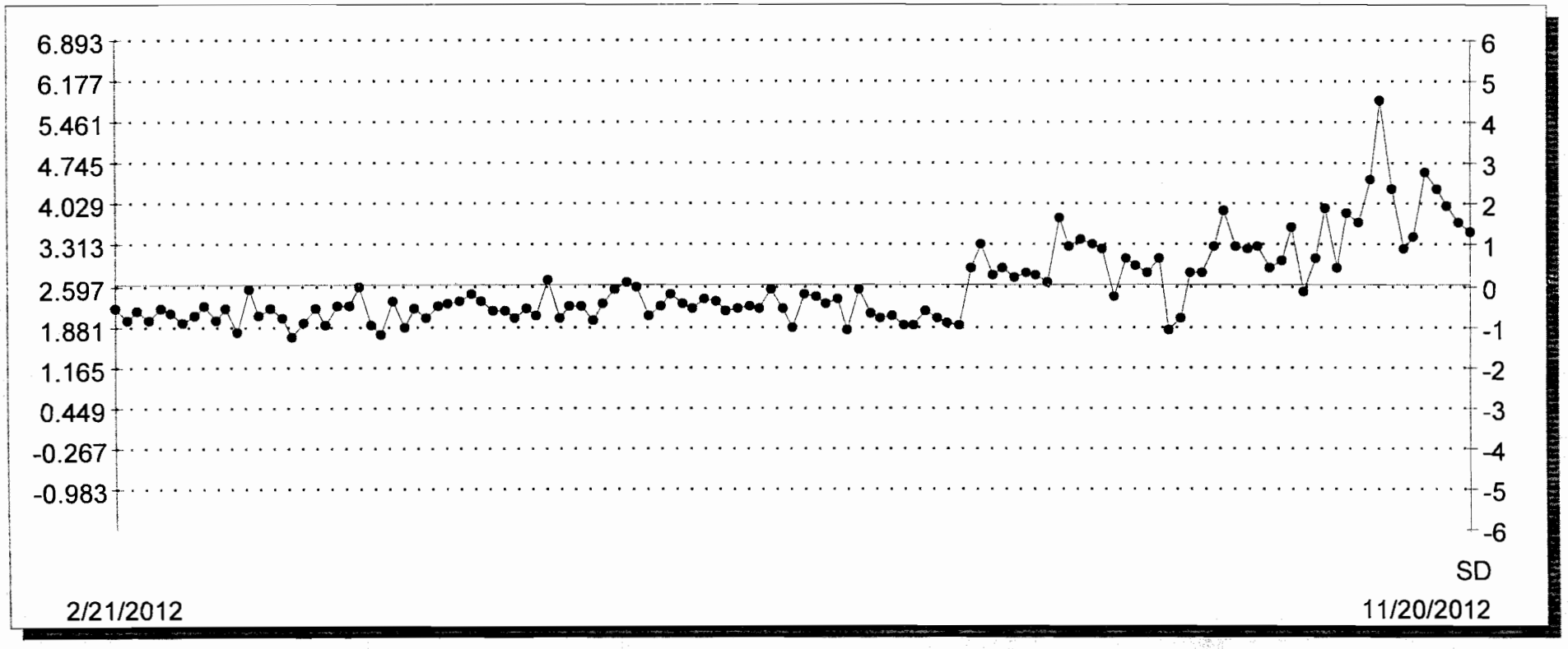
3H Background
Total # pts : 1828
Valid # pts : 123
Mean : 2.60
SD : 0.72

Date	Value	Valid Pt
Feb 21, 2012	2.20	X
Feb 23, 2012	2.01	X
Feb 28, 2012	2.14	X
Mar 02, 2012	1.99	X
Mar 05, 2012	2.21	X
Mar 08, 2012	2.14	X
Mar 13, 2012	1.96	X
Mar 13, 2012	2.08	X
Mar 15, 2012	2.26	X
Mar 20, 2012	1.99	X
Mar 23, 2012	2.21	X
Mar 27, 2012	1.80	X
Mar 27, 2012	2.55	X
Mar 30, 2012	2.07	X
Apr 03, 2012	2.19	X
Apr 10, 2012	2.03	X
Apr 13, 2012	1.69	X
Apr 16, 2012	1.93	X
Apr 20, 2012	2.21	X
Apr 23, 2012	1.89	X
Apr 27, 2012	2.25	X
Apr 30, 2012	2.24	X
Apr 30, 2012	2.58	X
May 04, 2012	1.90	X
May 07, 2012	1.75	X
May 14, 2012	2.33	X
May 16, 2012	1.87	X
May 17, 2012	2.20	X
Jun 01, 2012	2.03	X
Jun 01, 2012	2.22	X
Jun 01, 2012	2.27	X
Jun 01, 2012	2.35	X
Jun 01, 2012	2.45	X
Jun 02, 2012	2.32	X
Jun 02, 2012	2.15	X
Jun 02, 2012	2.18	X
Jun 02, 2012	2.05	X
Jun 02, 2012	2.22	X
Jun 02, 2012	2.08	X
Jun 02, 2012	2.72	X
Jun 02, 2012	2.03	X
Jun 02, 2012	2.26	X
Jun 02, 2012	2.25	X
Jun 02, 2012	1.99	X
Jun 02, 2012	2.29	X
Jun 02, 2012	2.55	X
Jun 02, 2012	2.66	X

Jun 02, 2012	2.56	X
Jun 03, 2012	2.06	X
Jun 03, 2012	2.23	X
Jun 03, 2012	2.45	X
Jun 03, 2012	2.28	X
Jun 03, 2012	2.19	X
Jun 03, 2012	2.36	X
Jun 03, 2012	2.33	X
Jun 03, 2012	2.14	X
Jun 03, 2012	2.21	X
Jun 03, 2012	2.23	X
Jun 03, 2012	2.20	X
Jun 03, 2012	2.55	X
Jun 03, 2012	2.19	X
Jun 03, 2012	1.88	X
Jun 03, 2012	2.43	X
Jun 04, 2012	2.42	X
Jun 04, 2012	2.29	X
Jun 04, 2012	2.37	X
Jun 04, 2012	1.84	X
Jun 04, 2012	2.52	X
Jun 13, 2012	2.14	X
Jun 14, 2012	2.01	X
Jun 21, 2012	2.09	X
Jun 22, 2012	1.91	X
Jun 26, 2012	1.90	X
Jun 27, 2012	2.18	X
Jun 28, 2012	2.04	X
Jul 03, 2012	1.96	X
Jul 09, 2012	1.90	X
Jul 12, 2012	2.91	X
Jul 13, 2012	3.33	X
Jul 13, 2012	2.78	X
Jul 16, 2012	2.93	X
Jul 18, 2012	2.76	X
Jul 18, 2012	2.85	X
Jul 19, 2012	2.79	X
Jul 20, 2012	2.65	X
Jul 23, 2012	3.78	X
Jul 26, 2012	3.28	X
Jul 28, 2012	3.41	X
Jul 30, 2012	3.33	X
Jul 30, 2012	3.24	X
Jul 31, 2012	2.42	X
Aug 03, 2012	3.09	X
Aug 06, 2012	2.96	X
Aug 08, 2012	2.82	X
Aug 08, 2012	3.09	X
Aug 24, 2012	1.84	X
Sep 05, 2012	2.04	X
Sep 07, 2012	2.81	X
Sep 10, 2012	2.84	X
Sep 12, 2012	3.31	X
Sep 14, 2012	3.90	X
Sep 14, 2012	3.28	X
Sep 17, 2012	3.26	X
Sep 19, 2012	3.27	X

Sep 26, 2012	2.90	X
Sep 27, 2012	3.03	X
Sep 29, 2012	3.61	X
Oct 10, 2012	2.51	X
Oct 16, 2012	3.08	X
Oct 18, 2012	3.94	X
Oct 24, 2012	2.93	X
Oct 28, 2012	3.87	X
Oct 29, 2012	3.71	X
Oct 30, 2012	4.48	X
Oct 30, 2012	5.86	X
Nov 01, 2012	4.30	X
Nov 04, 2012	3.23	X
Nov 06, 2012	3.47	X
Nov 09, 2012	4.61	X
Nov 10, 2012	4.31	X
Nov 14, 2012	3.99	X
Nov 15, 2012	3.72	X
Nov 20, 2012	3.56	X

3H Background
Total # pts : 1828
Valid # pts : 123
Mean : 2.60
SD : 0.72



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Liquid Scintillation Counting

Calibration Information

ARS INTERNATIONAL

QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS

ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE: 9/10/2012 20:16 *date counted*
STANDARD REFERENCE #: S-0279

Principal Radionuclide		Half Life, Years		Half Life, Days
H-3	*ENTER -->*		*OR -->*	4.4998E+03
		1.232E+01		4.4998E+03

Radionuclide: H-3 Dilution Reference Date: 9/7/2012 10:40

Dilution Activity	2.58	pCi per gram ===> dpm/g	5.73
Verif. Date Decay Corrected	2.58	pCi per gram ===> dpm/g	5.72

Minimum of 3 Required

Trial ID	Sample Counts	Count Time (min)	Detector	Efficiency	Bkg. (cpm)	Net Weight	Decay Corrected Activity Result (dpm/g)	Decay Corrected Activity Result (pCi/g)
S-0279-V1	15.91	1	LSC	0.3302	6.49	5.019	5.68	2.56
S-0279-V2	16.21	1	LSC	0.3291	6.49	5.018	5.89	2.65
S-0279-V3	15.76	1	LSC	0.3290	6.49	5.018	5.62	2.53
S-0279-V4	15.62	1	LSC	0.3293	6.49	5.008	5.54	2.49
S-0279-V5	15.76	1	LSC	0.3280	6.49	5.018	5.63	2.54

Average	5.67	2.55
Two Sigma Uncertainty	0.26	0.12
Standard Deviation percent of known concentration	2.30%	2.30%
Target Activity	5.72	2.58
% Diff	-0.91%	-0.91%

10% Max *PASS*

5% Max *PASS*

Verification Expiration Date: ##############

Prepared & Counted By: [signature] Date: 9/10/2012 20:16

Verified & Approved By: [signature] Date: 9-11-12 0817

QC Approval: [signature] Date: 9-11-12 0817

S-0279		
H-3	Verified	*9/10/12*
SL	**Expires**	**9/10/13**
Manufactuer	**NIST SRM 4927F**	
Sol Matrix	H2O	
Ref No	NIST SRM 4927F	
Tech	Unknown	
Parent ID	S-0237	

ARS INTERNATIONAL

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

H-3 Standard Verification

Verifier's Name: Brian Steffens **Date:** 9/7/2012

Pipettor ID: FJ40469

Pipettor ID: Auto-pipettor

Pipettor ID: na

Standard ID: S-0279

Standard ID: N/A

Standards brought up to ~5g with distilled dead water.
Standards made in glass vials.

15mL of Ultima Gold added to standard

	Weight of Standard
S-0279-V1	5.019 g
S-0279-V2	5.018 g
S-0279-V3	5.018 g
S-0279-V4	5.008 g
S-0279-V5	5.018 g

Balance ID: H1331122173560P

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931
Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\20120910_0931.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\H-3 Normal 3.lsa

Count Conditions-

Nuclide: H-3 Normal
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: UG STD H-3
Count Time (min): 120.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

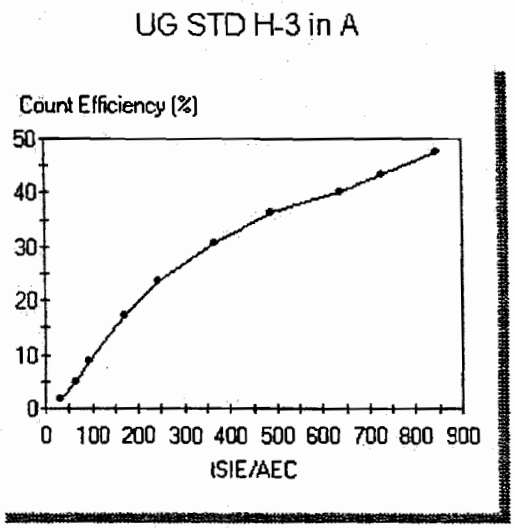
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off
Regions Half Life Units Reference Date Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 06/27/2012
Date Modified:
UG STD H-3 in A

tSIE/AEC	Count Efficiency (%)
846.90	47.58
730.85	43.21
639.47	40.08
487.78	36.36
365.41	30.73
244.81	23.69
169.28	17.31
95.01	8.79
64.60	4.97
34.32	[illegible].64

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
54	1	BACKGROUND	6.49	19.81	409.74	32.77	120.00	9/10/2012	9:36:46 AM	
54	2	S-0279-V1	15.91	48.18	415.20	33.02	120.00	9/10/2012	11:44:40 AM	
54	3	S-0279-V2	16.21	49.25	412.72	32.91	120.00	9/10/2012	1:52:36 PM	
54	4	S-0279-V3	15.76	47.89	412.56	32.90	120.00	9/10/2012	4:00:32 PM	
54	5	S-0279-V4	15.62	47.44	413.22	32.93	120.00	9/10/2012	6:08:27 PM	
54	6	S-0279-V5	15.76	48.04	410.40	32.80	120.00	9/10/2012	8:16:20 PM	

STD ID: S-0279

ARS INTERNATIONAL

Add/Edit *Secondary Stds*

Planning

Planning Comments	Create a H3 LCS standard.
Target dpm/g (on dil. date)	5.5
Target Final volume mL	2000
Appx mass g of Parent Sol'n	3.606433954
Appx vol ml of Parent Sol'n	3.612937241
Expected Addition for Analysis g	5

Standards Preparation / Dilution

Secondary Solution #	S-0279
Dilution Date (New Ref Date)	09/07/2012 10:40
Ampoule, Empty (g)	
Ampoule /Solution Gross (g)	
Net Wt Removed (g)	
Transfer Container, empty (g)	13.144
Container Plus Solution (g)	16.89
Net Wt Transferred (g)	3.746
DPM Xferred on 09/07/2012 10:40	11425.69101
Diluent/matrix	DI H2O
Diluent Density Cont, empty (g)	
Test Mass of 5 ml of Diluent (g)	
Diluent Density Test - (g/mL)	
Dilution Empty Container Mass (g)	473.93
Dilution Full Cont g (if measured)	2469.52
Dilution Final Volume ml (if measured)	2000
Final Dilution Density (g/mL)	0.997795
Final Dilution Measured Mass g	1995.59
Comments	H3 LCS standard. Dilution performed as stated above by B Steffens. -BJS 9/7/12
Final Dilution dpm/g	5.725470166
Final Dil New Ref Date/Time	09/07/2012 10:40

Parent Standard Data

Parent Solution Reference #	NIST SRM 4927F			
Parent Solution #	S-0237			
Parent Principal Radionuclide	H-3	Half Life (Days)	4499.8000000	
Parent Reference Date	03/22/2010 10:10			
Parent Certified Act	3503.682716	Certi Act/Vol Units	dpm	g
Parent Cert Act Uncert 1 Sigma	0.0036			
Parent Sp. Gravity G/Ml	0.9982			
Parent Supplier	NIST SRM 4927F			
Parent Date Recvd	01/02/00			
Parent Received By	Unknown			
Parent Cert Exp Date				
Parent Matrix	H2O			
Certified dpm/g At Ref Date	3503.682716			
Certified dpm/g on 09/07/2012 10:40	3050.10438			
Parent Comments	Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Steffens. -BJS 3/22/10			
Parent Tech	Unknown			
Is_Primary	FALSE			
Is_LCS	TRUE			
Is_Tracer	FALSE			
Is_Calib	FALSE			

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Folder Duplicate

Report Compilation Checklist

ARS SDG:	12-02341	Client Name:	LANL	Sample Matrix:	AQ

LEVEL 1 COMPONENTS	1st Reviewer	
1) Cover Page Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
2) Technical Review Checklist(s) Complete and Accurate?	~~Yes~~ No N/A	
3) Case Narrative Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
4) Form 1s Present for all Samples and Tests?	~~Yes~~ No N/A	
5) Client Specific Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 2 COMPONENTS	1st Reviewer	
6) Batch Quality Control Report is Present and Accurate?	~~Yes~~ No N/A	
7) DQO Report is Present and Accurate?	~~Yes~~ No N/A	
8) Client Specific Batch QC Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 3 COMPONENTS	1st Reviewer	
9) Efficiencies are Present?	~~Yes~~ No N/A	
10) Calibrations are Present?	~~Yes~~ No N/A	
11) Backgrounds are Present?	~~Yes~~ No N/A	
12) Spectrum Analysis is Present?	~~Yes~~ No N/A	
13) Spectral Plots are Present?	~~Yes~~ No N/A	
14) Plateaus are Present?	~~Yes~~ No N/A	
15) Control Charts are Present?	~~Yes~~ No N/A	
16) Other:	Yes No ~~N/A~~	

LEVEL 4 COMPONENTS	1st Reviewer	
17) Preparation Raw Data Present, Signed and Complete?	~~Yes~~ No N/A	
18) Instrument Raw Data Present and Complete?	~~Yes~~ No N/A	
19) Calibration Certificates Present?	~~Yes~~ No N/A	
20) Copies of Log Book Pages Present?	~~Yes~~ No N/A	
21) Sample Receiving Documentation Present?	~~Yes~~ No N/A	
22) LIMS Reports Present?	~~Yes~~ No N/A	
23) Applicable Correspondence Present?	~~Yes~~ No N/A	
24) Other:	Yes No ~~N/A~~	

SDh 12-19-12
Report Generator Signature Date

James D. Lu 12-19-12
Management Review Signature Date

LSC
Technical Review Checklist

ARS SDG ARS1-12-02341

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s):	**Batch A:** ARS1-B12-02779	**Batch B:** N/A	**Batch C:** N/A
Test Method(s):	LSC-A-021	N/A	N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) Sample Prep Anomaly? ☑ **No** ☐ **Yes** (See Tech Notes) **NCR #** (If initiated): _____

11-20-12 — **Chemist Signature** — **Date**

N/A — **Verifier Review Signature** — **Date**

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

James D. Pu — **QA Officer Signature** — 12-19-12 — **Date**

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) Analysis Anomaly? ☑ **No** ☐ **Yes** (See Comments) **NCR #** (If initiated): _____

11-21-12 — **Analyst Signature** — **Date**

NA — **Technicial Reviewer Signature** — **Date**

Batch A: ARS1-B12-02779

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes ~~No~~ N/A	Yes (No) N/A
2) RDL Criteria are Met?	Yes No ~~N/A~~	Yes No (N/A)
3) Method Blank Criterion Met?	Yes No ~~N/A~~	Yes No (N/A)
4) LCS/LCD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

SDR 12-19-12
Project Manager Signature Date

James D. Lee 12-19-12
QA Officer Signature Date

GENERAL COMMENTS

LSC
Technical Review Checklist

ARS SDG ARS1-12-02341

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s):	**Batch A:** ARS1-B12-02782	**Batch B:** N/A	**Batch C:** N/A
Test Method(s):	LSC-A-022	N/A	N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) Sample Prep Anomaly? ☑ **No** ☐ **Yes** (See Tech Notes) **NCR #** (If initiated): _____

12-12-12 — **Chemist Signature** — **Date**

12-12-12 — **Verifier Review Signature** — **Date**

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

12-19-12 — **QA Officer Signature** — **Date**

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) Analysis Anomaly? ☑ **No** ☐ **Yes** (See Comments) **NCR #** (If initiated): _____

12-14-12 — **Analyst Signature** — **Date**

12-14-12 — **Technicial Reviewer Signature** — **Date**

Batch A: ARS1-B12-02782

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes ~~No~~ N/A	Yes (No) N/A
2) RDL Criteria are Met?	~~Yes~~ No N/A	(Yes) No N/A
3) Method Blank Criterion Met?	~~Yes~~ No N/A	(Yes) No N/A
4) LCS/LCD Criteria Met?	~~Yes~~ No N/A	(Yes) No N/A
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	~~Yes~~ No N/A	(Yes) No N/A
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
SDR	12-19-12	James D. [illegible]	12-19-12

GENERAL COMMENTS

DQO Report for SDG
ARS1-12-02341

Analysis Code	Group	Isotope	Activity Units	Aliquot Units	ProcedureNo	RDL	LCS_LL	LCS_UL	MS_LL	MS_UL	RadY_LL	RadY_UL	GravY_LL	GravY_LL	RER	RPD	DiltionReq	RoughPrepReq	BlankCorrectionMDA	BlankCorrectionAll	CountTimeReq	AliquotRequired
LSC-A-021	STD	H-3	pCi	L	ARS-054	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		
LSC-A-022	STD	Enriched H-3	pCi	L	ARS-040	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		

SDG Report - Samples and Containers

78

SDG Specific Data

SDG	ARS1-12-02341	TAT Days	28	Project Type	Environmental
Sample Count	2 Rpt Level 4	Date Received	11/20/2012	COC Number	2013-362
Client	Los Alamos National Laboratory	Client Deadline	12/20/2012	PO Number	63641-001-10
Client Code	114	Internal Deadline	12/19/2012	Job Number	
Profile Number	PN-00094	Lab Deadline	12/16/2012	Job Location	
Comments					

Samples and Containers (➔) Checked In Thus Far

FR	ClientID	Matrix	SampleStartDate	SampleEndDate	Disp	Hold	Arch	Storage	X	Units	Y	Units	Z	Units	Comments
001	CASA-13-24212	AQ	11/14/12 01:48 PM	11/14/12 01:48 PM	H	90	5	A4							
➔	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126985	1	1000.00				90	26		N	N/A				
002	CASA-13-24206	AQ	11/14/12 01:48 PM	11/14/12 01:48 PM	H	90	5	A4							
➔	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126986	1	1000.00				90	26		N	N/A				

SDG Report - Analysis Assignments

Temp SDG	ARS1-12-02341	Sample Count	2
Client	Los Alamos National Laboratory	Analysis Count	2-4

Samples Count Totals per Analysis

Analysis Code	Analysis Description	Samples Count
LSC-A-021	Low Level Tritium Screen in (Aqueous)	2
LSC-A-022	Low Level Tritium by Enrichment Process in (Aqueous [AQ])	2

Analyses Assigned Per Fraction

Fraction	Analysis Code	X = Assigned
001	LSC-A-021	X
001	LSC-A-022	X
002	LSC-A-021	X
002	LSC-A-022	X

ARS FILE TRACKING SHEET

SDG: ARS1-12-02341

Task	Date / Time	Initials
Date & Time Samples Received	11/20/12 10:50	cad
ICOC Initiated / Storage Location: A4	11/20/12 11:35	cad
Technical Checks Performed	See Batch	
Report Written / EDD Generated: _____/_____|_____ Date/Time Initials	12-19-12|1450	SDL
Quality Assurance Checks Performed on Report	12-19-12 1510	JSC
Management Check Performed on Report		
Preliminary Report Sent		
Report E-mailed		
Report Faxed		
Report Reviewed		
Report Mailed		
Invoice Completed Invoice #:_____		
Report Imaged		

SPECIAL REQUIREMENTS

Requirement	Yes	No
3 Hour Rush		✓
24 Hour Rush		✓
48 Hour Rush		✓
3 Day TAT		✓
5 Day TAT		✓

NOTES:

COMPANY NAME: LANL **SDG:** ARS1-12-02341

SHIPPING CONTAINER

Good Condition	☑ Yes	☐ No
Radioactive	☐ Yes	☑ No
UN2910	☐ Yes	☑ No
Sec. Seals	☑ Yes	☑ No
Seals Intact	☑ Yes ☐ No	☐ N/A
Air Bill	☐ Yes	☑ No

COC PRESENT WITH SAMPLES

COC	☑ Yes	☐ No

SAMPLE CONTAINER(S)

Good Condition	☑ Yes	☐ No
Sec. Seals	☑ Yes	☐ No
Seal Intact	☑ Yes ☐ No	☐ N/A
Marked Radioactive	☐ Yes	☑ No

Samples Rcv ~~11~~ 6

Matrix [AF , AQ , BI , FE , LT , SL , SO , UR , VG] 5

External and Internal Surveys

Exposure Rate Meter: M3 242861 Serial No.: PR 264266 Calibration Due Date: 4-18-13

Count Rate Meter: M2 ~~1345~~ 154859 11/20/12 Serial No.: PR 184559 Calibration Due Date: 4-18-13

Background Exposure Rate (µR/hr) 24 Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd) 30 µR/hr

Background Count Rate (cpm) 80 Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd) 80 cpm

Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd) _____ cpm

Sample Label/Comments/Notes	pH Orig	pH Final (pH ≤ 2 is Acceptable)	Mark if Preserve	Acid Lot #	Weight(g) / Volume(mL)	µR/hr (Acceptance Limits <500 µR/hr)	cpm (Acceptance Limits <100 cpm/cm²)
MD90-13-24153			☐			24	80
-24154			☐			24	80
-24155			☐			24	80
-24156			☐			24	80
-24157			☐			24	80
			☐				
CAMO-13-24251			☐		1000 mL	24	80
-24252			☐		↓	24	80
			☐				
CAMO-13-24278			☐		1000 mL	24	80
-24271			☐		↓	24	80
			☐				
* CASA-13-24212			☐		1000 mL	26	90
-24206			☐		↓	26	90
			☐				
			☐				
			☐				
			☐				
			☐				

Surveyors' Name: _____ Date/Time Surveyed: 11/20/12 1150

* these samples only on the SDG,

American Radiation Services - Primary
1726 Wooddale Court
Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-360

Client Contact:

Lab Agreement # : 63641-001-10
Project Number :
Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3
CAMO-13-24251	Nov 15 2012	11:51	W	1
CAMO-13-24252	Nov 15 2012	14:59	W	1

Special Instructions:

Special Instructions:

Relinquished by: Melissa Martyn		Date/Time: 11/19/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24251 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/15/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1151	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S1	↓	FIELD PREP:	UF	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P1A		SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	3	ICE	Y	NA
↓	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	↓	↓
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE	↓	↓
↓	WSP-8290-D/F	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-8321A-NMED HEXP	1 LITER AMBER GLASS	3	ICE	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-HEXMOD	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

Analyses continued on next page

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID:	4030	**EVENT NAME:**	Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD
SAMPLE ID:	CAMO-13-24251	**WORK ORDER:**	NA

SAMPLE COMMENTS: Samples collected within 50 ft of diesel generator.

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 4.77 mg/L Oxidation-Reduction Potential 202.1 MV pH 6.53 SU

Specific Conductance 180 uS/cm Temperature 19.40 deg C Turbidity 4.55 NTU

COLLECTED BY (PRINT) A. Stacker

RELINQUISHED BY (Printed Name) Megan Green (Signature)	**Date/Time** 11/15/12 1600	**RECEIVED BY** (Printed Name) S. Sherwood (Signature) Sharon Sherwood	**Date/Time** 11/15/12 1600
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24252

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/15/2012	**FIELD MATRIX:**	WG	OK
TIME COLLECTED (HH:MM):		1459	**MEDIA:**	UA	↓
PRS ID:		OK	**SAMPLE TECH CODE:**	UA	GSM
LOCATION ID:	R-61 S2		**FIELD PREP:**	UF	OK
LOCATION TYPE:	MON		**FIELD QC TYPE:**	REG	↓
PORT:	P2A	↓	**SAMPLE USAGE:**	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	3	ICE	Y	NA
↓	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	↓	↓
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE	↓	↓
↓	WSP-8290-D/F	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-8321A-NMED HEXP	1 LITER AMBER GLASS	3	ICE	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-HEXMOD	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

Analyses continued on next page

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID:	4030	**EVENT NAME:**	Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD
SAMPLE ID:	CAMO-13-24252	**WORK ORDER:**	NA

SAMPLE COMMENTS: Samples collected within 50ft of diesel generator

LOCATION COMMENTS: N/A

FIELD PARAMETERS:

Dissolved Oxygen 3.34 mg/L Oxidation-Reduction Potential -48.7 MV pH 6.46 SU

Specific Conductance 199 uS/cm Temperature 19.28 deg C Turbidity 6.19 NTU

COLLECTED BY (PRINT) A. Stocker, W. Shaw

RELINQUISHED BY (Printed Name) Megan Green **(Signature)**	**Date/Time** 11/15/12 1600	**RECEIVED BY (Printed Name)** S. Sherwood **(Signature)**	**Date/Time** 11/15/12 1600
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-360

1. Distribution Of Samples In EDD.

	Analytical	Regular	Field	Trip	Field	Equipment
SDG	Method	Samples	Duplicates	Blanks	Blanks	Blanks
ARS1-12-02339	Generic:Low_Level_Tritium	2				

	Analytical	Analysis	Prep	Regular	Field	Trip	Field	Equipment	Method	Matrix	Matrix
SDG	Method	Lot ID	Lot ID	Samples	Duplicates	Blanks	Blanks	Blanks	Blanks	Spikes	Spike Dups
ARS1-12-02339	Generic:Low_Level_Tritium	ARS1-B12-02782	ARS1-B12-02782	2					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
Generic:Low_Level_Tritium	RAD							
LCS	ARS1-B12-02782-01	LCS	0	0	1	0		
Generic:Low_Level_Tritium	RAD	CAMO-13-24251	ARS1-B12-02782-04	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	CAMO-13-24252	ARS1-B12-02782-05	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	LCSD	ARS1-B12-02782-02	LCSD	0	0	1	0
Generic:Low_Level_Tritium	RAD	MB	ARS1-B12-02782-03	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

No.

Any samples affected by the presence of contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

No.

Data Validation Report for: Chain Of Custody No. 2013-360

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1	1						

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-61 S2	2013-360	CAMO-13-24252	REG	INIT	RAD	Generic:Low_Level_Tritium	Tritium	U	U	R5	N

Reason Code	Description
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24251	R-61 S1	REG	Generic:Low_Level_Tritium	0	1
CAMO-13-24252	R-61 S2	REG	Generic:Low_Level_Tritium	0	1

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
2.122	pCi/L	2.122	pCi/L	2.307	0.786	W	11/15/2012		ARS1-B12-02782	VAL	Y

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Request Number: 2013-360

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-360

Original COC

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-360

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3
CAMO-13-24251	Nov 15 2012	11:51	W	1
CAMO-13-24252	Nov 15 2012	14:59	W	1

Special Instructions:

Special Instructions:

Relinquished by: Melissa Martz		Date/Time: 11/19/12 3:00	Received by:	11/20/12 1050
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-360

Case Narrative

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

December 19, 2012

LANL
Keith Greene
PO Box 1663 MS M992
Los Alamos, NM 87545

Request Number: **2013-360**
LANL Sample ID: **CAMO-13-24251; CAMO-13-24252.**

Dear Mr. Greene;

On November 20, 2012, ARS International received two (2) water samples to be analyzed for Low Level Tritium.

The sample underwent enrichment and were counted using the appropriate counting equipment and QA/QC for this type of analysis. Results of the analysis and QA/QC are attached in the data package.

The client and QA/QC samples were counted with a count time sufficient to meet quality control parameters for counting equipment and were within acceptance criteria and statistical sound detection limits.

If you have any questions please do not hesitate to call at 225.381.2991 or email LANL@amrad.com.

Sincerely,

Laboratory Management
ARS International

ARS INTERNATIONAL
2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

COVER PAGE

PROJECT SAMPLE IDENTIFICATION
CROSS-REFERENCE
TO ARS SAMPLE LABORATORY IDs
Subcontract (LANL Agreement Number) 63641-001-10

Request Number	LANL PROJECT SAMPLE ID NUMBER	American Radiation Services SAMPLE ID NUMBER(S)
2013-360	CAMO-13-24251	ARS1-12-02339-001
2013-360	CAMO-13-24252	ARS1-12-02339-002

ANALYTICAL METHODS
Tritium analyses were performed using **ARS-040 Tritium Assay in Water Samples Using Electrolytic Enrichment.**

ANALYTICAL RESULTS
The result data that are flagged with "U" indicate that the activity is below the MDC.

American Radiation Services Project Manager/Laboratory Director's Comments:
"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

"I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the LANL specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."

James D. Fu	Laboratory Management, ARS International	12-19-12
Signature	**Title**	**Date**

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02339	**Request or PO Number:**	2013-360
Client Sample ID:	CAMO-13-24251	**ARS Sample ID:**	ARS1-12-02339-001
Sample Collection Date:	11/15/12	**Date Received:**	11/20/12
Sample Matrix:	Aqueous	**Report Date:**	12/19/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	30.976	4.788	2.404	1.166		pCi/L	ARS-040	12/13/12 04:06	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02339	**Request or PO Number:**	2013-360
Client Sample ID:	CAMO-13-24252	**ARS Sample ID:**	ARS1-12-02339-002
Sample Collection Date:	11/15/12	**Date Received:**	11/20/12
Sample Matrix:	Aqueous	**Report Date:**	12/19/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	2.122	0.786	2.307	1.119	U	pCi/L	ARS-040	12/13/12 08:17	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

QC Results Report

Sample Delivery Group: ARS1-12-02339
Date Received: 11/20/2012

Laboratory Control Sample Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Percent Recovery (%)	LCS Acceptance Range
ARS1-B12-02782	LCS	H3	22.397	3.533	2.537	25.722		pCi/L	ARS-040	12/12/12 13:33	RJU	87	80%-120%

Blank Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician
ARS1-B12-02782	MBL	H3	-0.548	0.714	2.441	NA	U	pCi/L	ARS-040	12/12/12 13:33	RJU

Sample RER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (2s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	RER	RER AcceptanceRange
ARS1-B12-02782	LCSD	H3	22.397	3.533	20.697	3.248		pCi/L	ARS-040	12/12/12 13:33	RJU	0.25	< 1

Sample DER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (2s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	DER	DER AcceptanceRange
ARS1-B12-02782	LCSD	H3	22.397	3.533	20.697	3.248		pCi/L	ARS-040	12/12/12 13:33	RJU	0.71	< 3

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of ARS International.

LELAP Certificate# 01949 NELAP Certificate # E87558

QC Evaluation

EPA Method: ARS-040
Batch ID: ARS1-B12-02782
SDG's: ARS1-12-02339; 2340; 2341

LCS	22.3970	**CSU (2s)**	6.9240
LCSD	20.6970	**CSU-D (2s)**	6.3670

DER = $\frac{\text{abs(LSC-LSCD)}}{\text{sqr((2s CSU/2)^2)+((2s CSU-D/2)^2)}}$ = **< 3**

at 1 sigma

DER $\frac{1.7}{4.703203}$ = 0.361456 **< 3**

% RPD= $\frac{\text{ABS(LCS - LSCD)}}{\text{(LCS+LCSD)/2}}$ * 100 = **< 25%**

%RPD $\frac{1.7}{21.547}$ *100 = 7.889729 **< 25%**

The *RPD* shall be less than 25% or other client-applied criteria

RER= $\frac{\text{abs((LCS-LCSD))}}{\text{(CSU)+(CSD)}}$ = **<1** ***<--LANL Requirement***

at 2 sigma

RER = $\frac{1.7}{13.2910}$ 0.127906102 **<1**

Blank Information

	Act	CSU(2s)	MDA	Act>MDA
AM-241				
U-234				
U-235				
U-238				
Pu-238				
Pu-239/240				
Th-228				
Th-230				
Th-232				
H3	-0.548	1.399	2.441	
Ra-226				
Ra-228				
Total U				
Pb-210				
Po-209				
Sr-90				
TC-99				
NI-63				

*MDA should be below RDL
*Blank activity must be below MDA
*Blank activity must be < 1.65*CSU (DOE only)

ACT = -0.548
CSU = 1.399
Is ACT<1.65*CSU? YES

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

13 of 23

AMRAD AMERICAN RADIATION SERVICES, LLC

Analysis Batch ID **ARS1-B12-02782**

Method	**ARS-040**	**Analysis**	**LSC-A-022**	**Matrix**	**AQ**
Description	**Low Level Tritium by Electrolytic Enrichment**				

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02782-01	LCS	B-14831								
ARS1-B12-02782-02	LCSD	B-14832								
ARS1-B12-02782-03	MBL									
ARS1-B12-02782-04	TRG				**ARS1-12-02339**	001	1	CAMO-13-24251	STD	12/16/12
ARS1-B12-02782-05	TRG				**ARS1-12-02339**	002	1	CAMO-13-24252	STD	12/16/12
ARS1-B12-02782-06	TRG				**ARS1-12-02340**	001	1	CAMO-13-24278	STD	12/16/12
ARS1-B12-02782-07	TRG				**ARS1-12-02340**	002	1	CAMO-13-24271	STD	12/16/12
ARS1-B12-02782-08	TRG				**ARS1-12-02341**	001	1	CASA-13-24212	STD	12/16/12
ARS1-B12-02782-09	TRG				**ARS1-12-02341**	002	1	CASA-13-24206	STD	12/16/12

129059
12-02339-001-1
WRAD

129061
12-02339-002-1
WRAD

129063
12-02340-001-1
WRAD

129065
12-02340-002-1
WRAD

129067
12-02341-001-1
WRAD

129069
12-02341-002-1
WRAD

American Radiation Services
Baton Rouge Laboratory

LCS Report
Analytical Batch: ARS1-B12-02782

BlindID	ABatch	ABatchSampleID	BlindGroup	StdID	Isotope	ExpectedAddition	ExpectedValue	EmptyWt	GrossWt	NetWt	UserID	ModDate	ExpectedValue_CT	MidPointCountDate	KnownValue
B-14831	ARS1-B12-02782	ARS1-B12-02782-01	B-H3	S-0279	H-3	5	2.549416506	13.201	18.268	5.067	AMRAD\BSTEFFENS	11/21/2012	2.541182902	12/12/2012	12.87617376
B-14832	ARS1-B12-02782	ARS1-B12-02782-02	B-H3	S-0279	H-3	5	2.549416506	13.468	18.544	5.076	AMRAD\BSTEFFENS	11/21/2012	2.541182902	12/12/2012	12.89904441

15 of 91

ID_31001_040	ABatch	AnalysisCode	ABatchSampleID	ClientID	IC_ID	S01_1_EnrichCellNo	S01_2_TareCell	S01_3_TareResv	S02_GrossWtResv	S03_1_WtNa2O2	C_GrossSampleAdded
465	ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-01			3	334.49	198.24	698.82	2.09	500.58
466	ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-02			86	330.87	205.96	712.65	2.06	506.69
467	ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-03			11	332.72	202.13	711.08	2	508.95
468	ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-04	CAMO-13-24251		19	333.21	199.53	700.89	2	501.36
469	ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-05	CAMO-13-24252		41	332.03	212.56	717.91	2.08	505.35
470	ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-06	CAMO-13-24278		63	326.63	202.66	704.28	2.08	501.62
471	ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-07	CAMO-13-24271		21	331.93	214.5	715.82	2.05	501.32
472	ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-08	CASA-13-24212		48	336.53	212.05	715.43	2.06	503.38
473	ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-09	CASA-13-24206		77	334.98	196.48	700.9	2.09	504.42

12-12-12

S04_1_ElectrolSD	S04_2_StartAmp	S04_3_StartBathC	S05_1_ElectrolED	S05_2_EndBathC	S05_3_EndCellWt	C_GrossSmplRec	C_EnrichmentF	S06_TareWt	S07_GrossWt	C_RecoveredWa
11/21/2012 13:00:00	5	2	12/04/2012 14:56:00	2.1	548.7	15.97	31.34502192	104.16	115.77	11.61
11/21/2012 13:00:00	5	2	12/10/2012 10:15:00	2	551.09	14.26	35.53225806	97.51	108.95	11.44
11/21/2012 13:00:00	5	2	12/04/2012 15:12:00	2.1	551.33	16.48	30.88288835	109.78	122.83	13.05
11/21/2012 13:00:00	5	2	12/10/2012 10:18:00	2	548.9	16.16	31.02475248	122.08	134.42	12.34
11/21/2012 13:00:00	5	2	12/10/2012 11:58:00	2	560.42	15.83	31.92356286	101.79	113.72	11.93
11/21/2012 13:00:00	5	2	12/10/2012 10:19:00	2	546.06	16.77	29.91174717	109.22	122.96	13.74
11/21/2012 13:00:00	5	2	12/04/2012 15:13:00	2.1	562.31	15.88	31.56926952	109.54	123.18	13.64
11/21/2012 13:00:00	5	2	12/04/2012 13:14:00	2.1	565.52	16.94	29.71546635	111.9	125.6	13.7
11/21/2012 13:00:00	5	2	12/10/2012 10:14:00	2	549.01	17.55	28.74188034	109.8	123.38	13.58

12-12-12

S08_TearWtL5CVial	S09_VialPlusSmpl	C_NetSample	S10_1_WtVislSmplDrWatFill	C_NetDeadWaterAdded	C_TareWtBFCocktail	S10_2_GrossWtVSC	C_NetWtCocktailAdded	UserID	ModDate
6.58	16.59	10.01	0	0	16.59	26.89	10.3	AMRAD\RUSEY	12/11/2012 12:05:30
6.48	16.5	10.02	0	0	16.5	27.69	11.19	AMRAD\RUSEY	12/11/2012 12:07:46
6.43	16.44	10.01	0	0	16.44	26.82	10.38	AMRAD\RUSEY	12/11/2012 12:10:30
6.52	16.54	10.02	0	0	16.54	26.84	10.3	AMRAD\RUSEY	12/11/2012 12:12:41
6.51	16.53	10.02	0	0	16.53	26.77	10.24	AMRAD\RUSEY	12/11/2012 14:42:15
6.61	16.68	10.07	0	0	16.68	26.97	10.29	AMRAD\RUSEY	12/11/2012 14:43:56
6.45	16.46	10.01	0	0	16.46	26.76	10.3	AMRAD\RUSEY	12/11/2012 14:46:31
6.48	16.49	10.01	0	0	16.49	26.74	10.25	AMRAD\RUSEY	12/11/2012 14:49:17
6.5	16.53	10.03	0	0	16.53	26.71	10.18	AMRAD\RUSEY	12/12/2012 11:20:04

12-12-12

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121212_0912
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121212_0912\20121212_0912.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121212_0912\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121212_0912\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

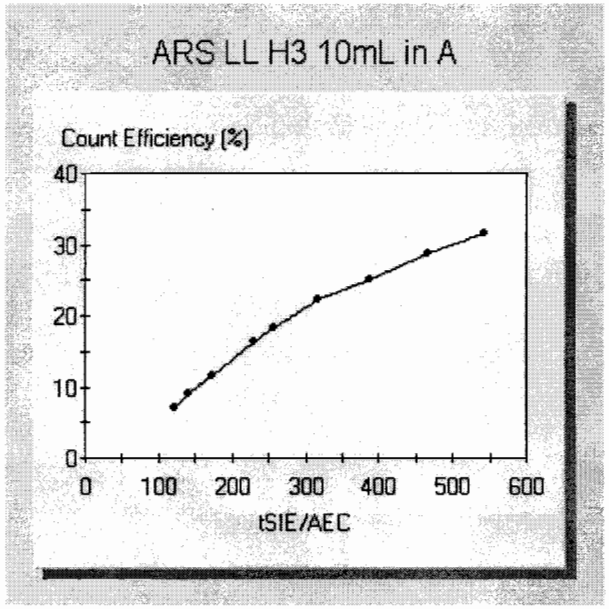
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

19 of 81
H
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	BACKGROUND	1.458	5.79	392.59	25.20	240.00	12/12/2012	9:21:06 AM	
2	2	B12-02782-01	4.759	19.99	357.88	23.81	240.00	12/12/2012	1:33:03 PM	
2	3	B12-02782-02	5.014	20.72	368.17	24.20	240.00	12/12/2012	5:44:02 PM	
2	4	B12-02782-03	1.374	5.49	388.73	25.01	240.00	12/12/2012	9:55:03 PM	*
2	5	B12-02782-04	6.276	24.82	394.49	25.29	240.00	12/13/2012	2:06:01 AM	*
2	6	B12-02782-05	1.802	7.09	397.31	25.42	240.00	12/13/2012	6:17:00 AM	*
2	7	B12-02782-06	1.357	5.37	394.54	25.29	240.00	12/13/2012	10:27:59 AM	
2	8	B12-02782-07	1.100	4.35	394.65	25.29	240.00	12/13/2012	2:38:56 PM	
2	9	B12-02782-08	3.261	13.06	387.95	24.97	240.00	12/13/2012	6:49:54 PM	
2	10	B12-02782-09	3.629	14.59	385.50	24.87	240.00	12/13/2012	11:00:52 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121214_0305
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121214_0305\20121214_0305.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121214_0305\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121214_0305\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
   Quench Indicator: tSIE/AEC
   External Std Terminator (sec): 0.5 2s%
   Pre-Count Delay (min): 0.00
Quench Set:
   Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 2
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

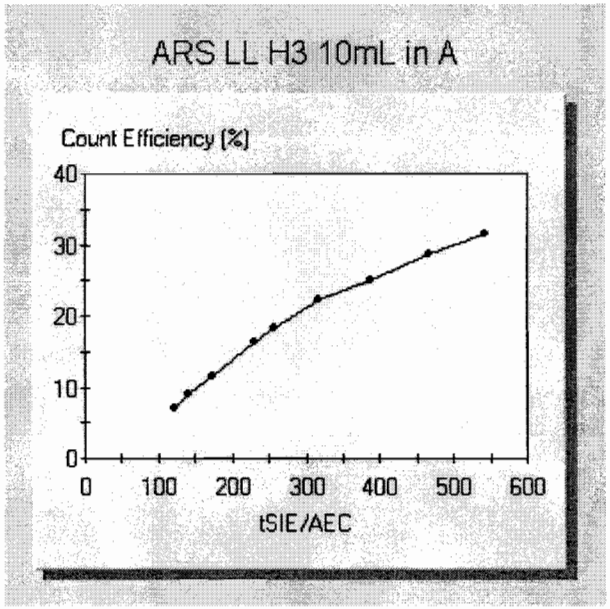
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				
B				
C				

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21

257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME
MESSAGES									
10	1	B12-02782-04	5.735	22.64	395.38	25.33	240.00	12/14/2012	7:25:18 AM

AMRAD
AMERICAN RADIATION SERVICES, LLC

LSC Instrument Data Transfer Report

\\Packard3170\Results\H3 Low Level\Low Level H3\2

Batch Sample ID	Non-BKG Samples Transferred	Samples Eligible To Save	
ARS1-B12-02782	9	9	LSC 1

LIMS Batch Sample ID	LSC P#	LSC PID	LSC S#	LSC SMPL_ID	LSC Count Date	LSC CPMA	LSC tSIE	LSC EFF	LSC Count Dur	Analysis Batch	LIMS SDG	LIMS Run
BKG	2		1	BACKGROUND	12/12/12 09:21	1.46	392.59	25.2000	240.00	ARS1-B12-02782		
ARS1-B12-02782-01	2		2	B12-02782-01	12/12/12 13:33	4.76	357.88	23.8100	240.00	ARS1-B12-02782		
ARS1-B12-02782-02	2		3	B12-02782-02	12/12/12 17:44	5.01	368.17	24.2000	240.00	ARS1-B12-02782		
ARS1-B12-02782-03	2		4	B12-02782-03	12/12/12 21:55	1.37	388.73	25.0100	240.00	ARS1-B12-02782		
ARS1-B12-02782-04	2		5	B12-02782-04	12/13/12 02:06	6.28	394.49	25.2900	240.00	ARS1-B12-02782	ARS1-12-02339	1
ARS1-B12-02782-05	2		6	B12-02782-05	12/13/12 06:17	1.80	397.31	25.4200	240.00	ARS1-B12-02782	ARS1-12-02339	1
ARS1-B12-02782-06	2		7	B12-02782-06	12/13/12 10:27	1.36	394.54	25.2900	240.00	ARS1-B12-02782	ARS1-12-02340	1
ARS1-B12-02782-07	2		8	B12-02782-07	12/13/12 14:38	1.10	394.65	25.2900	240.00	ARS1-B12-02782	ARS1-12-02340	1
ARS1-B12-02782-08	2		9	B12-02782-08	12/13/12 18:49	3.26	387.95	24.9700	240.00	ARS1-B12-02782	ARS1-12-02341	1
ARS1-B12-02782-09	2		10	B12-02782-09	12/13/12 23:00	3.63	385.50	24.8700	240.00	ARS1-B12-02782	ARS1-12-02341	1

ARS-040 Calculation Results

ARS1-B12-02782

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Initial_Mass_sample_g	Mass_Na2O2_added_g	Final_mass_electrolyzed_sample_NaOH_g	Mass_equivalent_NaOH_g	Final_Mass_Electrolyzed_sample_g	VolumeFactor_X	Enrichment_Factor_Y
LSC-A-022	ARS1-B12-02782-01	500.580	2.090	15.970	2.144	13.826	0.028	28.270
LSC-A-022	ARS1-B12-02782-02	506.690	2.060	14.260	2.114	12.146	0.024	32.392
LSC-A-022	ARS1-B12-02782-03	508.950	2.000	16.480	2.052	14.428	0.028	27.571
LSC-A-022	ARS1-B12-02782-04	501.360	2.000	16.160	2.052	14.108	0.028	27.768
LSC-A-022	ARS1-B12-02782-05	505.350	2.080	15.830	2.134	13.696	0.027	28.789
LSC-A-022	ARS1-B12-02782-06	501.620	2.080	16.770	2.134	14.636	0.029	26.818
LSC-A-022	ARS1-B12-02782-07	501.320	2.050	15.880	2.103	13.777	0.027	28.407
LSC-A-022	ARS1-B12-02782-08	503.380	2.060	16.940	2.114	14.826	0.029	26.576
LSC-A-022	ARS1-B12-02782-09	504.420	2.090	17.550	2.144	15.406	0.031	25.666

ARS-040 Calculation Results

ARS1-B12-02782

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Average_Sample_CPM	Bkg_CPM	tSIE	Detector_Eff_decimal	Aliquot	AliqUnits	Activity_reference_date	Start_Date_of_Count	Sample_Count_Duration_min
LSC-A-022	ARS1-B12-02782-01	4.759	1.458	357.880	0.238	0.01001	L	9/7/2012	12/12/2012	240.000
LSC-A-022	ARS1-B12-02782-02	5.014	1.458	368.170	0.242	0.01002	L	9/7/2012	12/12/2012	240.000
LSC-A-022	ARS1-B12-02782-03	1.374	1.458	388.730	0.250	0.01001	L	12/11/2012	12/12/2012	240.000
LSC-A-022	ARS1-B12-02782-04	6.276	1.458	394.490	0.253	0.01002	L	11/15/2012	12/13/2012	240.000
LSC-A-022	ARS1-B12-02782-05	1.802	1.458	397.310	0.254	0.01002	L	11/15/2012	12/13/2012	240.000
LSC-A-022	ARS1-B12-02782-06	1.357	1.458	394.540	0.253	0.01007	L	11/16/2012	12/13/2012	240.000
LSC-A-022	ARS1-B12-02782-07	1.100	1.458	394.650	0.253	0.01001	L	11/16/2012	12/13/2012	240.000
LSC-A-022	ARS1-B12-02782-08	3.261	1.458	387.950	0.250	0.01001	L	11/14/2012	12/13/2012	240.000
LSC-A-022	ARS1-B12-02782-09	3.629	1.458	385.500	0.249	0.01003	L	11/14/2012	12/13/2012	240.000

ARS-040 Calculation Results

ARS1-B12-02782

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Total_Bkg_Count_Duration_min	DF	Sample_Activity_Conc	Standard_Counting_Uncertainty	CU_1	CSU_1	CU_1_96	CSU_1_96	MDC	DLC	ActivityReportUnits
LSC-A-022	ARS1-B12-02782-01	240.000	0.98532	22.397	1.092	1.092	3.533	2.140	6.924	2.537	1.230	pCi
LSC-A-022	ARS1-B12-02782-02	240.000	0.98532	20.697	0.956	0.956	3.248	1.873	6.367	2.176	1.055	pCi
LSC-A-022	ARS1-B12-02782-03	240.000	0.99969	-0.548	0.709	0.709	0.714	1.390	1.399	2.441	1.184	pCi
LSC-A-022	ARS1-B12-02782-04	240.000	0.99570	30.976	1.154	1.154	4.788	2.262	9.384	2.404	1.166	pCi
LSC-A-022	ARS1-B12-02782-05	240.000	0.99570	2.122	0.719	0.719	0.786	1.409	1.541	2.307	1.119	pCi
LSC-A-022	ARS1-B12-02782-06	240.000	0.99585	-0.669	0.717	0.717	0.724	1.406	1.420	2.477	1.201	pCi
LSC-A-022	ARS1-B12-02782-07	240.000	0.99585	-2.252	0.649	0.649	0.732	1.273	1.435	2.352	1.141	pCi
LSC-A-022	ARS1-B12-02782-08	240.000	0.99554	12.281	0.955	0.955	2.075	1.872	4.067	2.547	1.235	pCi
LSC-A-022	ARS1-B12-02782-09	240.000	0.99539	15.346	1.029	1.029	2.521	2.017	4.942	2.643	1.282	pCi

ARS-040 Calculation Results

ARS1-B12-02782

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	AliquotReportUnits	UserID	ModDate
LSC-A-022	ARS1-B12-02782-01	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-02	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-03	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-04	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-05	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-06	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-07	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-08	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-09	L	AMRAD\RUSEY	12/14/2012

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-5-12	1604	B12-02721-09	B12-02721	1649	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
12-7-12	1026	B12-02721-18	B12-02721	1755	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]
12-12-12	0733	SNC-16	QA	QA	[illegible]
12-12-12	0855	Background	B12-02782	0912	[illegible]
↓	↓	B12-02782-01	↓	↓	[illegible]
↓	↓	B12-02782-02	↓	↓	[illegible]
↓	↓	B12-02782-03	↓	↓	[illegible]
↓	↓	B12-02782-04	↓	↓	[illegible]
↓	↓	B12-02782-05	↓	↓	[illegible]
↓	↓	B12-02782-06	↓	↓	[illegible]
↓	↓	B12-02782-07	↓	↓	[illegible]
↓	↓	B12-02782-08	↓	↓	[illegible]
↓	↓	B12-02782-09	↓	↓	[illegible]
12-12-12	0955	SNC-16	QA	QA	[illegible]
* 12-13-12	0950	B12-02782-04	B12-02782	0305	[illegible]

*Set to count before SNC run - 12-12-12. [illegible] 12-13-12

Reviewed By: [illegible] Date: 12-19-12
Initials

ARS Batch Number: ARS1-B12 - 02782

Enter these Values for LCS

		Report Name	Field Name on the Report
Current ACT	5.6414	Standards Report	ACT at Date Above (dpm/g)
NetWt	5.0670	LCS Report	NetWt
Aliquot	0.5006	Tritium Enrichment Data	Gross Sample Added/1000

Enter these Values for LCSD

		Report Name	Field Name on the Report
Current ACT	5.6414	Standards Report	ACT at Date Above (dpm/g)
NetWt	5.0760	LCS Report	NetWt
Aliquot	0.5067	Tritium Enrichment Data	Gross Sample Added/1000

Expected Value Calculations

ARS Batch Number: ARS1-B11 - 02782

LCS

CALCULATED EXPECTED VALUE = 25.722

Range 20.578 - 30.867

LCSD

CALCULATED EXPECTED VALUE = 25.457

Range 20.366 - 30.549

Exit

AMRAD AMERICAN RADIATION SERVICES, LLC

Standards Activity as of: 12/12/12 13:33

Active	Std ID	Isotope	PSCLT	Verification Date	Exp Date	Status	Ref Date	Ref ACT (dpm)	ACT at Date Above (dpm/g)	Halflife (days)	Parent ID	Expended Date	Comments
A	**S-0279**	H-3	**SL**	09/10/12	09/10/13	OK	09/07/12	5.7255E+00	**5.6414**	4.500E+03	**S-0237**		H3 LCS standard. Dilution performed as stated above by B Steffens. -B

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

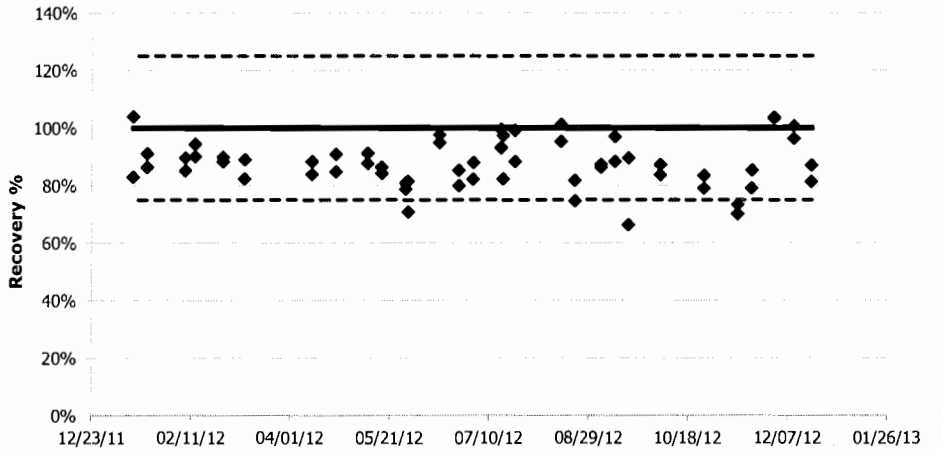
Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Control Charts

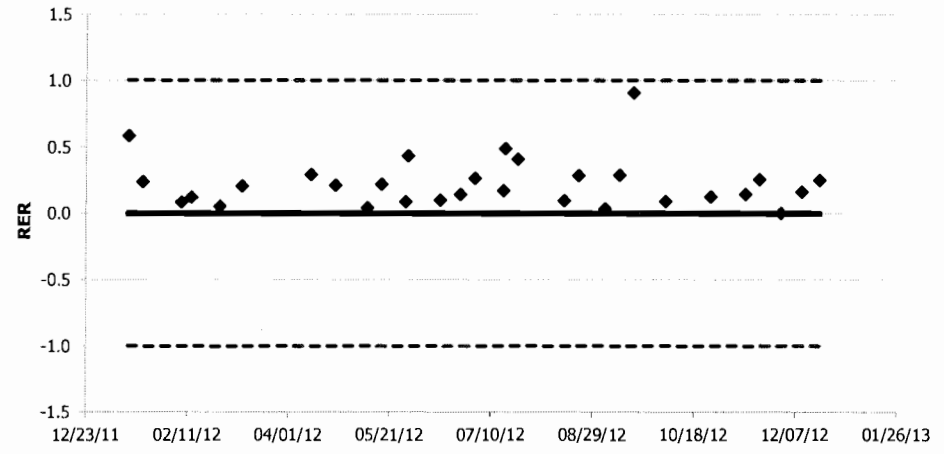
QC Chart

LLH-3 LCS



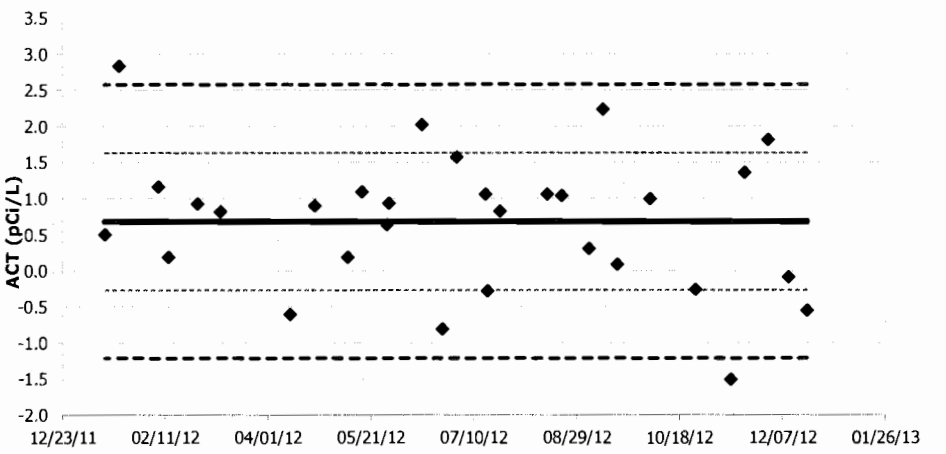
Average	STDEV	n	UCL	LCL
0.8756	0.0829	30	1.2500	0.7500

LLH-3 RER



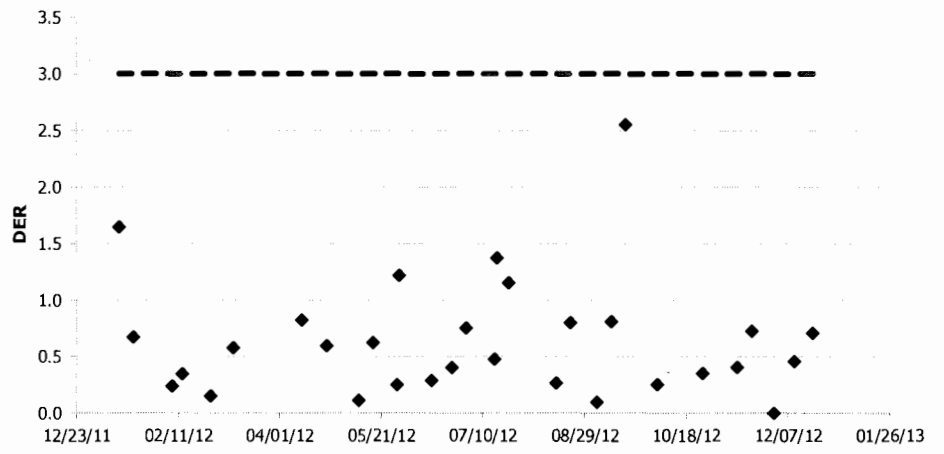
		n	UCL	LCL
		30	1.0000	-1.0000

LLH-3 Blank



Average	STDEV	n	UCL	LCL
0.6825	0.9484	30	2.5792	-1.2142

LLH-3 DER



		n	UCL	
		30	3.0000	

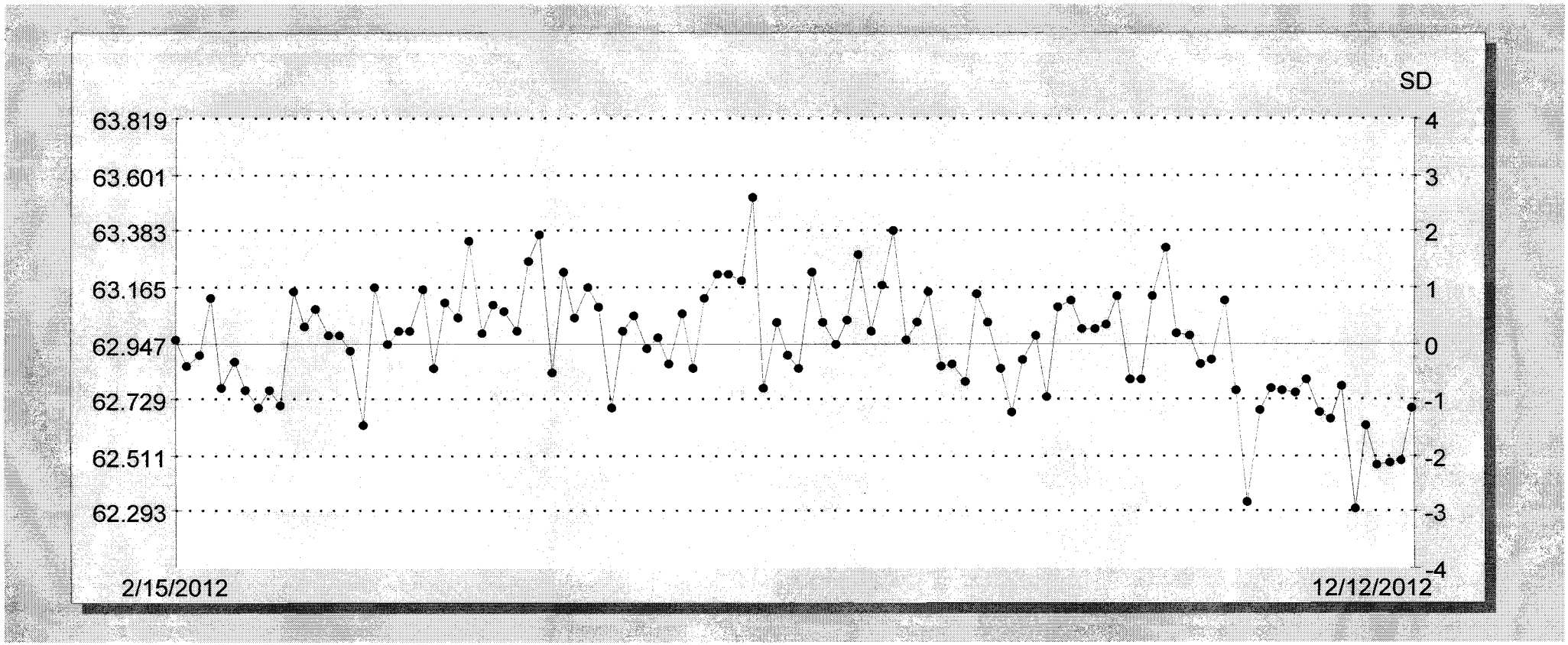
3H Efficiency
Total # pts : 5554
Valid # pts : 106
Mean : 62.95
SD : 0.22

Date	Value	Valid Pt
Feb 15, 2012	62.96	X
Feb 16, 2012	62.86	X
Feb 17, 2012	62.90	X
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X
Jun 30, 2012	62.97	X

Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X
Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 22, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X
Nov 12, 2012	62.77	X

Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X
Nov 18, 2012	62.68	X
Nov 19, 2012	62.65	X
Nov 19, 2012	62.78	X
Nov 20, 2012	62.30	X
Nov 21, 2012	62.63	X
Nov 23, 2012	62.47	X
Dec 04, 2012	62.48	X
Dec 08, 2012	62.49	X
Dec 12, 2012	62.70	X

3H Efficiency
Total # pts : 5554
Valid # pts : 106
Mean : 62.95
SD : 0.22



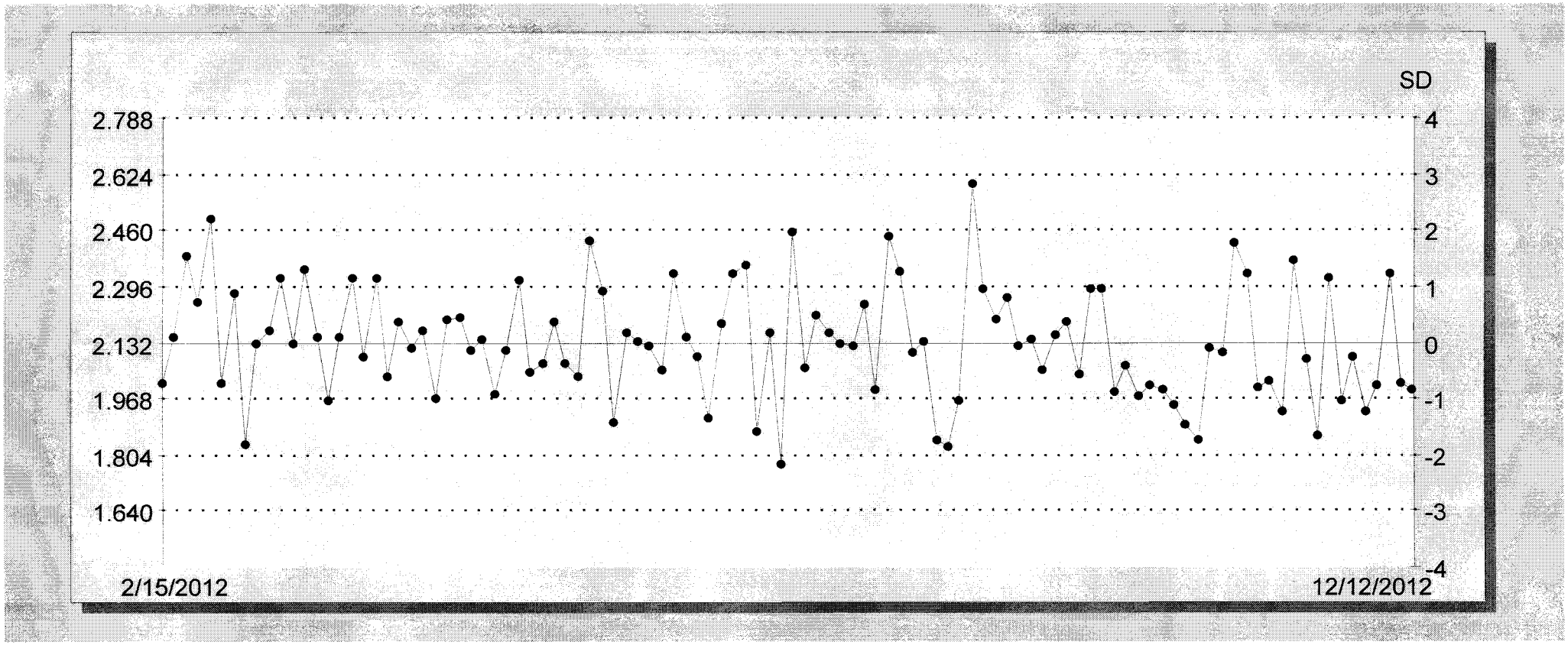
3H Background
Total # pts : 5480
Valid # pts : 106
Mean : 2.13
SD : 0.16

Date	Value	Valid Pt
Feb 15, 2012	2.01	X
Feb 16, 2012	2.15	X
Feb 17, 2012	2.39	X
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X
Jun 30, 2012	2.12	X

Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X
Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 22, 2012	2.19	X
Jul 26, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 09, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X
Nov 12, 2012	2.02	X

Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X
Nov 18, 2012	1.86	X
Nov 19, 2012	2.32	X
Nov 19, 2012	1.96	X
Nov 20, 2012	2.09	X
Nov 21, 2012	1.93	X
Nov 23, 2012	2.01	X
Dec 04, 2012	2.34	X
Dec 08, 2012	2.02	X
Dec 12, 2012	2.00	X

3H Background
Total # pts : 5480
Valid # pts : 106
Mean : 2.13
SD : 0.16



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium- Screening by Low Level Liquid Scintillation Counting

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting Samples

Procedures: **ARS-060** **ARS-040** *Section 14.1 Tritium Screen in Clean Water without Distillation*

ARS File ID Numbers: ARS1-12-02339; 2340; 2341
ARS Batch ID: ARS1-B12-02779

	Sample ID:	COUNT TIME	CPMA	Background CPMA	Eff Nucl In A	Aliquot (grams)	ACTIVITY	units	MDA	Sample Must be analyzed as LSC-A-001
1	B12-02779-04	120	2.477	1.524	24.55	10.00	174.859	pCi/L	122.1564	YES, analyze by LSC-A-001.
2	B12-02779-05	120	1.728	1.524	24.35	10.00	37.738	pCi/L	123.1597	NO
3	B12-02779-06	120	1.607	1.524	24.79	10.02	15.052	pCi/L	120.7323	NO
4	B12-02779-07	120	2.166	1.524	24.67	10.00	117.223	pCi/L	121.5622	NO
5	B12-02779-08	120	1.852	1.524	24.67	10.05	59.592	pCi/L	120.9574	NO
6	B12-02779-09	120	1.662	1.524	24.56	10.04	25.209	pCi/L	121.6202	NO
7							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
8	B12-02779-04	120	1.347	1.524	24.16	10.00	-33.001	pCi/L	124.1283	NO
9	B12-02779-07	120	1.736	1.524	24.66	10.00	38.725	pCi/L	121.6115	NO
10							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
11							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
12							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
13							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
14							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
15							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
16							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
17							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
18							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
19							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
20							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
21							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
22							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
23							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!

Run all for LSC-A-022
SDL
11-21-12

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

AMRAD
AMERICAN RADIATION SERVICES, LLC

Analysis Batch ID **ARS1-B12-02779**

				Method	**ARS-054**	**Analysis**		**LSC-A-021**	**Matrix**	**AQ**
				Description	**Low Level Tritium Screening**					
ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02779-01	LCS									
ARS1-B12-02779-02	LCSD									
ARS1-B12-02779-03	MBL									
ARS1-B12-02779-04	TRG				**ARS1-12-02339**	001	1	CAMO-13-24251	STD	12/16/12
ARS1-B12-02779-05	TRG				**ARS1-12-02339**	002	1	CAMO-13-24252	STD	12/16/12
ARS1-B12-02779-06	TRG				**ARS1-12-02340**	001	1	CAMO-13-24278	STD	12/16/12
ARS1-B12-02779-07	TRG				**ARS1-12-02340**	002	1	CAMO-13-24271	STD	12/16/12
ARS1-B12-02779-08	TRG				**ARS1-12-02341**	001	1	CASA-13-24212	STD	12/16/12
ARS1-B12-02779-09	TRG				**ARS1-12-02341**	002	1	CASA-13-24206	STD	12/16/12

127000
12-02339-001-1
WRAD

127001
12-02339-002-1
WRAD

127002
12-02340-001-1
WRAD

127003
12-02340-002-1
WRAD

127004
12-02341-001-1
WRAD

127005
12-02341-002-1
WRAD

ARS-054

ID31001_054	ABatch	ABatchSampleID	ClientID	Aliquot1	AliquotUnits1	IC_ID1	Aliquot2	AliquotUnits2	IC_ID2	UserID	ModDate
12006	ARS1-B12-02779	ARS1-B12-02779-01		1	g					AMRAD\RUSEY	11/20/2012 14:56:20
12007	ARS1-B12-02779	ARS1-B12-02779-02		1	g					AMRAD\RUSEY	11/20/2012 14:56:20
12008	ARS1-B12-02779	ARS1-B12-02779-03		1	g					AMRAD\RUSEY	11/20/2012 14:56:20
12009	ARS1-B12-02779	ARS1-B12-02779-04	CAMO-13-24251	10	g	127000				AMRAD\RUSEY	11/20/2012 14:56:20
12010	ARS1-B12-02779	ARS1-B12-02779-05	CAMO-13-24252	10	g	127001				AMRAD\RUSEY	11/20/2012 14:56:20
12011	ARS1-B12-02779	ARS1-B12-02779-06	CAMO-13-24278	10.02	g	127002				AMRAD\RUSEY	11/20/2012 14:56:20
12012	ARS1-B12-02779	ARS1-B12-02779-07	CAMO-13-24271	10	g	127003				AMRAD\RUSEY	11/20/2012 14:56:20
12013	ARS1-B12-02779	ARS1-B12-02779-08	CASA-13-24212	10.05	g	127004				AMRAD\RUSEY	11/20/2012 14:56:21
12014	ARS1-B12-02779	ARS1-B12-02779-09	CASA-13-24206	10.04	g	127005				AMRAD\RUSEY	11/20/2012 14:56:21

Assay Definition-

Assay Description:
Low Low Level Tritium

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20121120_1646
Raw Results Path: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20121120_1646\20121120_1646.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20121120_1646\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20121120_1646\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Low Level Tritium.lsa

Count Conditions-

Nuclide: H-3 LL
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

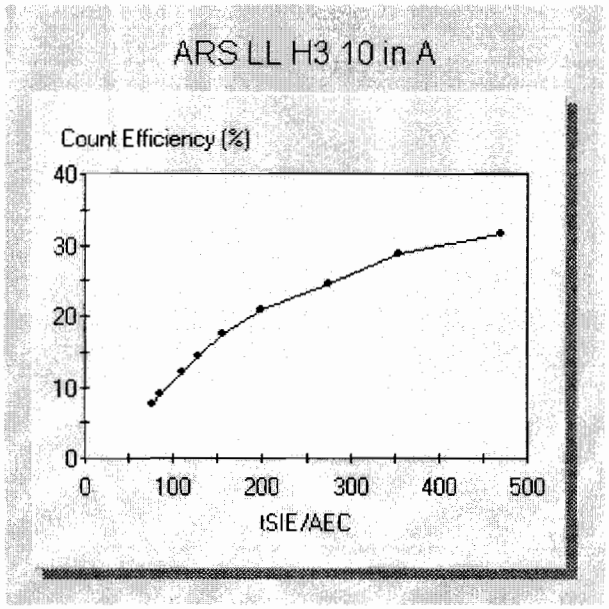
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 07/12/2012
Date Modified:
ARS LL H3 10 in A

tSIE/AEC	Count Efficiency (%)
469.86	31.67
355.16	28.64
276.20	24.37
198.58	20.90
156.80	17.54
129.38	14.41
110.19	12.01
86.31	8.98
76.97	7.55

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
41	1	BACKGROUND	1.524	6.400	263.84	23.82	120.00	11/20/2012	4:55:36 PM	
41	2	B12-02779-04	2.477	10.090	279.54	24.55	120.00	11/20/2012	7:07:37 PM	
41	3	B12-02779-05	1.728	7.097	275.87	24.35	120.00	11/20/2012	9:19:37 PM	
41	4	B12-02779-06	1.607	6.481	284.04	24.79	120.00	11/20/2012	11:31:39 PM	
41	5	B12-02779-07	2.166	8.780	281.71	24.67	120.00	11/21/2012	1:43:42 AM	
41	6	B12-02779-08	1.852	7.507	281.84	24.67	120.00	11/21/2012	3:55:45 AM	
41	7	B12-02779-09	1.662	6.770	279.72	24.56	120.00	11/21/2012	6:07:47 AM	

Assay Definition-

Assay Description:
Low Level H3

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium 2\20121121_0813
Raw Results Path: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium 2\20121121_0813\20121121_0813.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium 2\20121121_0813\Report1.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium 2\20121121_0813\Report1.txt
Assay File Name: C:\Packard\TriCarb\Assays\Low Low Level Tritium 2.lsa

Count Conditions-

Nuclide: H-3 LL
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

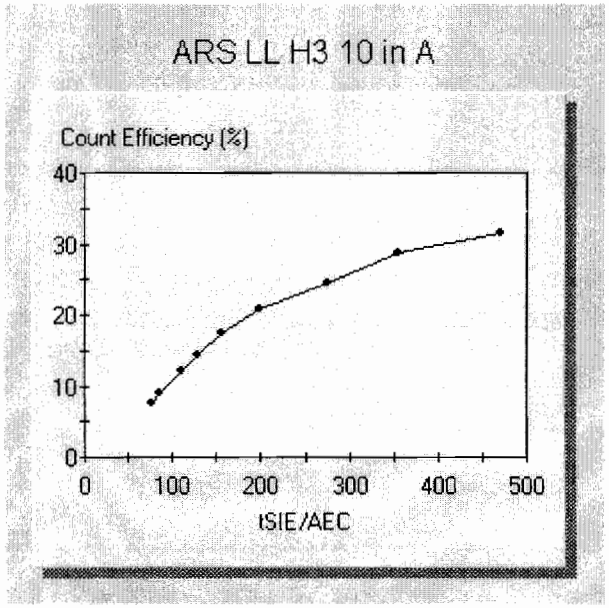
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 07/12/2012
Date Modified:
ARS LL H3 10 in A

tSIE/AEC	Count Efficiency (%)
469.86	31.67
355.16	28.64
276.20	24.37
198.58	20.90
156.80	17.54
129.38	14.41
110.19	12.01
86.31	8.98
76.97	7.55

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
49	1	B12-02779-04	1.347	5.575	271.65	24.16	120.00	11/21/2012	8:22:43 AM	
49	2	B12-02779-07	1.736	7.041	281.62	24.66	120.00	11/21/2012	10:34:45 AM	

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
11-15-12	1203	B12-02687-06	B12-02687	1354	[illegible]
↓	↓	B12-02687-07	↓	↓	[illegible]
↓	↓	B12-02687-08	↓	↓	[illegible]
↓	↓	B12-02687-09	↓	↓	[illegible]
↓	↓	B12-02687-10	↓	↓	[illegible]
↓	↓	B12-02687-11	↓	↓	[illegible]
↓	↓	B12-02687-12	↓	↓	[illegible]
↓	↓	B12-02687-13	↓	↓	[illegible]
↓	↓	B12-02687-14	↓	↓	[illegible]
11-20-12	1501	SNC KS	QA	QA	[illegible]
11-20-12	1502	Background	B12-02779	1646	[illegible]
↓	↓	B12-02779-04	↓	↓	[illegible]
↓	↓	B12-02779-05	↓	↓	[illegible]
↓	↓	B12-02779-06	↓	↓	[illegible]
↓	↓	B12-02779-07	↓	↓	[illegible]
↓	↓	B12-02779-08	↓	↓	[illegible]
↓	↓	B12-02779-09	↓	↓	[illegible]
11-21-12	0720	B12-02779-04	B12-02779	0813	[illegible]
↓	↓	B12-02779-07	↓	↓	[illegible]
				[illegible] 11-21-12	

Reviewed By: [illegible] Date: 12-19-12
Initials

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Control Charts

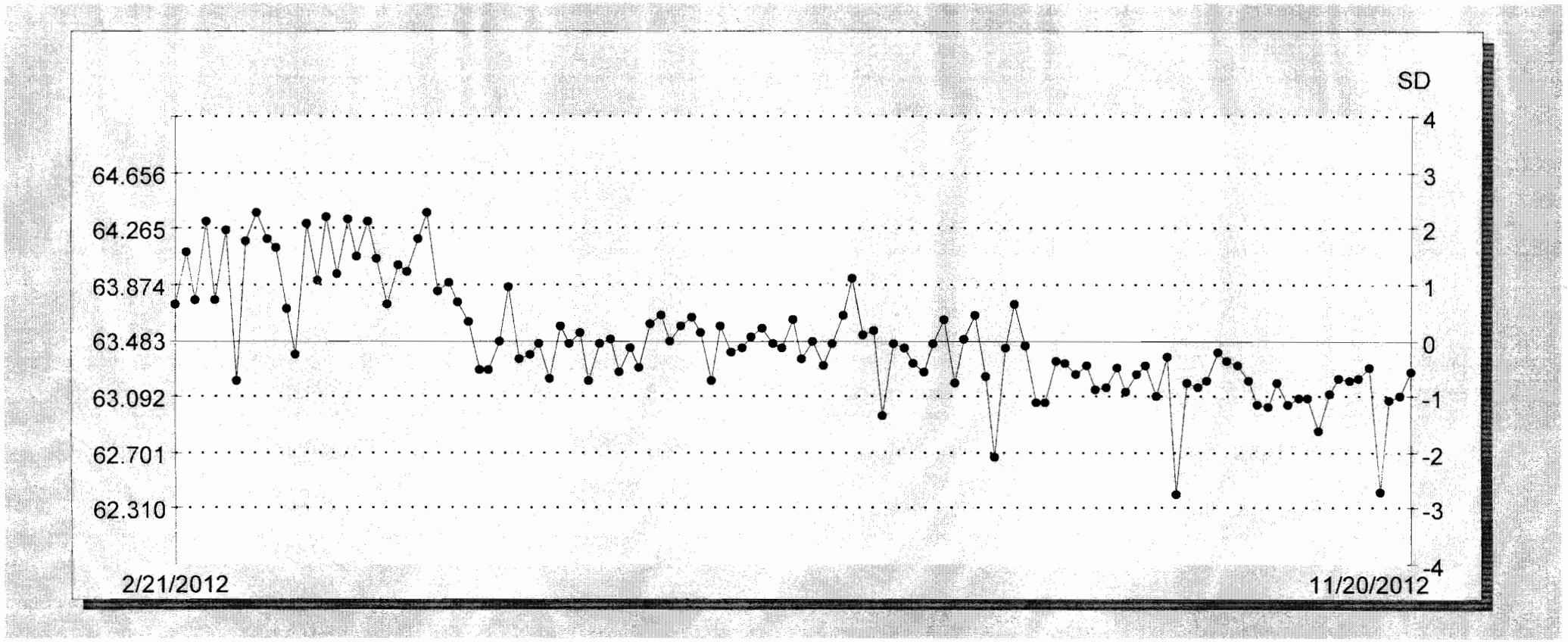
3H Efficiency
Total # pts : 1872
Valid # pts : 123
Mean : 63.48
SD : 0.39

Date	Value	Valid Pt
Feb 21, 2012	63.73	X
Feb 23, 2012	64.10	X
Feb 28, 2012	63.77	X
Mar 02, 2012	64.32	X
Mar 05, 2012	63.77	X
Mar 08, 2012	64.25	X
Mar 13, 2012	63.20	X
Mar 13, 2012	64.18	X
Mar 15, 2012	64.37	X
Mar 20, 2012	64.19	X
Mar 23, 2012	64.13	X
Mar 27, 2012	63.71	X
Mar 27, 2012	63.39	X
Mar 30, 2012	64.29	X
Apr 03, 2012	63.89	X
Apr 10, 2012	64.34	X
Apr 13, 2012	63.95	X
Apr 16, 2012	64.32	X
Apr 20, 2012	64.07	X
Apr 23, 2012	64.31	X
Apr 27, 2012	64.05	X
Apr 30, 2012	63.74	X
Apr 30, 2012	64.01	X
May 04, 2012	63.97	X
May 07, 2012	64.20	X
May 14, 2012	64.37	X
May 16, 2012	63.83	X
May 17, 2012	63.89	X
Jun 01, 2012	63.75	X
Jun 01, 2012	63.62	X
Jun 01, 2012	63.27	X
Jun 01, 2012	63.28	X
Jun 01, 2012	63.47	X
Jun 02, 2012	63.86	X
Jun 02, 2012	63.35	X
Jun 02, 2012	63.39	X
Jun 02, 2012	63.46	X
Jun 02, 2012	63.21	X
Jun 02, 2012	63.59	X
Jun 02, 2012	63.46	X
Jun 02, 2012	63.54	X
Jun 02, 2012	63.20	X
Jun 02, 2012	63.46	X
Jun 02, 2012	63.50	X
Jun 02, 2012	63.27	X
Jun 02, 2012	63.43	X
Jun 02, 2012	63.29	X

Jun 02, 2012	63.60	X
Jun 03, 2012	63.65	X
Jun 03, 2012	63.47	X
Jun 03, 2012	63.57	X
Jun 03, 2012	63.65	X
Jun 03, 2012	63.53	X
Jun 03, 2012	63.21	X
Jun 03, 2012	63.58	X
Jun 03, 2012	63.39	X
Jun 03, 2012	63.43	X
Jun 03, 2012	63.50	X
Jun 03, 2012	63.56	X
Jun 03, 2012	63.46	X
Jun 03, 2012	63.43	X
Jun 03, 2012	63.63	X
Jun 03, 2012	63.36	X
Jun 04, 2012	63.47	X
Jun 04, 2012	63.31	X
Jun 04, 2012	63.46	X
Jun 04, 2012	63.66	X
Jun 04, 2012	63.91	X
Jun 13, 2012	63.52	X
Jun 14, 2012	63.56	X
Jun 21, 2012	62.96	X
Jun 22, 2012	63.46	X
Jun 26, 2012	63.43	X
Jun 27, 2012	63.32	X
Jun 28, 2012	63.27	X
Jul 03, 2012	63.45	X
Jul 09, 2012	63.63	X
Jul 12, 2012	63.19	X
Jul 13, 2012	63.49	X
Jul 13, 2012	63.66	X
Jul 16, 2012	63.24	X
Jul 18, 2012	62.67	X
Jul 18, 2012	63.42	X
Jul 19, 2012	63.73	X
Jul 20, 2012	63.44	X
Jul 23, 2012	63.05	X
Jul 26, 2012	63.04	X
Jul 28, 2012	63.34	X
Jul 30, 2012	63.33	X
Jul 30, 2012	63.25	X
Jul 31, 2012	63.31	X
Aug 03, 2012	63.15	X
Aug 06, 2012	63.16	X
Aug 08, 2012	63.30	X
Aug 08, 2012	63.13	X
Aug 24, 2012	63.24	X
Sep 05, 2012	63.31	X
Sep 07, 2012	63.10	X
Sep 10, 2012	63.36	X
Sep 12, 2012	62.40	X
Sep 14, 2012	63.19	X
Sep 14, 2012	63.16	X
Sep 17, 2012	63.19	X
Sep 19, 2012	63.39	X

Sep 26, 2012	63.33	X
Sep 27, 2012	63.31	X
Sep 29, 2012	63.20	X
Oct 10, 2012	63.04	X
Oct 16, 2012	63.02	X
Oct 19, 2012	63.19	X
Oct 24, 2012	63.03	X
Oct 26, 2012	63.07	X
Oct 29, 2012	63.07	X
Oct 30, 2012	62.84	X
Oct 30, 2012	63.11	X
Nov 01, 2012	63.22	X
Nov 04, 2012	63.20	X
Nov 06, 2012	63.21	X
Nov 09, 2012	63.29	X
Nov 10, 2012	62.43	X
Nov 14, 2012	63.07	X
Nov 15, 2012	63.09	X
Nov 20, 2012	63.26	X

3H Efficiency
Total # pts : 1872
Valid # pts : 123
Mean : 63.48
SD : 0.39



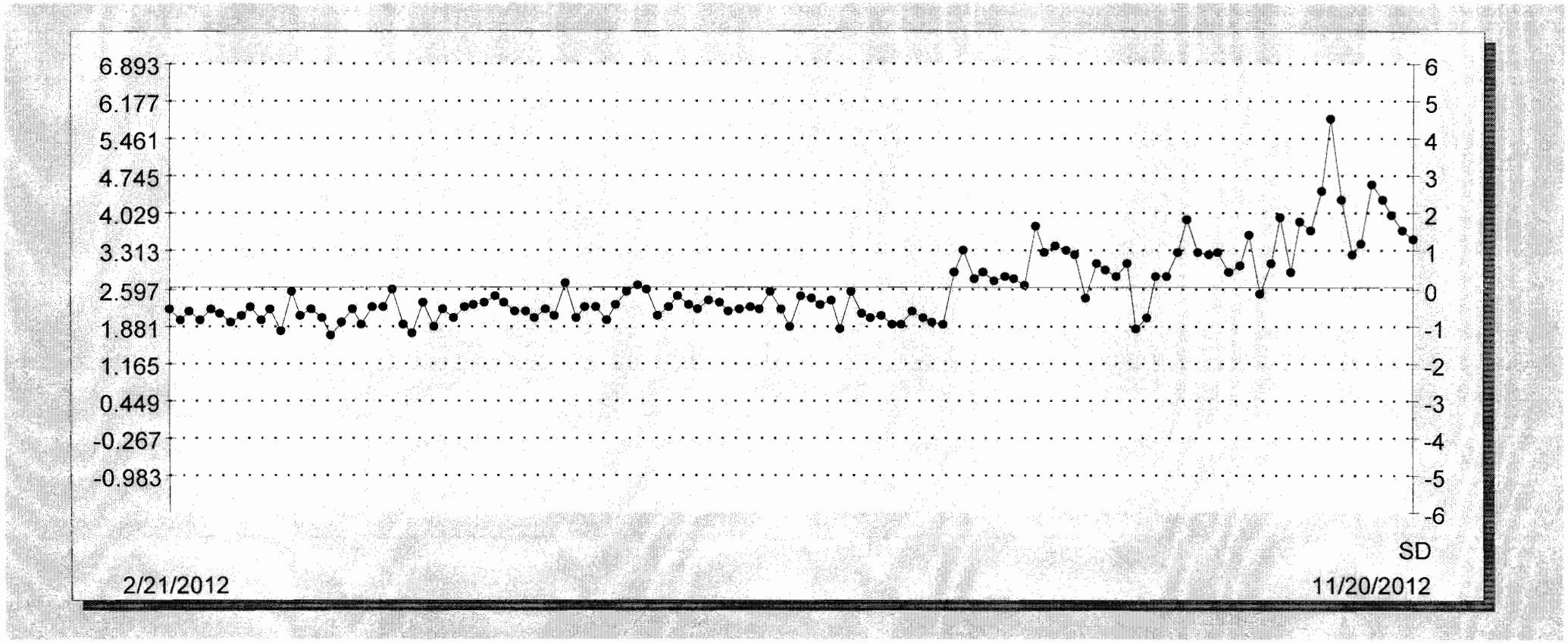
3H Background
Total # pts : 1828
Valid # pts : 123
Mean : 2.60
SD : 0.72

Date	Value	Valid Pt
Feb 21, 2012	2.20	X
Feb 23, 2012	2.01	X
Feb 28, 2012	2.14	X
Mar 02, 2012	1.99	X
Mar 05, 2012	2.21	X
Mar 08, 2012	2.14	X
Mar 13, 2012	1.96	X
Mar 13, 2012	2.08	X
Mar 15, 2012	2.26	X
Mar 20, 2012	1.99	X
Mar 23, 2012	2.21	X
Mar 27, 2012	1.80	X
Mar 27, 2012	2.55	X
Mar 30, 2012	2.07	X
Apr 03, 2012	2.19	X
Apr 10, 2012	2.03	X
Apr 13, 2012	1.69	X
Apr 16, 2012	1.93	X
Apr 20, 2012	2.21	X
Apr 23, 2012	1.89	X
Apr 27, 2012	2.25	X
Apr 30, 2012	2.24	X
Apr 30, 2012	2.58	X
May 04, 2012	1.90	X
May 07, 2012	1.75	X
May 14, 2012	2.33	X
May 16, 2012	1.87	X
May 17, 2012	2.20	X
Jun 01, 2012	2.03	X
Jun 01, 2012	2.22	X
Jun 01, 2012	2.27	X
Jun 01, 2012	2.35	X
Jun 01, 2012	2.45	X
Jun 02, 2012	2.32	X
Jun 02, 2012	2.15	X
Jun 02, 2012	2.18	X
Jun 02, 2012	2.05	X
Jun 02, 2012	2.22	X
Jun 02, 2012	2.08	X
Jun 02, 2012	2.72	X
Jun 02, 2012	2.03	X
Jun 02, 2012	2.26	X
Jun 02, 2012	2.25	X
Jun 02, 2012	1.99	X
Jun 02, 2012	2.29	X
Jun 02, 2012	2.55	X
Jun 02, 2012	2.66	X

Jun	02,	2012	2.56	X
Jun	03,	2012	2.06	X
Jun	03,	2012	2.23	X
Jun	03,	2012	2.45	X
Jun	03,	2012	2.28	X
Jun	03,	2012	2.19	X
Jun	03,	2012	2.36	X
Jun	03,	2012	2.33	X
Jun	03,	2012	2.14	X
Jun	03,	2012	2.21	X
Jun	03,	2012	2.23	X
Jun	03,	2012	2.20	X
Jun	03,	2012	2.55	X
Jun	03,	2012	2.19	X
Jun	03,	2012	1.88	X
Jun	03,	2012	2.43	X
Jun	04,	2012	2.42	X
Jun	04,	2012	2.29	X
Jun	04,	2012	2.37	X
Jun	04,	2012	1.84	X
Jun	04,	2012	2.52	X
Jun	13,	2012	2.14	X
Jun	14,	2012	2.01	X
Jun	21,	2012	2.09	X
Jun	22,	2012	1.91	X
Jun	26,	2012	1.90	X
Jun	27,	2012	2.18	X
Jun	28,	2012	2.04	X
Jul	03,	2012	1.96	X
Jul	09,	2012	1.90	X
Jul	12,	2012	2.91	X
Jul	13,	2012	3.33	X
Jul	13,	2012	2.78	X
Jul	16,	2012	2.93	X
Jul	18,	2012	2.76	X
Jul	18,	2012	2.85	X
Jul	19,	2012	2.79	X
Jul	20,	2012	2.65	X
Jul	23,	2012	3.78	X
Jul	26,	2012	3.28	X
Jul	28,	2012	3.41	X
Jul	30,	2012	3.33	X
Jul	30,	2012	3.24	X
Jul	31,	2012	2.42	X
Aug	03,	2012	3.09	X
Aug	06,	2012	2.96	X
Aug	08,	2012	2.82	X
Aug	08,	2012	3.09	X
Aug	24,	2012	1.84	X
Sep	05,	2012	2.04	X
Sep	07,	2012	2.81	X
Sep	10,	2012	2.84	X
Sep	12,	2012	3.31	X
Sep	14,	2012	3.90	X
Sep	14,	2012	3.28	X
Sep	17,	2012	3.26	X
Sep	19,	2012	3.27	X

Sep 26, 2012	2.90	X
Sep 27, 2012	3.03	X
Sep 29, 2012	3.61	X
Oct 10, 2012	2.51	X
Oct 16, 2012	3.08	X
Oct 19, 2012	3.94	X
Oct 24, 2012	2.93	X
Oct 26, 2012	3.87	X
Oct 29, 2012	3.71	X
Oct 30, 2012	4.48	X
Oct 30, 2012	5.86	X
Nov 01, 2012	4.30	X
Nov 04, 2012	3.23	X
Nov 06, 2012	3.47	X
Nov 09, 2012	4.61	X
Nov 10, 2012	4.31	X
Nov 14, 2012	3.99	X
Nov 15, 2012	3.72	X
Nov 20, 2012	3.56	X

3H Background
Total # pts : 1828
Valid # pts : 123
Mean : 2.60
SD : 0.72



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Liquid Scintillation Counting

Calibration Information

ARS INTERNATIONAL

QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS

ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE 9/10/2012 20:16 *date counted*
STANDARD REFERENCE # S-0279

Principal Radionuclide		Half Life, Years		Half Life, Days
H-3	*ENTER -->*		*OR -->*	4.4998E+03
		1.232E+01		4.4998E+03

Radionuclide H-3 Dilution Reference Date 9/7/2012 10:40

Dilution Activity	2.58	pCi per gram ===> dpm/g	5.73
Verif. Date Decay Corrected	2.58	pCi per gram ===> dpm/g	5.72

Minimum of 3 Required

Trial ID	Sample Counts	Count Time (min)	Detector	Efficiency	Bkg. (cpm)	Net Weight	Decay Corrected Activity Result (dpm/g)	Decay Corrected Activity Result (pCi/g)
S-0279-V1	15.91	1	LSC	0.3302	6.49	5.019	5.68	2.56
S-0279-V2	16.21	1	LSC	0.3291	6.49	5.018	5.89	2.65
S-0279-V3	15.76	1	LSC	0.3290	6.49	5.018	5.62	2.53
S-0279-V4	15.62	1	LSC	0.3293	6.49	5.008	5.54	2.49
S-0279-V5	15.76	1	LSC	0.3280	6.49	5.018	5.63	2.54

Average	5.67	2.55
Two Sigma Uncertainty	0.26	0.12
Standard Deviation percent of known concentration	2.30%	2.30%
Target Activity	5.72	2.58
% Diff	-0.91%	-0.91%

10% Max *PASS*

5% Max *PASS*

Verification Expiration Date: ##############

Prepared & Counted By [signature] Date: 9/10/2012 20:16

Verified & Approved By [signature] Date: 9-11-12 0817

QC Approval [signature] Date: 9-11-12 0817

S-0279	
H-3	Verified 9/10/12
SL	Expires 9/10/13
Manufactuer	NIST SRM 4927F
Sol Matrix	H2O
Ref No	NIST SRM 4927F
Tech	Unknown
Parent ID	S-0237

ARS INTERNATIONAL

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

H-3 Standard Verification

Verifier's Name: Brian Steffens **Date:** 9/7/2012

Pipettor ID: FJ40469
Pipettor ID: Auto-pipettor
Pipettor ID: na
Standard ID: S-0279
Standard ID: N/A

Standards brought up to ~5g with distilled dead water.
Standards made in glass vials.

15mL of Ultima Gold added to standard

Weight of Standard		
S-0279-V1	5.019	**g**
S-0279-V2	5.018	**g**
S-0279-V3	5.018	**g**
S-0279-V4	5.008	**g**
S-0279-V5	5.018	**g**

Balance ID: H1331122173560P

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931
Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\20120910_0931.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\H-3 Normal 3.lsa

Count Conditions-

Nuclide: H-3 Normal
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: UG STD H-3
Count Time (min): 120.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

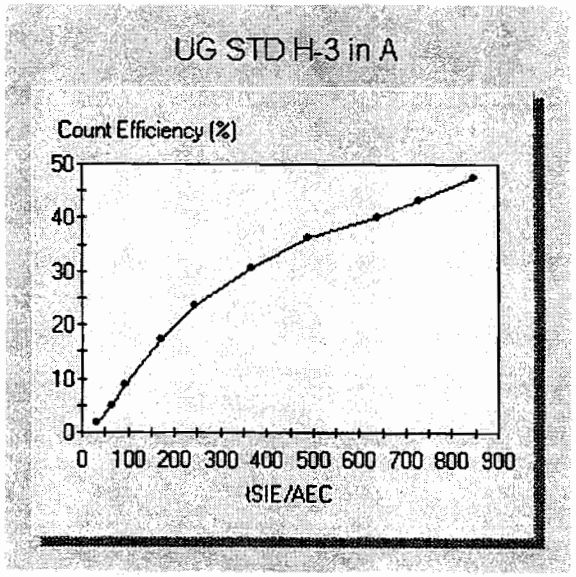
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off
Regions Half Life Units Reference Date Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 06/27/2012
Date Modified:
UG STD H-3 in A

tSIE/AEC	Count Efficiency (%)
846.90	47.58
730.85	43.21
639.47	40.08
487.78	36.36
365.41	30.73
244.81	23.69
169.28	17.31
95.01	8.79
64.60	4.97
34.32	1.64

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
54	1	BACKGROUND	6.49	19.81	409.74	32.77	120.00	9/10/2012	9:36:46 AM	
54	2	S-0279-V1	15.91	48.18	415.20	33.02	120.00	9/10/2012	11:44:40 AM	
54	3	S-0279-V2	16.21	49.25	412.72	32.91	120.00	9/10/2012	1:52:36 PM	
54	4	S-0279-V3	15.76	47.89	412.56	32.90	120.00	9/10/2012	4:00:32 PM	
54	5	S-0279-V4	15.62	47.44	413.22	32.93	120.00	9/10/2012	6:08:27 PM	
54	6	S-0279-V5	15.76	48.04	410.40	32.80	120.00	9/10/2012	8:16:20 PM	

STD ID: S-0279

ARS INTERNATIONAL	Add/Edit *Secondary Stds*	Parent Standard Data				
Planning		Parent Solution Reference #	NIST SRM 4927F			
Planning Comments	Create a H3 LCS standard.	Parent Solution #	S-0237			
Target dpm/g (on dil. date)	5.5	Parent Principal Radionuclide	H-3	Half Life (Days)	4499.8000000	
Target Final volume mL	2000	Parent Reference Date	03/22/2010 10:10			
Appx mass g of Parent Sol'n	3.606433954	Parent Certified Act	3503.682716	Certi Act/Vol Units	dpm	g
Appx vol ml of Parent Sol'n	3.612937241	Parent Cert Act Uncert 1 Sigma	0.0036			
Expected Addition for Analysis g	5	Parent Sp. Gravity G/Ml	0.9982			
Standards Preparation / Dilution		Parent Supplier	NIST SRM 4927F			
Secondary Solution #	S-0279	Parent Date Recvd	01/02/00			
Dilution Date (New Ref Date)	09/07/2012 10:40	Parent Received By	Unknown			
Ampoule, Empty (g)		Parent Cert Exp Date				
Ampoule /Solution Gross (g)		Parent Matrix	H2O			
Net Wt Removed (g)		Certified dpm/g At Ref Date	3503.682716			
Transfer Container, empty (g)	13.144	Certified dpm/g on 09/07/2012 10:40	3050.10438			
Container Plus Solution (g)	16.89	Parent Comments	Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Steffens. -BJS 3/22/10			
Net Wt Transferred (g)	3.746					
DPM Xferred on 09/07/2012 10:40	11425.69101					
Diluent/matrix	DI H2O	Parent Tech	Unknown			
Diluent Density Cont, empty (g)		Is_Primary	FALSE			
Test Mass of 5 ml of Diluent (g)		Is_LCS	TRUE			
Diluent Density Test - (g/mL)		Is_Tracer	FALSE			
Dilution Empty Container Mass (g)	473.93	Is_Calib	FALSE			
Dilution Full Cont g (If measured)	2469.52					
Dilution Final Volume ml (If measured)	2000					
Final Dilution Density (g/mL)	0.997795					
Final Dilution Measured Mass g	1995.59					
Comments	H3 LCS standard. Dilution performed as stated above by B Steffens. -BJS 9/7/12					
Final Dilution dpm/g	5.725470166					
Final Dil New Ref Date/Time	09/07/2012 10:40					

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Folder Duplicate

Report Compilation Checklist

ARS SDG:	12-02339	Client Name:	LANL	Sample Matrix:	AQ

LEVEL 1 COMPONENTS	1st Reviewer	
1) Cover Page Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
2) Technical Review Checklist(s) Complete and Accurate?	~~Yes~~ No N/A	
3) Case Narrative Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
4) Form 1s Present for all Samples and Tests?	~~Yes~~ No N/A	
5) Client Specific Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 2 COMPONENTS	1st Reviewer	
6) Batch Quality Control Report is Present and Accurate?	~~Yes~~ No N/A	
7) DQO Report is Present and Accurate?	~~Yes~~ No N/A	
8) Client Specific Batch QC Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 3 COMPONENTS	1st Reviewer	
9) Efficiencies are Present?	~~Yes~~ No N/A	
10) Calibrations are Present?	~~Yes~~ No N/A	
11) Backgrounds are Present?	~~Yes~~ No N/A	
12) Spectrum Analysis is Present?	~~Yes~~ No N/A	
13) Spectral Plots are Present?	~~Yes~~ No N/A	
14) Plateaus are Present?	~~Yes~~ No N/A	
15) Control Charts are Present?	~~Yes~~ No N/A	
16) Other:	Yes No ~~N/A~~	

LEVEL 4 COMPONENTS	1st Reviewer	
17) Preparation Raw Data Present, Signed and Complete?	~~Yes~~ No N/A	
18) Instrument Raw Data Present and Complete?	~~Yes~~ No N/A	
19) Calibration Certificates Present?	~~Yes~~ No N/A	
20) Copies of Log Book Pages Present?	~~Yes~~ No N/A	
21) Sample Receiving Documentation Present?	~~Yes~~ No N/A	
22) LIMS Reports Present?	~~Yes~~ No N/A	
23) Applicable Correspondence Present?	~~Yes~~ No N/A	
24) Other:	Yes No ~~N/A~~	

Report Generator Signature	Date	Management Review Signature	Date
[signature]	12-19-12	[signature]	12-19-12

LSC
Technical Review Checklist

ARS SDG ARS1-12-02339

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-B12-02782 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-022 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) Sample Prep Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Chemist Signature 12-12-12 Date Verifier Review Signature 12-12-12 Date

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature 12-19-12 Date

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) NCR # (If initiated): _____

Analyst Signature 12-14-12 Date Technicial Reviewer Signature 12-14-12 Date

Batch A: ARS1-B12-02782

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes ~~No~~ N/A	Yes (No) N/A
2) RDL Criteria are Met?	~~Yes~~ No N/A	(Yes) No N/A
3) Method Blank Criterion Met?	~~Yes~~ No N/A	(Yes) No N/A
4) LCS/LCD Criteria Met?	~~Yes~~ No N/A	(Yes) No N/A
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	~~Yes~~ No N/A	(Yes) No N/A
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
[signature]	12-19-12	[signature]	12-19-12

GENERAL COMMENTS

LSC
Technical Review Checklist

ARS SDG ARS1-12-02339

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-B12-02779 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-021 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) Sample Prep Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Chemist Signature 11-20-12 Date N/A Verifier Review Signature Date

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature 12-19-12 Date

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) NCR # (If initiated): _____

Analyst Signature 11-21-12 Date Technicial Reviewer Signature Date

Batch A: ARS1-B12-02779

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes No ~~N/A~~	Yes No (N/A)
2) RDL Criteria are Met?	Yes No ~~N/A~~	Yes No (N/A)
3) Method Blank Criterion Met?	Yes No ~~N/A~~	Yes No (N/A)
4) LCS/LCD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
SDL	12-19-12	James D. [illegible]	12-19-12

GENERAL COMMENTS

DQO Report for SDG
ARS1-12-02339

Analysis Code	Group	Isotope	Activity Units	Aliquot Units	ProcedureNo	RDL	LCS_LL	LCS_UL	MS_LL	MS_UL	RadY_LL	RadY_UL	GravY_LL	GravY_LL	RER	RPD	DiltionReq	RoughPrepReq	BlankCorrectionMDA	BlankCorrectionAll	CountTimeReq	AliquotRequired
LSC-A-021	STD	H-3	pCi	L	ARS-054	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		
LSC-A-022	STD	Enriched H-3	pCi	L	ARS-040	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		

SDG Report - Samples and Containers

78

SDG Specific Data

SDG	ARS1-12-02339	TAT Days	28	Project Type	Environmental
Sample Count	2 Rpt Level 4	Date Received	11/20/2012	COC Number	2013-360
Client	Los Alamos National Laboratory	Client Deadline	12/20/2012	PO Number	63641-001-10
Client Code	114	Internal Deadline	12/19/2012	Job Number	
Profile Number	PN-00094	Lab Deadline	12/16/2012	Job Location	
Comments					

Samples and Containers (➔) Checked In Thus Far

FR	ClientID	Matrix	SampleStartDate	SampleEndDate	Disp	Hold	Arch	Storage	X	Units	Y	Units	Z	Units	Comments
001	CAMO-13-24251	AQ	11/15/12 11:51 AM	11/15/12 11:51 AM	H	90	5	A4							
➔	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126981	1	1000.00				80	24		N	N/A				
002	CAMO-13-24252	AQ	11/15/12 02:49 PM	11/15/12 02:49 PM	H	90	5	A4							
➔	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126982	1	1000.00				80	24		N	N/A				

SDG Report - Analysis Assignments

Temp SDG	ARS1-12-02339	Sample Count	2
Client	Los Alamos National Laboratory	Analysis Count	2-4

Samples Count Totals per Analysis

Analysis Code	Analysis Description	Samples Count
LSC-A-021	Low Level Tritium Screen in (Aqueous)	2
LSC-A-022	Low Level Tritium by Enrichment Process in (Aqueous [AQ])	2

Analyses Assigned Per Fraction

Fraction	Analysis Code	X = Assigned
001	LSC-A-021	X
001	LSC-A-022	X
002	LSC-A-021	X
002	LSC-A-022	X

ARS FILE TRACKING SHEET

SDG: ARS1-12-02339

Task	Date / Time	Initials
Date & Time Samples Received	11/20/12 10:50	cad
ICOC Initiated / Storage Location: A4	11/20/12 11:28	cad
Technical Checks Performed	See Batch	
Report Written / EDD Generated: 12-19-12 1341 | SDL (Date/Time, Initials)	12-19-12 1334	SDL
Quality Assurance Checks Performed on Report	12-19-12 1500	JOT
Management Check Performed on Report		
Preliminary Report Sent		
Report E-mailed		
Report Faxed		
Report Reviewed		
Report Mailed		
Invoice Completed Invoice #:		
Report Imaged		

SPECIAL REQUIREMENTS

Requirement	Yes	No
3 Hour Rush		✓
24 Hour Rush		✓
48 Hour Rush		✓
3 Day TAT		✓
5 Day TAT		✓

NOTES:

ARS-062
08/08/2012

COMPANY NAME: LANL **SDG:** AS1-12-02339

SHIPPING CONTAINER

Good Condition	☑ Yes	☐ No
Radioactive	☐ Yes	☑ No
UN2910	☐ Yes	☑ No
Sec. Seals	☑ Yes	☑ No
Seals Intact	☑ Yes ☐ No	☐ N/A
Air Bill	☐ Yes	☑ No

COC PRESENT WITH SAMPLES

COC	☑ Yes	☐ No

SAMPLE CONTAINER(S)

Good Condition	☑ Yes	☐ No
Sec. Seals	☑ Yes	☐ No
Seal Intact	☑ Yes ☐ No	☐ N/A
Marked Radioactive	☐ Yes	☑ No

Samples Rcv 11 6

Matrix [AF , AQ , BI , FE , LT , SL 5 , SO , UR , VG]

External and Internal Surveys

Exposure Rate Meter: M3 242861 Serial No.: PR 264266 Calibration Due Date: 4-18-13

Count Rate Meter: M2 1~~3~~5 11/20/12 154859 Serial No.: PR 184559 Calibration Due Date: 4-18-13

Background Exposure Rate (µR/hr): 24 Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd): 30 µR/hr

Background Count Rate (cpm): 80 Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd): 80 cpm

Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd): _____ cpm

Sample Label/Comments/Notes	pH Orig	pH Final (pH ≤ 2 is Acceptable)	Mark if Preserve	Acid Lot #	Weight(g) / Volume(mL)	µR/hr (Acceptance Limits <500 µR/hr)	cpm (Acceptance Limits <100 cpm/cm²)
TMD90-13-24153			☐			24	80
-24154			☐			24	80
-24155			☐			24	80
-24156			☐			24	80
-24157			☐			24	80
			☐				
CAMO-13-24251			☐		1000 mL	24	80
-24252			☐		↓	24	80
			☐				
CAMO-13-24278			☐		1000 mL	24	80
-24271			☐		↓	24	80
			☐				
CASA-13-24212			☐		1000 mL	26	90
-24206			☐		↓	26	90
			☐				
			☐				
			☐				
			☐				
			☐				

Surveyors' Name: _____ Date/Time Surveyed: 11/20/12 1150

* These samples only in this SDG.

Cape Fear Analytical
3306 Kitty Hawk Road, Suite 120
Wilmington NC 28405

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-352

Client Contact:

Lab Agreement # : 63641-001-10
Project Number :
Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8290-D/F
CAMO-13-24251	Nov 15 2012	11:51	W	2
CAMO-13-24252	Nov 15 2012	14:59	W	2

Special Instructions:

Special Instructions:

Relinquished by: K. Greene		Date/Time: 11/16/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24251

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/15/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1151	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S1	↓	FIELD PREP:	UF	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P1A		SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	3	ICE	Y	NA
↓	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	↓	↓
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE	↓	↓
↓	WSP-8290-D/F	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-8321A-NMED HEXP	1 LITER AMBER GLASS	3	ICE	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-HEXMOD	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

Analyses continued on next page

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID:	4030	**EVENT NAME:**	Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD
SAMPLE ID:	CAMO-13-24251	**WORK ORDER:**	NA

SAMPLE COMMENTS: Samples collected within 50 ft of diesel generator.

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 4.77 mg/L Oxidation-Reduction Potential 202.1 MV pH 6.53 SU

Specific Conductance 180 uS/cm Temperature 19.40 deg C Turbidity 4.55 NTU

COLLECTED BY (PRINT) A. Stalker

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Megan Green (Signature)	11/15/12 1600	(Printed Name) Sherwood (Signature) Sherwood	11/15/12 1600
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24252

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/15/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1459	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSM
LOCATION ID:	R-61 S2	↓	FIELD PREP:	UF	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P2A	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	3	ICE	Y	NA
↓	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	↓	↓
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE	↓	↓
↓	WSP-8290-D/F	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-8321A-NMED HEXP	1 LITER AMBER GLASS	3	ICE	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-HEXMOD	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

Analyses continued on next page

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID:	4030	**EVENT NAME:**	Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD
SAMPLE ID:	CAMO-13-24252	**WORK ORDER:**	NA

SAMPLE COMMENTS: Samples collected within 50ft of diesel generator

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 3.34 mg/L Oxidation-Reduction Potential -48.7 MV pH 6.46 SU

Specific Conductance 199 uS/cm Temperature 19.28 deg C Turbidity 6.19 NTU

COLLECTED BY (PRINT) A. Stocker, W. Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Megan Green (Signature)	11/15/12 1600	(Printed Name) S. Sherwood (Signature)	11/15/12 1600
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-352

1. Distribution Of Samples In EDD.

	Analytical	Regular	Field	Trip	Field	Equipment
SDG	Method	Samples	Duplicates	Blanks	Blanks	Blanks
4219	SW-846:8290	2				

	Analytical	Analysis	Prep	Regular	Field	Trip	Field	Equipment	Method	Matrix	Matrix
SDG	Method	Lot ID	Lot ID	Samples	Duplicates	Blanks	Blanks	Blanks	Blanks	Spikes	Spike Dups
4219	SW-846:8290	22392	22389	2					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
SW-846:8290	DIOXINS FURANS	CAMO-13-24251	4219001	REG	25	9	0	0
SW-846:8290	DIOXINS FURANS	CAMO-13-24252	4219002	REG	25	9	0	0
SW-846:8290	DIOXINS FURANS	LCS	12007121	LCS	0	9	17	0
SW-846:8290	DIOXINS FURANS	LCSD	12007122	LCSD	0	9	17	0
SW-846:8290	DIOXINS FURANS	MB	12007120	MB	25	9	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

No.

Any samples affected by the presence of contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

No.

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

Data Validation Report for: Chain Of Custody No. 2013-352

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1	1						

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

No.

Reason Code	Description
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24251	R-61 S1	REG	SW-846:8290	0	25
CAMO-13-24252	R-61 S2	REG	SW-846:8290	0	25

CFA | Cape Fear Analytical LLC
an affiliate of The GEL Group INC

3306 Kitty Hawk Road, Suite 120 Wilmington, NC 28405
P 910.795.0421
www.capefearanalytical.com

December 07, 2012

Mr. Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: 2012 WQH with LOCUS EDD
Work Order: 4219
SDG: 2013-352

Dear Mr. Greene:

Cape Fear Analytical LLC (CFA) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on November 17, 2012. This original data report has been prepared and reviewed in accordance with CFA's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at 910-795-0421.

Sincerely,

Cynthia Larkins
Project Manager

Chain of Custody: 2013-352
Enclosures

problem solved

Table Of Contents

Case Narrative.....3

Chain of Custody and Supporting Documentation.....6

High Resolution Dioxins and Furans Analysis.....10

Case Narrative.....11

Sample Data Summary.....15

Quality Control Summary.....19

Los Alamos National Laboratory
2012 WQH with LOCUS EDD
Workorder #: 4219
SDG # : 2013-352

Case Narrative

Receipt Narrative
for
Los Alamos National Laboratory
SDG: 2013-352
Work Order: 4219

Laboratory Identification
Cape Fear Analytical, LLC
3306 Kitty Hawk Road, Suite 120
Wilmington, North Carolina 28405
(910) 795-0421

Summary
Sample receipt: The samples arrived at Cape Fear Analytical LLC (CFA), Wilmington, North Carolina on November 17, 2012 for analysis. The samples were delivered with proper chain of custody documentation and signatures. Shipping container temperatures were checked, documented, and within specifications. All sample containers arrived without any visible signs of tampering or breakage. Appropriate sample containers were received. Sample containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Sufficient sample was received for analysis. There are no additional comments concerning sample receipt.

Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
4219001	CAMO-13-24251
4219002	CAMO-13-24252

Case Narrative
Sample analyses were conducted using methodology as outlined in Cape Fear Analytical's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package
The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist and data from the following fractions: High Resolution Dioxins and Furans.

Sincerely,

Cynde Larkins

Cynthia Larkins
Project Manager

List of current CFA Certifications as of 07 December 2012

State	Certification
California (NELAC)	09270CA
New Jersey (NELAC)	NC013
North Carolina	NC01894
South Carolina	99063001
Utah (Primary NELAC)	CFAL

Chain of Custody and Supporting Documentation

WO # 4219

Cape Fear Analytical
3306 Kitty Hawk Road, Suite 120
Wilmington NC 28405

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-352

Page 1 of 1

Client Contact:

Lab Agreement # : 63641-001-10
Project Number :
Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info:

Special Instructions:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8290-D/F
CAMO-13-24251	Nov 15 2012	11:51	W	2
CAMO-13-24252	Nov 15 2012	14:59	W	2

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
K. Greene		11/16/12 3:00	Cynde Larkins	17NOV12 1140
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

COC was received at CFA 20NOV12 @1040. CR

SAMPLE RECEIPT CHECKLIST

Cape Fear Analytical

Client: LANL	Work Order: 4219
Received By: Cynde Larkins	Date/Time Received: 17 NOV 12 1140

Suspected Hazard Information	Yes	NA	No
Shipped as DOT Hazardous?		✓	
Samples identified as Foreign Soil?		✓	

DOE Site Sample Packages	Yes	NA	No*
Screened <0.5 mR/hr?	✓		
Samples < 2x background?	✓		

* Notify RSO of any responses in this column immediately.

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other(describe)
2	Chain of Custody documents included with shipment?	✓			
3	Samples requiring cold preservation within 0-6°C?	✓			Preservation Method: ice bags blue ice dry ice none other (describe) 3.6°
4	Samples requiring chemical preservation at proper pH?		✓		Sample IDs, containers affected and pH observed: pH = 7 on both samples If preservative added, Lot#:
5	Samples requiring preservation have no residual chlorine?	✓			Sample IDs, containers affected: If preservative added, Lot#:
6	Samples received within holding time?	✓			Sample IDs, tests affected:
7	Sample IDs on COC match IDs on containers?			✓	Sample IDs, containers affected: NO COC received
8	Date & time of COC match date & time on containers?			✓	Sample IDs, containers affected:
9	Number of containers received match number indicated on COC?			✓	Sample IDs, containers affected:
10	COC form is properly signed in relinquished/received sections?			✓	

Comments:

CAMO-13-24251 11/15/12 @ 1151 2 containers

CAMO-13-~~245~~ 24252 11/15/12 @ 1459 2 cont.'s

were received without a COC.

COC received by CFA 20 NOV 12 @ 1040.

Checklist performed by: Initials: CL Date: 17 NOV 12

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 16NOV12
ACTWGT: 46.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO CHRIS CORNWELL
CAPE FEAR ANALYTICAL
3306 KITTY HAWK ROAD, SUITE 120

WILMINGTON NC 28405
(910) 795-0421
REF: MR1A015AGWF0

FedEx Express

2 of 3
MPS# 0263 5462 9832 5517
Mstr# 5462 9832 5506

SATURDAY ### AA
PRIORITY OVERNIGHT
0201

X0 ILMA

28405
NC-US GSO

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

Ship Date: 16NOV12
ActWgt: 46.0 LB MAN
CAD: 0014176/CAFE2511

TO CHRIS CORNWELL
CAPE FEAR ANALYTICAL
3306 KITTY HAWK ROAD, SUITE 120

WILMINGTON, NC 28405

(910) 795-0421

FedEx Express

(US)

J1113118061525

Trk# 5462 9832 5517

PRIORITY OVERNIGHT

3306 KITTY HAWK ROAD, SUITE 120

RT 539 1 B
FZ 5517
11.17

PLACE THIS LABEL ON PACKAGE
NEXT TO THE SHIPPING LABEL

Part # 156148-434 RIT2 08/10

WO# 4219
3.6°

High Resolution Dioxins and Furans Analysis

Case Narrative

HDOX Case Narrative
Los Alamos National Laboratory (LANL)
SDG 2013-352
Work Order 4219

Method/Analysis Information

Product:	**Dioxins/Furans by SW846 Method 8290A in Liquids**
Analytical Method:	SW846 8290A
Extraction Method:	SW846 3520C
Analytical Batch Number:	22392
Clean Up Batch Number:	22390
Extraction Batch Number:	22389

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8290A:

Sample ID	Client ID
4219001	CAMO-13-24251
4219002	CAMO-13-24252
12007120	Method Blank (MB)
12007121	Laboratory Control Sample (LCS)
12007122	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by Cape Fear Analytical LLC (CFA) as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with CF-OA-E-002 REV# 10.

Raw data reports are processed and reviewed by the analyst using the TargetLynx software package.

Calibration Information

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Certification Statement
The test results presented in this document are certified to meet all requirements of the 2003 NELAC Standard.

Method Blank (MB) Statement
The MB(s) analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Laboratory Control Sample Duplicate (LCSD) Recovery
The LCSD spike recoveries met the acceptance limits.

LCS/LCSD Relative Percent Difference (RPD) Statement
The RPD(s) between the LCS and LCSD met the acceptance limits.

QC Sample Designation
A matrix spike and matrix spike duplicate analysis was not required for this SDG.

Technical Information

Holding Time Specifications
CFA assigns holding times based on the associated methodology, which assigns the date and time from sample collection. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG.

Miscellaneous Information

Nonconformance (NCR) Documentation
A NCR was not required for this SDG.

Manual Integrations
Certain standards and QC samples required manual integrations to correctly position the baseline as set in the calibration standard injections. Where manual integrations were performed, copies of all manual integration peak profiles are included in the raw data section of this fraction. Manual integrations were required for data files in this SDG.

System Configuration
This analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
HRP763_1	High-Resolution GC/MS System	Dioxin Analysis	DB-5MS	60m x 0.25mm, 0.25um

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted: Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Sample Data Summary

Cape Fear Analytical, LLC

3306 Kitty Hawk Road Suite 120, Wilmington, NC 28405 - (910) 795-0421 - www.capefearanalytical.com

Qualifier Definition Report
for

LANL001 Los Alamos National Laboratory

Client SDG: 2013-352 CFA Work Order: 4219

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

K Estimated Maximum Possible Concentration

U Analyte was analyzed for , but not detected above the specified detection limit.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

Cape Fear Analytical requires all analytical data to be verified by a qualified data reviewer.

The following data validator verified the information presented in this case narrative:

Signature: Heather Patterson **Name: Heather Patterson**

Date: 07 DEC 2012 **Title: Analyst III**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**2013-352**	**Client:**	**LANL001**	**Project:**	**LANL00112**
Lab Sample ID:	**4219001**	**Date Collected:**	**11/15/2012 11:51**	**Matrix:**	**WATER**
Client Sample:	**8290 Water**	**Date Received:**	**11/17/2012 11:40**		
Client ID:	**CAMO-13-24251**			**Prep Basis:**	**As Received**
Batch ID:	**22392**	**Method:**	**SW846 8290A**		
Run Date:	**12/01/2012 23:11**	**Analyst:**	**MJC**	**Instrument:**	**HRP763**
Data File:	**b30nov12a_5-4**			**Dilution:**	**1**
Prep Batch:	**22389**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**28-NOV-12**	**Aliquot:**	**917 mL**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	1.09		pg/L	1.09	10.9
40321-76-4	1,2,3,7,8-PeCDD	U	5.45		pg/L	5.45	54.5
39227-28-6	1,2,3,4,7,8-HxCDD	U	5.45		pg/L	5.45	54.5
57653-85-7	1,2,3,6,7,8-HxCDD	U	5.45		pg/L	5.45	54.5
19408-74-3	1,2,3,7,8,9-HxCDD	U	5.45		pg/L	5.45	54.5
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	5.45		pg/L	5.45	54.5
3268-87-9	1,2,3,4,6,7,8,9-OCDD	U	10.9		pg/L	10.9	109
51207-31-9	2,3,7,8-TCDF	U	1.09		pg/L	1.09	10.9
57117-41-6	1,2,3,7,8-PeCDF	U	5.45		pg/L	5.45	54.5
57117-31-4	2,3,4,7,8-PeCDF	U	5.45		pg/L	5.45	54.5
70648-26-9	1,2,3,4,7,8-HxCDF	U	5.45		pg/L	5.45	54.5
57117-44-9	1,2,3,6,7,8-HxCDF	U	5.45		pg/L	5.45	54.5
60851-34-5	2,3,4,6,7,8-HxCDF	U	5.45		pg/L	5.45	54.5
72918-21-9	1,2,3,7,8,9-HxCDF	U	5.45		pg/L	5.45	54.5
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	5.45		pg/L	5.45	54.5
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	5.45		pg/L	5.45	54.5
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	10.9		pg/L	10.9	109
41903-57-5	Total TCDDs	U	1.09		pg/L	1.09	10.9
36088-22-9	Total PeCDDs	U	5.45		pg/L	5.45	54.5
34465-46-8	Total HxCDDs	U	5.45		pg/L	5.45	54.5
37871-00-4	Total HpCDDs	U	5.45		pg/L	5.45	54.5
30402-14-3	Total TCDFs	U	1.09		pg/L	1.09	10.9
30402-15-4	Total PeCDFs	U	5.45		pg/L	5.45	54.5
55684-94-1	Total HxCDFs	U	5.45		pg/L	5.45	54.5
38998-75-3	Total HpCDFs	U	5.45		pg/L	5.45	54.5
3333-30-0	TEQ WHO2005 ND=0		0.00	0.00	pg/L		
3333-30-1	TEQ WHO2005 ND=0.5		6.22	6.22	pg/L		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1720	2180	pg/L	79.0	(40%-135%)
13C-1,2,3,7,8-PeCDD		1770	2180	pg/L	81.3	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		1570	2180	pg/L	71.9	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		1850	2180	pg/L	84.9	(40%-135%)
13C-OCDD		3610	4360	pg/L	82.8	(40%-135%)
13C-2,3,7,8-TCDF		1700	2180	pg/L	77.8	(40%-135%)
13C-1,2,3,7,8-PeCDF		1800	2180	pg/L	82.5	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		1530	2180	pg/L	70.3	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		1680	2180	pg/L	77.2	(40%-135%)

Comments:

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**2013-352**	**Client:**	**LANL001**	**Project:**	**LANL00112**
Lab Sample ID:	**4219002**	**Date Collected:**	**11/15/2012 14:59**	**Matrix:**	**WATER**
Client Sample:	**8290 Water**	**Date Received:**	**11/17/2012 11:40**		
Client ID:	**CAMO-13-24252**			**Prep Basis:**	**As Received**
Batch ID:	**22392**	**Method:**	**SW846 8290A**		
Run Date:	**12/01/2012 23:57**	**Analyst:**	**MJC**	**Instrument:**	**HRP763**
Data File:	**b30nov12a_5-5**			**Dilution:**	**1**
Prep Batch:	**22389**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**28-NOV-12**	**Aliquot:**	**922.8 mL**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	1.08		pg/L	1.08	10.8
40321-76-4	1,2,3,7,8-PeCDD	U	5.42		pg/L	5.42	54.2
39227-28-6	1,2,3,4,7,8-HxCDD	U	5.42		pg/L	5.42	54.2
57653-85-7	1,2,3,6,7,8-HxCDD	U	5.42		pg/L	5.42	54.2
19408-74-3	1,2,3,7,8,9-HxCDD	U	5.42		pg/L	5.42	54.2
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	5.42		pg/L	5.42	54.2
3268-87-9	1,2,3,4,6,7,8,9-OCDD	U	10.8		pg/L	10.8	108
51207-31-9	2,3,7,8-TCDF	U	1.08		pg/L	1.08	10.8
57117-41-6	1,2,3,7,8-PeCDF	U	5.42		pg/L	5.42	54.2
57117-31-4	2,3,4,7,8-PeCDF	U	5.42		pg/L	5.42	54.2
70648-26-9	1,2,3,4,7,8-HxCDF	U	5.42		pg/L	5.42	54.2
57117-44-9	1,2,3,6,7,8-HxCDF	U	5.42		pg/L	5.42	54.2
60851-34-5	2,3,4,6,7,8-HxCDF	U	5.42		pg/L	5.42	54.2
72918-21-9	1,2,3,7,8,9-HxCDF	U	5.42		pg/L	5.42	54.2
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	5.42		pg/L	5.42	54.2
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	5.42		pg/L	5.42	54.2
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	10.8		pg/L	10.8	108
41903-57-5	Total TCDDs	U	1.08		pg/L	1.08	10.8
36088-22-9	Total PeCDDs	U	5.42		pg/L	5.42	54.2
34465-46-8	Total HxCDDs	U	5.42		pg/L	5.42	54.2
37871-00-4	Total HpCDDs	U	5.42		pg/L	5.42	54.2
30402-14-3	Total TCDFs	U	1.08		pg/L	1.08	10.8
30402-15-4	Total PeCDFs	U	5.42		pg/L	5.42	54.2
55684-94-1	Total HxCDFs	U	5.42		pg/L	5.42	54.2
38998-75-3	Total HpCDFs	U	5.42		pg/L	5.42	54.2
3333-30-0	TEQ WHO2005 ND=0		0.00	0.00	pg/L		
3333-30-1	TEQ WHO2005 ND=0.5		6.18	6.18	pg/L		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1790	2170	pg/L	82.6	(40%-135%)
13C-1,2,3,7,8-PeCDD		1830	2170	pg/L	84.6	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		1620	2170	pg/L	74.6	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		1830	2170	pg/L	84.3	(40%-135%)
13C-OCDD		3700	4330	pg/L	85.4	(40%-135%)
13C-2,3,7,8-TCDF		1760	2170	pg/L	81.1	(40%-135%)
13C-1,2,3,7,8-PeCDF		1940	2170	pg/L	89.7	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		1570	2170	pg/L	72.4	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		1750	2170	pg/L	80.7	(40%-135%)

Comments:

U Analyte was analyzed for , but not detected above the specified detection limit.

Quality Control Summary

Hi-Res Dioxins/Furans

Surrogate Recovery Report

SDG Number: 2013-352

Matrix Type: LIQUID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12007121	LCS for batch 22389	13C-2,3,7,8-TCDD		75.6	(40%-135%)
		13C-1,2,3,7,8-PeCDD		79.3	(40%-135%)
		13C-1,2,3,6,7,8-HxCDD		71.1	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDD		83.2	(40%-135%)
		13C-OCDD		83.1	(40%-135%)
		13C-2,3,7,8-TCDF		75.3	(40%-135%)
		13C-1,2,3,7,8-PeCDF		77.5	(40%-135%)
		13C-1,2,3,6,7,8-HxCDF		68.4	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDF		73.8	(40%-135%)
12007122	LCSD for batch 22389	13C-2,3,7,8-TCDD		81.0	(40%-135%)
		13C-1,2,3,7,8-PeCDD		80.1	(40%-135%)
		13C-1,2,3,6,7,8-HxCDD		71.1	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDD		83.5	(40%-135%)
		13C-OCDD		84.8	(40%-135%)
		13C-2,3,7,8-TCDF		79.6	(40%-135%)
		13C-1,2,3,7,8-PeCDF		79.4	(40%-135%)
		13C-1,2,3,6,7,8-HxCDF		70.4	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDF		75.6	(40%-135%)
12007120	MB for batch 22389	13C-2,3,7,8-TCDD		83.7	(40%-135%)
		13C-1,2,3,7,8-PeCDD		84.2	(40%-135%)
		13C-1,2,3,6,7,8-HxCDD		75.1	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDD		90.7	(40%-135%)
		13C-OCDD		96.9	(40%-135%)
		13C-2,3,7,8-TCDF		81.7	(40%-135%)
		13C-1,2,3,7,8-PeCDF		83.6	(40%-135%)
		13C-1,2,3,6,7,8-HxCDF		74.2	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDF		80.3	(40%-135%)
4219001	CAMO-13-24251	13C-2,3,7,8-TCDD		79.0	(40%-135%)
		13C-1,2,3,7,8-PeCDD		81.3	(40%-135%)
		13C-1,2,3,6,7,8-HxCDD		71.9	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDD		84.9	(40%-135%)
		13C-OCDD		82.8	(40%-135%)
		13C-2,3,7,8-TCDF		77.8	(40%-135%)
		13C-1,2,3,7,8-PeCDF		82.5	(40%-135%)
		13C-1,2,3,6,7,8-HxCDF		70.3	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDF		77.2	(40%-135%)
4219002	CAMO-13-24252	13C-2,3,7,8-TCDD		82.6	(40%-135%)
		13C-1,2,3,7,8-PeCDD		84.6	(40%-135%)
		13C-1,2,3,6,7,8-HxCDD		74.6	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDD		84.3	(40%-135%)
		13C-OCDD		85.4	(40%-135%)
		13C-2,3,7,8-TCDF		81.1	(40%-135%)
		13C-1,2,3,7,8-PeCDF		89.7	(40%-135%)
		13C-1,2,3,6,7,8-HxCDF		72.4	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDF		80.7	(40%-135%)

* Recovery outside Acceptance Limits

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: 2013-352

Matrix Type: LIQUID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-352
Client ID: LCS for batch 22389
Lab Sample ID: 12007121
Instrument: HRP763
Analyst: MJC

Sample Type: Laboratory Control Sample
Matrix: WATER
Analysis Date: 12/01/2012 20:56
Dilution: 1
Prep Batch ID: 22389
Batch ID: 22392

CAS No.		Parmname	Amount Added pg/L	Spike Conc. pg/L	Recovery %	Acceptance Limits
1746-01-6	LCS	2,3,7,8-TCDD	200	191	95.5	70-130
40321-76-4	LCS	1,2,3,7,8-PeCDD	1000	1000	100	70-130
39227-28-6	LCS	1,2,3,4,7,8-HxCDD	1000	1030	103	70-130
57653-85-7	LCS	1,2,3,6,7,8-HxCDD	1000	999	99.9	70-130
19408-74-3	LCS	1,2,3,7,8,9-HxCDD	1000	1080	108	70-130
35822-46-9	LCS	1,2,3,4,6,7,8-HpCDD	1000	948	94.8	70-130
3268-87-9	LCS	1,2,3,4,6,7,8,9-OCDD	2000	1930	96.7	70-130
51207-31-9	LCS	2,3,7,8-TCDF	200	197	98.7	70-130
57117-41-6	LCS	1,2,3,7,8-PeCDF	1000	997	99.7	70-130
57117-31-4	LCS	2,3,4,7,8-PeCDF	1000	1020	102	70-130
70648-26-9	LCS	1,2,3,4,7,8-HxCDF	1000	1010	101	70-130
57117-44-9	LCS	1,2,3,6,7,8-HxCDF	1000	1030	103	70-130
60851-34-5	LCS	2,3,4,6,7,8-HxCDF	1000	1040	104	70-130
72918-21-9	LCS	1,2,3,7,8,9-HxCDF	1000	1030	103	70-130
67562-39-4	LCS	1,2,3,4,6,7,8-HpCDF	1000	997	99.7	70-130
55673-89-7	LCS	1,2,3,4,7,8,9-HpCDF	1000	970	97	70-130
39001-02-0	LCS	1,2,3,4,6,7,8,9-OCDF	2000	1820	91.2	70-130

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-352
Client ID: LCSD for batch 22389
Lab Sample ID: 12007122
Instrument: HRP763
Analyst: MJC

Sample Type: Laboratory Control Sample Duplicate
Matrix: WATER
Analysis Date: 12/01/2012 21:40
Dilution: 1
Prep Batch ID: 22389
Batch ID: 22392

CAS No.		Parmname	Amount Added pg/L	Spike Conc. pg/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD	2,3,7,8-TCDD	200	193	96.6	70-130	1.12	0-20
40321-76-4	LCSD	1,2,3,7,8-PeCDD	1000	1010	101	70-130	1.05	0-20
39227-28-6	LCSD	1,2,3,4,7,8-HxCDD	1000	1060	106	70-130	2.84	0-20
57653-85-7	LCSD	1,2,3,6,7,8-HxCDD	1000	1040	104	70-130	4.38	0-20
19408-74-3	LCSD	1,2,3,7,8,9-HxCDD	1000	1110	111	70-130	2.82	0-20
35822-46-9	LCSD	1,2,3,4,6,7,8-HpCDD	1000	973	97.3	70-130	2.54	0-20
3268-87-9	LCSD	1,2,3,4,6,7,8,9-OCDD	2000	1940	96.8	70-130	0.138	0-20
51207-31-9	LCSD	2,3,7,8-TCDF	200	202	101	70-130	2.30	0-20
57117-41-6	LCSD	1,2,3,7,8-PeCDF	1000	1020	102	70-130	2.61	0-20
57117-31-4	LCSD	2,3,4,7,8-PeCDF	1000	1020	102	70-130	0.0138	0-20
70648-26-9	LCSD	1,2,3,4,7,8-HxCDF	1000	1030	103	70-130	1.42	0-20
57117-44-9	LCSD	1,2,3,6,7,8-HxCDF	1000	1070	107	70-130	3.57	0-20
60851-34-5	LCSD	2,3,4,6,7,8-HxCDF	1000	1060	106	70-130	1.44	0-20
72918-21-9	LCSD	1,2,3,7,8,9-HxCDF	1000	1080	108	70-130	4.79	0-20
67562-39-4	LCSD	1,2,3,4,6,7,8-HpCDF	1000	1000	100	70-130	0.779	0-20
55673-89-7	LCSD	1,2,3,4,7,8,9-HpCDF	1000	980	98	70-130	1.11	0-20
39001-02-0	LCSD	1,2,3,4,6,7,8,9-OCDF	2000	1840	92.2	70-130	1.07	0-20

Method Blank Summary

SDG Number:	**2013-352**	**Client:**	**LANL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 22389**	**Instrument ID:**	**HRP763**	**Data File:**	**b30nov12a_5-3**
Lab Sample ID:	**12007120**	**Prep Date:**	**28-NOV-12**	**Analyzed:**	**12/01/12 22:26**
Column:					

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 22389	12007121	b30nov12a_5-1	12/01/12	2056
02	LCSD for batch 22389	12007122	b30nov12a_5-2	12/01/12	2140
03	CAMO-13-24251	4219001	b30nov12a_5-4	12/01/12	2311
04	CAMO-13-24252	4219002	b30nov12a_5-5	12/01/12	2357

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**2013-352**	**Client:**	**LANL001**	**Project:**	**LANL00112**
Lab Sample ID:	**12007120**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 22389**				
Client ID:	**MB for batch 22389**			**Prep Basis:**	**As Received**
Batch ID:	**22392**	**Method:**	**SW846 8290A**		
Run Date:	**12/01/2012 22:26**	**Analyst:**	**MJC**	**Instrument:**	**HRP763**
Data File:	**b30nov12a_5-3**			**Dilution:**	**1**
Prep Batch:	**22389**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**28-NOV-12**	**Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	1		pg/L	1.00	10.0
40321-76-4	1,2,3,7,8-PeCDD	U	5		pg/L	5.00	50.0
39227-28-6	1,2,3,4,7,8-HxCDD	U	5		pg/L	5.00	50.0
57653-85-7	1,2,3,6,7,8-HxCDD	U	5		pg/L	5.00	50.0
19408-74-3	1,2,3,7,8,9-HxCDD	U	5		pg/L	5.00	50.0
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	5		pg/L	5.00	50.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD	U	10		pg/L	10.0	100
51207-31-9	2,3,7,8-TCDF	U	1		pg/L	1.00	10.0
57117-41-6	1,2,3,7,8-PeCDF	U	5		pg/L	5.00	50.0
57117-31-4	2,3,4,7,8-PeCDF	U	5		pg/L	5.00	50.0
70648-26-9	1,2,3,4,7,8-HxCDF	U	5		pg/L	5.00	50.0
57117-44-9	1,2,3,6,7,8-HxCDF	U	5		pg/L	5.00	50.0
60851-34-5	2,3,4,6,7,8-HxCDF	U	5		pg/L	5.00	50.0
72918-21-9	1,2,3,7,8,9-HxCDF	U	5		pg/L	5.00	50.0
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	5		pg/L	5.00	50.0
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	5		pg/L	5.00	50.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	10		pg/L	10.0	100
41903-57-5	Total TCDDs	U	1		pg/L	1.00	10.0
36088-22-9	Total PeCDDs	U	5		pg/L	5.00	50.0
34465-46-8	Total HxCDDs	U	5		pg/L	5.00	50.0
37871-00-4	Total HpCDDs	U	5		pg/L	5.00	50.0
30402-14-3	Total TCDFs	U	1		pg/L	1.00	10.0
30402-15-4	Total PeCDFs	U	5		pg/L	5.00	50.0
55684-94-1	Total HxCDFs	U	5		pg/L	5.00	50.0
38998-75-3	Total HpCDFs	U	5		pg/L	5.00	50.0
3333-30-0	TEQ WHO2005 ND=0		0.00	0.00	pg/L		
3333-30-1	TEQ WHO2005 ND=0.5		5.70	5.70	pg/L		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1670	2000	pg/L	83.7	(40%-135%)
13C-1,2,3,7,8-PeCDD		1680	2000	pg/L	84.2	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		1500	2000	pg/L	75.1	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		1810	2000	pg/L	90.7	(40%-135%)
13C-OCDD		3880	4000	pg/L	96.9	(40%-135%)
13C-2,3,7,8-TCDF		1630	2000	pg/L	81.7	(40%-135%)
13C-1,2,3,7,8-PeCDF		1670	2000	pg/L	83.6	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		1480	2000	pg/L	74.2	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		1610	2000	pg/L	80.3	(40%-135%)

Comments:

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**2013-352**	**Client:**	**LANL001**	**Project:**	**LANL00112**
Lab Sample ID:	**12007121**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 22389**				
Client ID:	**LCS for batch 22389**			**Prep Basis:**	**As Received**
Batch ID:	**22392**	**Method:**	**SW846 8290A**		
Run Date:	**12/01/2012 20:56**	**Analyst:**	**MJC**	**Instrument:**	**HRP763**
Data File:	**b30nov12a_5-1**			**Dilution:**	**1**
Prep Batch:	**22389**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**28-NOV-12**	**Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		191		pg/L	1.00	10.0
40321-76-4	1,2,3,7,8-PeCDD		1000		pg/L	5.00	50.0
39227-28-6	1,2,3,4,7,8-HxCDD		1030		pg/L	5.00	50.0
57653-85-7	1,2,3,6,7,8-HxCDD		999		pg/L	5.00	50.0
19408-74-3	1,2,3,7,8,9-HxCDD		1080		pg/L	5.00	50.0
35822-46-9	1,2,3,4,6,7,8-HpCDD		948		pg/L	5.00	50.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1930		pg/L	10.0	100
51207-31-9	2,3,7,8-TCDF		197		pg/L	1.00	10.0
57117-41-6	1,2,3,7,8-PeCDF		997		pg/L	5.00	50.0
57117-31-4	2,3,4,7,8-PeCDF		1020		pg/L	5.00	50.0
70648-26-9	1,2,3,4,7,8-HxCDF		1010		pg/L	5.00	50.0
57117-44-9	1,2,3,6,7,8-HxCDF		1030		pg/L	5.00	50.0
60851-34-5	2,3,4,6,7,8-HxCDF		1040		pg/L	5.00	50.0
72918-21-9	1,2,3,7,8,9-HxCDF		1030		pg/L	5.00	50.0
67562-39-4	1,2,3,4,6,7,8-HpCDF		997		pg/L	5.00	50.0
55673-89-7	1,2,3,4,7,8,9-HpCDF		970		pg/L	5.00	50.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF		1820		pg/L	10.0	100

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1510	2000	pg/L	75.6	(40%-135%)
13C-1,2,3,7,8-PeCDD		1590	2000	pg/L	79.3	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		1420	2000	pg/L	71.1	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		1660	2000	pg/L	83.2	(40%-135%)
13C-OCDD		3330	4000	pg/L	83.1	(40%-135%)
13C-2,3,7,8-TCDF		1510	2000	pg/L	75.3	(40%-135%)
13C-1,2,3,7,8-PeCDF		1550	2000	pg/L	77.5	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		1370	2000	pg/L	68.4	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		1480	2000	pg/L	73.8	(40%-135%)

Comments:

K Estimated Maximum Possible Concentration

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**2013-352**	**Client:**	**LANL001**	**Project:**	**LANL00112**
Lab Sample ID:	**12007122**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 22389**				
Client ID:	**LCSD for batch 22389**			**Prep Basis:**	**As Received**
Batch ID:	**22392**	**Method:**	**SW846 8290A**		
Run Date:	**12/01/2012 21:40**	**Analyst:**	**MJC**	**Instrument:**	**HRP763**
Data File:	**b30nov12a_5-2**			**Dilution:**	**1**
Prep Batch:	**22389**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**28-NOV-12**	**Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		193		pg/L	1.00	10.0
40321-76-4	1,2,3,7,8-PeCDD		1010		pg/L	5.00	50.0
39227-28-6	1,2,3,4,7,8-HxCDD		1060		pg/L	5.00	50.0
57653-85-7	1,2,3,6,7,8-HxCDD		1040		pg/L	5.00	50.0
19408-74-3	1,2,3,7,8,9-HxCDD		1110		pg/L	5.00	50.0
35822-46-9	1,2,3,4,6,7,8-HpCDD		973		pg/L	5.00	50.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1940		pg/L	10.0	100
51207-31-9	2,3,7,8-TCDF		202		pg/L	1.00	10.0
57117-41-6	1,2,3,7,8-PeCDF		1020		pg/L	5.00	50.0
57117-31-4	2,3,4,7,8-PeCDF		1020		pg/L	5.00	50.0
70648-26-9	1,2,3,4,7,8-HxCDF		1030		pg/L	5.00	50.0
57117-44-9	1,2,3,6,7,8-HxCDF		1070		pg/L	5.00	50.0
60851-34-5	2,3,4,6,7,8-HxCDF		1060		pg/L	5.00	50.0
72918-21-9	1,2,3,7,8,9-HxCDF		1080		pg/L	5.00	50.0
67562-39-4	1,2,3,4,6,7,8-HpCDF		1000		pg/L	5.00	50.0
55673-89-7	1,2,3,4,7,8,9-HpCDF		980		pg/L	5.00	50.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF		1840		pg/L	10.0	100

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1620	2000	pg/L	81.0	(40%-135%)
13C-1,2,3,7,8-PeCDD		1600	2000	pg/L	80.1	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		1420	2000	pg/L	71.1	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		1670	2000	pg/L	83.5	(40%-135%)
13C-OCDD		3390	4000	pg/L	84.8	(40%-135%)
13C-2,3,7,8-TCDF		1590	2000	pg/L	79.6	(40%-135%)
13C-1,2,3,7,8-PeCDF		1590	2000	pg/L	79.4	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		1410	2000	pg/L	70.4	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		1510	2000	pg/L	75.6	(40%-135%)

Comments:

K Estimated Maximum Possible Concentration

General Engineering Laboratories, Inc.
2040 Savage Road
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-334

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8082-PCB	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-8321A-NMED HEXP	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-HEXMOD	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CAMO-13-24251	Nov 15 2012	11:51	W	3	2	3	3			1	2			1	1	
CAMO-13-24268	Nov 15 2012	11:51	W					1	1			1	1			
CAMO-13-24234	Nov 15 2012	11:51	W		2											
CAMO-13-24235	Nov 15 2012	14:59	W		2											
CAMO-13-24269	Nov 15 2012	14:59	W					1	1			1	1			
CAMO-13-24252	Nov 15 2012	14:59	W	3	2	3	3			1	2			1	1	

Special Instructions:

Relinquished by: Glen Sherwood	S. Sherwood	Date/Time: 11/16/12 3pm	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24251

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/15/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1151	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S1	↓	FIELD PREP:	UF	OR
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P1A		SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	3	ICE	Y	NA
↓	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	↓	↓
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE	↓	↓
↓	WSP-8290-D/F	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-8321A-NMED HEXP	1 LITER AMBER GLASS	3	ICE	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-HEXMOD	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

Analyses continued on next page

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID:	4030	**EVENT NAME:**	Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD
SAMPLE ID:	CAMO-13-24251	**WORK ORDER:**	NA

SAMPLE COMMENTS: Samples collected within 50 ft of diesel generator.

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 4.77 mg/L Oxidation-Reduction Potential 202.1 MV pH 6.53 SU

Specific Conductance 180 uS/cm Temperature 19.40 deg C Turbidity 4.55 NTU

COLLECTED BY (PRINT) A. Stocker

RELINQUISHED BY (Printed Name) Megan Green (Signature)	**Date/Time** 11/15/12 1600	**RECEIVED BY** (Printed Name) S Sherwood (Signature) Sharon Sherwood	**Date/Time** 11/15/12 1600
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24268 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/15/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		151	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S1	↓	FIELD PREP:	F	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P1A	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
↓	WSP-GENINORG	1 LITER POLY	1	ICE	↓	↓
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: See CAMO-13-24251

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) A. Stoper

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
Megan Green	11/15/12 1600	S Sherwood	11/15/12 1600
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24234

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/15/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1151	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID: R-61 S1		↓	FIELD PREP:	UF	ok
LOCATION TYPE:		↓	FIELD QC TYPE:	FTB	↓
PORT: P1A		↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL 1 OF 11/6/12	Y	NA

SAMPLE COMMENTS: See CAMU-13-24251

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) A. Stocker

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Morgan Green (Signature)	11/15/12 1600	(Printed Name) S. Henwood (Signature)	11/15/12 1600
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24252 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/15/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1459	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSM
LOCATION ID:	R-61 S2	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P2A	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	3	ICE	Y	NA
↓	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	↓	↓
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE	↓	↓
↓	WSP-8290-D/F	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-8321A-NMED HEXP	1 LITER AMBER GLASS	3	ICE	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-HEXMOD	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

Analyses continued on next page

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID:	4030	**EVENT NAME:**	Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD
SAMPLE ID:	CAMO-13-24252	**WORK ORDER:**	NA

SAMPLE COMMENTS: Samples collected within 50-ft of diesel generator

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 3.34 mg/L Oxidation-Reduction Potential -48.7 MV pH 6.46 SU

Specific Conductance 199 uS/cm Temperature 19.28 deg C Turbidity 6.19 NTU

COLLECTED BY (PRINT) A. Stacher, W. Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Megan Green (Signature)	11/15/12 1600	(Printed Name) S. Sherwood (Signature)	11/15/12 1600
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24269 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/15/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1459	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S2	↓	FIELD PREP:	F	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P2A	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
↓	WSP-GENINORG	1 LITER POLY	1	ICE	↓	↓
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: see CAMO-13-24252

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) A. Stocker, W. Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Morgan Gross (Signature)	11/15 1600	(Printed Name) S. Sherwood (Signature) Sherri Sherwood	11/15/12 1600
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24235

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/15/2012	FIELD MATRIX:	WG	GK
TIME COLLECTED (HH:MM):		1451	MEDIA:	UA	↓
PRS ID:		GK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S2	↓	FIELD PREP:	UF	GR
LOCATION TYPE:		↓	FIELD QC TYPE:	FTB	↓
PORT:	P2A	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	~~2~~ 1	HCL DF 11/6/12	Y	NOT

SAMPLE COMMENTS: See CAMO-13-24252

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT)

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
[illegible]	11/15/12 1600	S. Sherwood	11/15/12 1600
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-334

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
315450	EPA:120.1	2				
315450	EPA:150.1	2				
315450	EPA:160.1	2				
315450	EPA:245.2	2				
315450	EPA:300.0	2				
315450	EPA:310.1	2				
315450	EPA:350.1	2				
315450	EPA:351.2	2				
315450	EPA:353.2	2				
315450	EPA:365.4	2				
315450	EPA:900	2				
315450	EPA:901.1	2				
315450	EPA:905.0	2				
315450	HASL-300:AM-241	2				
315450	HASL-300:ISOPU	2				
315450	HASL-300:ISOU	2				
315450	SM:A2340B	2				
315450	SW-846:6010B	2				
315450	SW-846:6020	2				
315450	SW-846:6850	2				
315450	SW-846:8082	2				
315450	SW-846:8260B	2		2		
315450	SW-846:8270C	2				
315450	SW-846:8321A_MOD	2				
315450	SW-846:9060	2				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
315450	EPA:120.1	1267060	1267060	2							
315450	EPA:150.1	1265360	1265360	2							
315450	EPA:160.1	1264462	1264462	1					1		
315450	EPA:160.1	1264928	1264928	1					1		
315450	EPA:245.2	1268112	1268111	2					1	1	
315450	EPA:300.0	1264118	1264118	2					1		
315450	EPA:310.1	1266562	1266562	2					2	1	
315450	EPA:350.1	1265956	1265955	2					1	1	1
315450	EPA:351.2	1265958	1265957	2					1	1	
315450	EPA:353.2	1265759	1265759	2					1		
315450	EPA:365.4	1263579	1263578	2					1	1	1
315450	EPA:900	1268150	1268150	2					1	1	1
315450	EPA:901.1	1264174	1264174	2					1		
315450	EPA:905.0	1264650	1264650	2					1	1	
315450	HASL-300:AM-241	1264269	1264269	2					1		
315450	HASL-300:ISOPU	1264270	1264270	2					1		
315450	HASL-300:ISOU	1264271	1264271	2					1		
315450	SM:A2340B	1270221	1270221	2							
315450	SW-846:6010B	1264954	1264953	2					1	1	

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				1			
		1				1			
		1				2			
		1				1			
		1				1			
		1				1			
		2				1			
		1				1			
		1				1			
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			

315450	SW-846:6020	1264956	1264955	2					1	1	
315450	SW-846:6850	1265809	1265808	2					1	2	2
315450	SW-846:8082	1265739	1265738	2					1	1	1
315450	SW-846:8260B	1266476	1266476	2		2			2		
315450	SW-846:8270C	1264519	1264517	2					1	1	1
315450	SW-846:8270C	1266073	1266072	1					1		
315450	SW-846:8321A_MOD	1264448	1264447	2					1	1	1
315450	SW-846:9060	1265851	1265851	2					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24268	315450004	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24269	315450007	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CASA-13-24219	1202788865	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202788867	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24268	315450004	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24269	315450007	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24219	1202784743	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202784744	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24268	1202784567	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24268	315450004	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24269	315450007	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CASA-13-24219	1202782758	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202782760	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202783778	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202782757	MB	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202783776	MB	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	SWWS46-13-24772	1202782759	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24268	315450004	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24269	315450007	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24282	1202791369	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24282	1202791370	MS	0	0	1	0
EPA:245.2	INORGANIC	LCS	1202791368	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202791367	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24268	315450004	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24269	315450007	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CASA-13-24218	1202781991	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202781993	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202781990	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24268	1202787691	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24268	1202787695	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24268	315450004	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24269	315450007	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202787698	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202787699	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202787688	MB	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202787689	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24268	315450004	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24269	315450007	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	1202786154	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	1202786155	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	1202786156	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202786157	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202786153	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24251	315450003	REG	1	0	0	0

		1				1			
		1							
		1							
		4							
		1							
		1	1						
		1							
		1				1			

EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24252	315450010	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24210	1202786159	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24210	1202786161	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202786165	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202786158	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24268	1202785634	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24268	315450004	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24269	315450007	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24282	1202785635	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202785638	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202785633	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24268	315450004	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24269	315450007	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	1202786124	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	1202786125	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	1202786126	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202780727	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202780723	MB	1	0	0	0
EPA:900	RAD	CAMO-13-24249	1202791496	DUP	2	0	0	0
EPA:900	RAD	CAMO-13-24249	1202791497	MS	0	0	2	0
EPA:900	RAD	CAMO-13-24249	1202791498	MSD	0	0	2	0
EPA:900	RAD	CAMO-13-24251	315450003	REG	2	0	0	0
EPA:900	RAD	CAMO-13-24252	315450010	REG	2	0	0	0
EPA:900	RAD	LCS	1202791499	LCS	0	0	2	0
EPA:900	RAD	MB	1202791495	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24251	315450003	REG	5	0	0	0
EPA:901.1	RAD	CAMO-13-24252	315450010	REG	5	0	0	0
EPA:901.1	RAD	CASA-13-24212	1202782105	DUP	6	0	0	0
EPA:901.1	RAD	LCS	1202782106	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202782104	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24251	315450003	REG	1	0	0	0
EPA:905.0	RAD	CAMO-13-24252	315450010	REG	1	0	0	0
EPA:905.0	RAD	CASA-13-24206	1202783219	DUP	1	0	0	0
EPA:905.0	RAD	CASA-13-24206	1202783220	MS	0	0	1	0
EPA:905.0	RAD	LCS	1202783221	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202783218	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24251	315450003	REG	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24252	315450010	REG	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24271	1202782356	DUP	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202782357	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202782355	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24251	315450003	REG	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24252	315450010	REG	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24271	1202782359	DUP	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202782360	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202782358	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24251	315450003	REG	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24252	315450010	REG	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24271	1202782362	DUP	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202782363	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202782361	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24268	315450004	REG	1	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24269	315450007	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24268	315450004	REG	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24269	315450007	REG	17	0	0	0
SW-846:6010B	INORGANIC	CAPA-13-24782	1202783824	DUP	22	0	0	0
SW-846:6010B	INORGANIC	CAPA-13-24782	1202783825	MS	0	0	22	0

SW-846:6010B	INORGANIC	LCS	1202783823	LCS	0	0	22	0
SW-846:6010B	INORGANIC	MB	1202783822	MB	22	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24268	315450004	REG	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24269	315450007	REG	11	0	0	0
SW-846:6020	INORGANIC	CASA-13-24218	1202783829	DUP	13	0	0	0
SW-846:6020	INORGANIC	CASA-13-24218	1202783830	MS	0	0	13	0
SW-846:6020	INORGANIC	LCS	1202783828	LCS	0	0	13	0
SW-846:6020	INORGANIC	MB	1202783827	MB	13	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24268	1202785742	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24268	1202785743	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24268	315450004	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24269	315450007	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202785741	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202785740	MB	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	WST50-12-23903	1202785744	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	WST50-12-23903	1202785745	MSD	0	0	1	0
SW-846:8082	PESTPCB	CAMO-13-24251	315450001	REG	8	2	0	0
SW-846:8082	PESTPCB	CAMO-13-24252	315450008	REG	8	2	0	0
SW-846:8082	PESTPCB	CAMO-13-24253	1202785590	MS	0	2	2	0
SW-846:8082	PESTPCB	CAMO-13-24253	1202785591	MSD	0	2	2	0
SW-846:8082	PESTPCB	LCS	1202785592	LCS	0	2	2	0
SW-846:8082	PESTPCB	MB	1202785589	MB	8	2	0	0
SW-846:8260B	VOC	CAMO-13-24234	315450005	FTB	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24235	315450006	FTB	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24251	315450002	REG	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24252	315450009	REG	80	3	0	0
SW-846:8260B	VOC	LCS	1202787467	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202787468	LCS	0	3	10	0
SW-846:8260B	VOC	LCS	1202788455	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202788456	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1202787464	MB	80	3	0	0
SW-846:8260B	VOC	MB	1202788454	MB	80	3	0	0
SW-846:8270C	SVOC	CAMO-13-24251	315450002	REG	160	12	0	0
SW-846:8270C	SVOC	CAMO-13-24252	315450009	REG	80	6	0	0
SW-846:8270C	SVOC	LCS	1202782901	LCS	0	6	76	0
SW-846:8270C	SVOC	LCS	1202786499	LCS	0	6	76	0
SW-846:8270C	SVOC	LCSD	1202786500	LCSD	0	6	76	0
SW-846:8270C	SVOC	MB	1202782898	MB	80	6	0	0
SW-846:8270C	SVOC	MB	1202786498	MB	80	6	0	0
SW-846:8270C	SVOC	WST50-12-23903	1202782899	MS	0	6	76	0
SW-846:8270C	SVOC	WST50-12-23903	1202782900	MSD	0	6	76	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAMO-13-24251	1202782741	MS	0	2	23	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAMO-13-24251	1202782742	MSD	0	2	23	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAMO-13-24251	315450003	REG	23	2	0	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAMO-13-24252	315450010	REG	23	2	0	0

SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	LCS	1202782740	LCS	0	2	23	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	MB	1202782739	MB	23	2	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24251	315450003	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24252	315450010	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CASA-13-24211	1202785853	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202785855	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202785852	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

No.

Any samples affected by the presence of contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

Field Sample ID	Lab Sample ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Percent Recovery	Upper Limit	Lower Limit	Rejection Limit
CAMO-13-24251	315450002	SW-846:8270C	Tribromophenol[2,4,6-]	1264519	11/21/2012	3	130	23	10

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CASA-13-24218	1202786155	1202786156	EPA:350.1	Ammonia as Nitrogen	1265955	11/27/2012	W	93.1	110	110	90
CASA-13-24210	1202786161		EPA:351.2	Total Kjeldahl Nitrogen	1265957	12/7/2012	W	88.1		110	90
CAMO-13-24251	1202782741	1202782742	SW-846:8321A_MOD	2,6-Diamino-4-nitrotoluene	1264447	12/6/2012	W	122	125	112	72

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

LCS Sample ID	LCSD Sample ID	Analytical Method	Parameter Name	Lab Lot ID	Analysis Date	Sample Matrix	LCS Recovery	LCSD Recovery	Upper Limit	Lower Limit	Lower Reject Limit
1202782901		SW-846:8270C	Dioxane[1,4-]	1264517	11/21/2012	W	34		69	41	10
1202782901		SW-846:8270C	Hexachlorocyclopentadiene	1264517	11/21/2012	W	34		79	38	10
1202786499	1202786500	SW-846:8270C	Benzidine	1266072	11/27/2012	W	0	7	124	19	10
1202786499	1202786500	SW-846:8270C	Hexachlorocyclopentadiene	1266072	11/27/2012	W	24	29	79	38	10
1202786499	1202786500	SW-846:8270C	Pyridine	1266072	11/27/2012	W	34	49	96	25	10

9. Any Field Duplicate RPDs outside the desired limits?

Rejection Limit	RPD	RPD Limit
10	15.9	15
10		
10	4	25

Upper Reject Limit	RPD	RPD Limit
	200	30
	17	30
	36	30

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Acenaphthene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Acenaphthylene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Aniline	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Anthracene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Atrazine	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Azobenzene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Benzidine	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	RE	SVOC	SW-846:8270C	Benzidine	U	R	SV12	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Benzo(a)anthracene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Benzo(a)pyrene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Benzo(b)fluoranthene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Benzo(g,h,i)perylene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Benzo(k)fluoranthene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Benzoic Acid	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Benzyl Alcohol	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Bis(2-chloroethoxy)methane	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Bis(2-chloroethyl)ether	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Bis(2-ethylhexyl)phthalate	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Bromophenyl-phenylether[4-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Butylbenzylphthalate	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Chloro-3-methylphenol[4-]	U	R	SV3	N

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
0.326	ug/L	0.326	ug/L			W	11/15/2012		1264519	VAL	Y
0.326	ug/L	0.326	ug/L			W	11/15/2012		1264519	VAL	Y
0.00246	pCi/L	0.00246	pCi/L	0.028	0.0055	W	11/15/2012		1264269	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
0.326	ug/L	0.326	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.16	ug/L	3.16	ug/L			W	11/15/2012		1266073	VAL	Y
0.326	ug/L	0.326	ug/L			W	11/15/2012		1264519	VAL	Y
0.478	ug/L	0.478	ug/L			W	11/15/2012		1264519	VAL	Y
0.326	ug/L	0.326	ug/L			W	11/15/2012		1264519	VAL	Y
0.326	ug/L	0.326	ug/L			W	11/15/2012		1264519	VAL	Y
0.326	ug/L	0.326	ug/L			W	11/15/2012		1264519	VAL	Y
6.52	ug/L	6.52	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
1.18	pCi/L	1.18	pCi/L	6.79	1.78	W	11/15/2012		1264174	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y

R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Chloroaniline[4-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Chloronaphthalene[2-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Chlorophenol[2-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Chlorophenyl-phenyl[4-] Ether	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Chrysene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Di-n-butylphthalate	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Di-n-octylphthalate	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Dibenz(a,h)anthracene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Dibenzofuran	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Dichlorobenzene[1,2-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Dichlorobenzene[1,3-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Dichlorobenzene[1,4-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Dichlorobenzidine[3,3'-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Dichlorophenol[2,4-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Diethylphthalate	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Dimethyl Phthalate	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Dimethylphenol[2,4-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Dinitro-2-methylphenol[4,6-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Dinitrophenol[2,4-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Dinitrotoluene[2,4-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Dinitrotoluene[2,6-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Dinoseb	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Dioxane[1,4-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Diphenylamine	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Fluoranthene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Fluorene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Hexachlorobenzene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Hexachlorobutadiene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	RE	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	UJ	SV12a	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Hexachloroethane	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Indeno(1,2,3-cd)pyrene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Isophorone	U	R	SV3	N

3.59	ug/L	3.59	ug/L			W	11/15/2012		1264519	VAL	Y
0.326	ug/L	0.326	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
0.326	ug/L	0.326	ug/L			W	11/15/2012		1264519	VAL	Y
-0.487	pCi/L	-0.487	pCi/L	5.2	1.39	W	11/15/2012		1264174	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
0.326	ug/L	0.326	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
5.43	ug/L	5.43	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
0.326	ug/L	0.326	ug/L			W	11/15/2012		1264519	VAL	Y
0.326	ug/L	0.326	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.16	ug/L	3.16	ug/L			W	11/15/2012		1266073	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
0.326	ug/L	0.326	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y

R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Methylnaphthalene [1-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Methylnaphthalene [2-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Methylphenol[2-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Methylphenol[4-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Naphthalene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Nitroaniline[2-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Nitroaniline[3-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Nitroaniline[4-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Nitrobenzene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Nitrophenol[2-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Nitrophenol[4-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Nitroso-di-n-butylamine[N-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Nitroso-di-n-propylamine[N-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Nitrosodiethylamine[N-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Nitrosodimethylamine[N-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Nitrosopyrrolidine[N-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Oxybis(1-chloropropane)[2,2'-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Pentachlorobenzene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Pentachlorophenol	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Phenanthrene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Phenol	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Pyrene	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Pyridine	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Tetrachlorobenzene [1,2,4,5]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Tetrachlorophenol[2,3,4,6-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Trichlorobenzene[1,2,4-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Trichlorophenol[2,4,5-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	SVOC	SW-846:8270C	Trichlorophenol[2,4,6-]	U	R	SV3	N
R-61 S1	2013-334	CAMO-13-24251	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-61 S2	2013-334	CAMO-13-24252	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-61 S2	2013-334	CAMO-13-24252	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-61 S2	2013-334	CAMO-13-24252	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N

0.326	ug/L	0.326	ug/L			W	11/15/2012		1264519	VAL	Y
0.326	ug/L	0.326	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
0.326	ug/L	0.326	ug/L			W	11/15/2012		1264519	VAL	Y
2.8	pCi/L	2.8	pCi/L	12.2	3.36	W	11/15/2012		1264174	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
0.326	ug/L	0.326	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
0.00309	pCi/L	0.00309	pCi/L	0.0297	0.00535	W	11/15/2012		1264270	VAL	Y
0.00309	pCi/L	0.00309	pCi/L	0.0493	0.0069	W	11/15/2012		1264270	VAL	Y
41.1	pCi/L	41.1	pCi/L	80.4	19.1	W	11/15/2012		1264174	VAL	Y
0.326	ug/L	0.326	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
0.865	pCi/L	0.865	pCi/L	5.25	1.45	W	11/15/2012		1264174	VAL	Y
-0.0396	pCi/L	-0.0396	pCi/L	0.486	0.131	W	11/15/2012		1264650	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
3.26	ug/L	3.26	ug/L			W	11/15/2012		1264519	VAL	Y
0.0037	pCi/L	0.0037	pCi/L	0.0434	0.00979	W	11/15/2012		1264271	VAL	Y
0.00325	pCi/L	0.00325	pCi/L	0.037	0.0086	W	11/15/2012		1264269	VAL	Y
1.02	pCi/L	1.02	pCi/L	6	1.61	W	11/15/2012		1264174	VAL	Y
2.88	pCi/L	2.88	pCi/L	6.47	1.47	W	11/15/2012		1264174	VAL	Y

R-61 S2	2013-334	CAMO-13-24252	REG	INIT	SVOC	SW-846:8270C	Dioxane[1,4-]	U	UJ	SV12a	N
R-61 S2	2013-334	CAMO-13-24252	REG	INIT	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	UJ	SV12a	N
R-61 S2	2013-334	CAMO-13-24252	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-61 S2	2013-334	CAMO-13-24252	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-61 S2	2013-334	CAMO-13-24252	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-61 S2	2013-334	CAMO-13-24252	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-61 S2	2013-334	CAMO-13-24252	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-61 S2	2013-334	CAMO-13-24252	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-61 S2	2013-334	CAMO-13-24252	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N

Reason Code	Description
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.
SV12	The LCS percent recovery was <10%. Follow the external laboratory limits located within the associated data package.
SV12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.
SV3	The surrogate is <10%R. Follow the external laboratory limits located within the associated data package.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24234	R-61 S1	FTB	SW-846:8260B	0	80
CAMO-13-24235	R-61 S2	FTB	SW-846:8260B	0	80
CAMO-13-24251	R-61 S1	REG	EPA:351.2	0	1
CAMO-13-24251	R-61 S1	REG	EPA:900	0	2
CAMO-13-24251	R-61 S1	REG	EPA:901.1	0	5
CAMO-13-24251	R-61 S1	REG	EPA:905.0	0	1
CAMO-13-24251	R-61 S1	REG	HASL-300:AM-241	0	1
CAMO-13-24251	R-61 S1	REG	HASL-300:ISOPU	0	2
CAMO-13-24251	R-61 S1	REG	HASL-300:ISOU	0	3
CAMO-13-24251	R-61 S1	REG	SW-846:8082	0	8
CAMO-13-24251	R-61 S1	REG	SW-846:8260B	0	80
CAMO-13-24251	R-61 S1	REG	SW-846:8270C	0	160
CAMO-13-24251	R-61 S1	REG	SW-846:8321A_MOD	0	23
CAMO-13-24251	R-61 S1	REG	SW-846:9060	0	1
CAMO-13-24252	R-61 S2	REG	EPA:351.2	0	1
CAMO-13-24252	R-61 S2	REG	EPA:900	0	2
CAMO-13-24252	R-61 S2	REG	EPA:901.1	0	5
CAMO-13-24252	R-61 S2	REG	EPA:905.0	0	1
CAMO-13-24252	R-61 S2	REG	HASL-300:AM-241	0	1
CAMO-13-24252	R-61 S2	REG	HASL-300:ISOPU	0	2
CAMO-13-24252	R-61 S2	REG	HASL-300:ISOU	0	3
CAMO-13-24252	R-61 S2	REG	SW-846:8082	0	8
CAMO-13-24252	R-61 S2	REG	SW-846:8260B	0	80
CAMO-13-24252	R-61 S2	REG	SW-846:8270C	0	80
CAMO-13-24252	R-61 S2	REG	SW-846:8321A_MOD	0	23
CAMO-13-24252	R-61 S2	REG	SW-846:9060	0	1
CAMO-13-24268	R-61 S1	REG	EPA:120.1	0	1

3.13	ug/L	3.13	ug/L			W	11/15/2012		1264519	VAL	Y
3.13	ug/L	3.13	ug/L			W	11/15/2012		1264519	VAL	Y
-1	pCi/L	-1	pCi/L	11	3.22	W	11/15/2012		1264174	VAL	Y
0.00786	pCi/L	0.00786	pCi/L	0.0252	0.00694	W	11/15/2012		1264270	VAL	Y
0.0105	pCi/L	0.0105	pCi/L	0.0418	0.00741	W	11/15/2012		1264270	VAL	Y
17.7	pCi/L	17.7	pCi/L	85.5	22	W	11/15/2012		1264174	VAL	Y
-0.572	pCi/L	-0.572	pCi/L	5.38	1.45	W	11/15/2012		1264174	VAL	Y
0.122	pCi/L	0.122	pCi/L	0.499	0.143	W	11/15/2012		1264650	VAL	Y
0	pCi/L	0	pCi/L	0.0475	0.00811	W	11/15/2012		1264271	VAL	Y

CAMO-13-24268	R-61 S1	REG	EPA:150.1	0	1
CAMO-13-24268	R-61 S1	REG	EPA:160.1	0	1
CAMO-13-24268	R-61 S1	REG	EPA:245.2	0	1
CAMO-13-24268	R-61 S1	REG	EPA:300.0	0	4
CAMO-13-24268	R-61 S1	REG	EPA:310.1	0	2
CAMO-13-24268	R-61 S1	REG	EPA:350.1	0	1
CAMO-13-24268	R-61 S1	REG	EPA:353.2	0	1
CAMO-13-24268	R-61 S1	REG	EPA:365.4	0	1
CAMO-13-24268	R-61 S1	REG	SM:A2340B	0	1
CAMO-13-24268	R-61 S1	REG	SW-846:6010B	0	17
CAMO-13-24268	R-61 S1	REG	SW-846:6020	0	11
CAMO-13-24268	R-61 S1	REG	SW-846:6850	0	1
CAMO-13-24269	R-61 S2	REG	EPA:120.1	0	1
CAMO-13-24269	R-61 S2	REG	EPA:150.1	0	1
CAMO-13-24269	R-61 S2	REG	EPA:160.1	0	1
CAMO-13-24269	R-61 S2	REG	EPA:245.2	0	1
CAMO-13-24269	R-61 S2	REG	EPA:300.0	0	4
CAMO-13-24269	R-61 S2	REG	EPA:310.1	0	2
CAMO-13-24269	R-61 S2	REG	EPA:350.1	0	1
CAMO-13-24269	R-61 S2	REG	EPA:353.2	0	1
CAMO-13-24269	R-61 S2	REG	EPA:365.4	0	1
CAMO-13-24269	R-61 S2	REG	SM:A2340B	0	1
CAMO-13-24269	R-61 S2	REG	SW-846:6010B	0	17
CAMO-13-24269	R-61 S2	REG	SW-846:6020	0	11
CAMO-13-24269	R-61 S2	REG	SW-846:6850	0	1

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

December 14, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 315450
SDG: 2013-334

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 17, 2012, and analyzed for Explosives by LCMSMS, GC Semivolatile PCB, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-334
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 315450
SDG: 2013-334

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....5

Data Review Qualifier Flag Definition Sheet.....12

Volatile Analysis.....14

Case Narrative.....15

Sample Data Summary.....20

Quality Control Summary.....33

Quality Control Data.....49

Miscellaneous.....65

Semi-Volatile Analysis.....67

Case Narrative.....68

Sample Data Summary.....77

Quality Control Summary.....87

Quality Control Data.....111

Miscellaneous.....133

Perchlorates by LCMSMS Analysis.....136

Case Narrative.....137

Sample Data Summary.....143

Quality Control Summary.....146

Quality Control Data.....149

Miscellaneous.....155
Explosives by LCMSMS Analysis.....157
Case Narrative.....158
Sample Data Summary.....166
Quality Control Summary.....173
Quality Control Data.....179
Miscellaneous.....208
PCB Analysis.....210
Case Narrative.....211
Sample Data Summary.....217
Quality Control Summary.....220
Quality Control Data.....226
Metals Analysis.....229
Case Narrative.....230
Sample Data Summary.....236
Quality Control Summary.....242
General Chem Analysis.....256
Case Narrative.....257
Sample Data Summary.....285
Quality Control Summary.....293
Miscellaneous.....298

Radiological Analysis.....303

Sample Data Summary.....315

Quality Control Data.....320

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 315450
SDG # : 2013-334

December 14, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 17, 2012 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers received for Gross A/B was preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). The containers for radiological test was received with temperature of 15,17c. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
315450001	CAMO-13-24251
315450002	CAMO-13-24251
315450003	CAMO-13-24251
315450004	CAMO-13-24268
315450005	CAMO-13-24234
315450006	CAMO-13-24235
315450007	CAMO-13-24269
315450008	CAMO-13-24252
315450009	CAMO-13-24252
315450010	CAMO-13-24252

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Explosives by LCMSMS, GC Semivolatile PCB, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Hope Taylor for
Valerie Davis
Project Manager

List of current GEL Certifications as of 14 December 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc.
2040 Savage Road
Charleston SC 29407

Chain of Custody/Analysis Request

315450

COC/Lab Request #: 2013-334

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8082-PCB	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-8321A-NMED HEXP	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-HEXMOD	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAMO-13-24251	Nov 15 2012	11:51	W	3	2	3	3			1	2			1	1
CAMO-13-24268	Nov 15 2012	11:51	W					1	1			1	1		
CAMO-13-24234	Nov 15 2012	11:51	W		2										
CAMO-13-24235	Nov 15 2012	14:59	W		2										
CAMO-13-24269	Nov 15 2012	14:59	W					1	1			1	1		
CAMO-13-24252	Nov 15 2012	14:59	W	3	2	3	3			1	2			1	1

Special Instructions:

Special Instructions:

Relinquished by: Teri Sherwood	S. Sherwood	Date/Time: 11/16/12 3pm	Received by: P. Nlent	11-17-12 0905
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/AR/COC/Work Order: 2013-334**
Received By: Patricia Dent	**Date Received:November 17, 2012**

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0CPM**
Classified Radioactive II or III by RSO?		X	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		X	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **3,4,6,15,17C**
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524646**
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			X	Sample ID's, containers affected and observed pH: **CAMO-13-24251,24252 for Gross A/B** If Preservation added, Lot# **L03022**
6	VOA vials free of headspace (defined as < 6mm bubble)?	X			Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?			X	Sample ID's affected: **CAMO-13-24269 the lab did not receive a Metals container, CAMO-13-24268 the lab did not receive a GENINORG container. CAMO-24235,24234 the lab rec'd 1 8260b container coc indicates 2**
12	Are sample containers identifiable as GEL provided?			X	**CLIENTS**
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.	X			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9832 5561 3C 5462 9832 5583 3C** **5462 9832 5550 4C 5462 9832 5572 6C** **5462 9832 5539 15C 5462 9832 5540 17C**

Comments (Use Continuation Form if needed):

PM (PMA) review Initials HH Date 11/19/12 Page 1 of 1

Subject: Sample receipt issues from 11/16/12
From: Pat Dent <Pat.Dent@gel.com>
Date: 11/17/2012 8:33 AM
To: "Keith R. Greene" <kgreene@lanl.gov>
CC: "team.davis" <team.davis@gel.com>, LANL@amrad.com

Good Morning all listed below are issues that occurred 11/16/12

Containers received for Gross A/B was preserved prior to analysis

RN#2013-322
Sample ID CASA-13-24208 the lab received 1 8260b container instead of 2 as indicated on coc.
CASA-13-24206,24212 the lab received 2 SVOA containers coc indicates 3.
CASA-13-24205 the lab received 1 SVOA,1 PCB containers each coc indicates 3.

Thanks!! Pat Dent

--
Patricia Dent
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Rd.
Charleston, S.C. 29407
Main: 843-556-8171 Ext 4264
Fax: 843-766-1178
Email: pad@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 16NOV12
ACTWGT: 50.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWF0

3c

50DC3/EE3B/10BC

FedEx Express

J1113110606 0125

1 of 3

TRK# 0201 5462 9832 5561

MASTER

SATURDAY ### A1
PRIORITY OVERNIGHT

X0 CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 16NOV12
ACTWGT: 51.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWF0

3c

50DC3/EE3B/10BC

FedEx Express

J1113110606 0125

3 of 3

MPS# 0263 5462 9832 5583

Mstr# 5462 9832 5561 0201

SATURDAY ### A1
PRIORITY OVERNIGHT

X0 CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 16NOV12
ACTWGT: 50.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

4c

58DC3/EE3B/10BC

FedEx Express

J111311060661 25

3 of 3
MPS# 0263 5462 9832 5550
Mstr# 5462 9832 5539

SATURDAY ### A1
PRIORITY OVERNIGHT

0201

X0 CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 16NOV12
ACTWGT: 6.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWF0

6c

FedEx Express

2 of 3
MPS# 0263 5462 9832 5572
Mstr# 5462 9832 5561

SATURDAY ### A1
PRIORITY OVERNIGHT

0201

X0 CHSA

29407
SC-US CHS

156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 16NOV12
ACTWGT: 41.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

15c

FedEx Express

1 of 3

TRK# 0201 5462 9832 5539

MASTER

SATURDAY ### A1
PRIORITY OVERNIGHT

X0 CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 16NOV12
ACTWGT: 30.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

17c

FedEx Express

2 of 3

MPS# 0263 5462 9832 5540

Mstr# 5462 9832 5539

SATURDAY ### A1
PRIORITY OVERNIGHT

0201

X0 CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Volatile Analysis

Case Narrative

ChemStation Case Narrative
ARS International (ARSL)
SDG 2013-334

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 8260B DOE-AL
Analytical Batch Number:	1266476

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

Sample ID	Client ID
315450002	CAMO-13-24251
315450005	CAMO-13-24234
315450006	CAMO-13-24235
315450009	CAMO-13-24252
1202787464	Method Blank (MB)
1202787465	315545003(CAMO-13-24271) Post Spike (PS)
1202787466	315545003(CAMO-13-24271) Post Spike Duplicate (PSD)
1202787467	Laboratory Control Sample (LCS)
1202787468	Laboratory Control Sample (LCS)

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 18.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 19.1.2. False positive analytes are designated on the quantitation report with a ’d’ qualifier.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package.

The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

Initial Calibration
At the request of the client, linear curve fits, for target analytes that did not meet the x-intercept criteria of less than or equal to 3 times the MDL and had %RSDs less than 60%, were set to use the average response factor to quantitate data in this SDG.

Continuing Calibration Verification Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement
The blank analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
Surrogate recoveries in all client and quality control samples were within the acceptance limits.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Sample 315545003 (CAMO-13-24271) was designated for spike analysis.

Matrix Spike (PS) Recovery Statement
The spike 1202787465 (CAMO-13-24271) recoveries were not all within the acceptance limits. See the Data Exception Report in the miscellaneous section of the data package.

Matrix Spike Duplicate (PSD) Recovery Statement
The spike duplicate recoveries were within the required acceptance limits.

Relative Percent Difference (RPD) Statement
The RPDs between the matrix spike pair met the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis

Re-analyses were not required for samples in this SDG.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1144834.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) may be requested for this sample delivery group/work order. Please note that non-requested target analytes that are reported on the quantitation reports will be present on the Form I. These detected analytes are included in the calibrated method and as a result will be reported on the Sample Data Summary (Form I) or Certificate of Analysis (C of A). TIC data, if requested, are included on the Sample Data Summary (Form I) and are also included with the sample raw data.

Additional Comments
Additional comments were not required for this SDG.

Residual Chlorine
Residual Chlorine was not detected in any of the samples in this SDG.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOA9.I	Agilent 6890/5973 GC/MS w/ OI Eclipse/Archon Autosampler	HP6890/HP5973	DB-624	J&W, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-334 GEL Work Order: 315450

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Erin Haubert **Name:** **Erin Haubert**

Date: **14 DEC 2012** **Title:** **Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 11:51**	**Matrix:**	**W**
Lab Sample ID:	**315450002**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24251**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 12:49**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 12:49**				
Data File:	**112812V9\9O316.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform		2.47	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 11:51**	**Matrix:**	**W**
Lab Sample ID:	**315450002**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24251**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 12:49**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 12:49**				
Data File:	**112812V9\9O316.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 11:51**	**Matrix:**	**W**
Lab Sample ID:	**315450002**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24251**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 12:49**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 12:49**				
Data File:	**112812V9\9O316.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	46.1	50.0	ug/L	92.2	(78%-124%)
Bromofluorobenzene	51.9	50.0	ug/L	104	(80%-120%)
Toluene-d8	48.0	50.0	ug/L	96.1	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.316	15	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 11:51**	**Matrix:**	**W**
Lab Sample ID:	**315450005**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24234**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 11:28**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 11:28**				
Data File:	**112812V9\9O313.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 11:51**	**Matrix:**	**W**
Lab Sample ID:	**315450005**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24234**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 11:28**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 11:28**				
Data File:	**112812V9\9O313.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 11:51**	**Matrix:**	**W**
Lab Sample ID:	**315450005**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24234**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 11:28**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 11:28**				
Data File:	**112812V9\9O313.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	45.6	50.0	ug/L	91.1	(78%-124%)
Bromofluorobenzene	51.3	50.0	ug/L	103	(80%-120%)
Toluene-d8	47.1	50.0	ug/L	94.1	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.301	11.2	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 14:59**	**Matrix:**	**W**
Lab Sample ID:	**315450006**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24235**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 11:55**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 11:55**				
Data File:	**112812V9\9O314.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 14:59**	**Matrix:**	**W**
Lab Sample ID:	**315450006**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24235**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 11:55**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 11:55**				
Data File:	**112812V9\9O314.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 14:59**	**Matrix:**	**W**
Lab Sample ID:	**315450006**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24235**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 11:55**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 11:55**				
Data File:	**112812V9\9O314.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	45.8	50.0	ug/L	91.7	(78%-124%)
Bromofluorobenzene	50.8	50.0	ug/L	102	(80%-120%)
Toluene-d8	47.3	50.0	ug/L	94.5	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.301	11.5	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 14:59**	**Matrix:**	**W**
Lab Sample ID:	**315450009**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24252**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 13:16**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 13:16**				
Data File:	**112812V9\9O317.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform		10.7	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 14:59**	**Matrix:**	**W**
Lab Sample ID:	**315450009**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24252**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 13:16**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 13:16**				
Data File:	**112812V9\9O317.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 14:59**	**Matrix:**	**W**
Lab Sample ID:	**315450009**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24252**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 13:16**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 13:16**				
Data File:	**112812V9\9O317.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	46.0	50.0	ug/L	91.9	(78%-124%)
Bromofluorobenzene	50.0	50.0	ug/L	99.9	(80%-120%)
Toluene-d8	47.0	50.0	ug/L	93.9	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.36	14.4	ug/L	0	J

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2013-334

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1202787467	LCS for batch 1266476	91	94	96
1202787468	LCS for batch 1266476	89	92	99
1202787464	MB for batch 1266476	93	93	100
315450005	CAMO-13-24234	91	94	103
315450006	CAMO-13-24235	92	95	102
315450002	CAMO-13-24251	92	96	104
315450009	CAMO-13-24252	92	94	100
1202787465	CAMO-13-24271PS	92	96	102
1202787466	CAMO-13-24271PSD	85	88	95

Surrogate			Acceptance Limits
DCED4	=	1,2-Dichloroethane-d4	(78%-124%)
TOL	=	Toluene-d8	(80%-120%)
BFB	=	Bromofluorobenzene	(80%-120%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **CAMO-13-24271PS**
Lab Sample ID: **1202787465**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/28/2012 17:21**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	PS	Dichlorodifluoromethane	50.0	0.00	U	44.8	90	36-123
74-87-3	PS	Chloromethane	50.0	0.00	U	40.9	82	47-134
75-01-4	PS	Vinyl chloride	50.0	0.00	U	38.6	77	49-129
74-83-9	PS	Bromomethane	50.0	0.00	U	45.7	91	56-127
75-00-3	PS	Chloroethane	50.0	0.00	U	47.9	96	67-122
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	U	45.2	90	60-123
60-29-7	PS	Ethyl ether	50.0	0.00	U	50.0	100	69-121
67-64-1	PS	Acetone	250	0.00	U	142	57	30-143
75-05-8	PS	Acetonitrile	1250	0.00	U	1200	96	60-133
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	U	47.9	96	67-132
74-88-4	PS	Iodomethane	250	0.00	U	269	107	69-147
75-09-2	PS	Methylene chloride	50.0	0.00	U	49.3	99	56-135
75-15-0	PS	Carbon disulfide	250	0.00	U	241	96	65-153
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	U	49.0	98	73-126
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	U	47.4	95	69-128
108-05-4	PS	Vinyl acetate	250	0.00	U	209	84	50-143
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	U	47.0	94	75-124
78-93-3	PS	2-Butanone	250	0.00	U	178	71	30-140
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	U	47.0	94	52-147
594-20-7	PS	2,2-Dichloropropane	50.0	0.00	U	46.9	94	67-143
67-66-3	PS	Chloroform	50.0	0.00	U	47.3	95	75-125
74-97-5	PS	Bromochloromethane	50.0	0.00	U	55.0	110	80-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334** **Sample Type:** **Post Spike**
Client ID: **CAMO-13-24271PS** **Matrix:** **W**
Lab Sample ID: **1202787465**
Instrument: **VOA9.I** **Analysis Date:** **11/28/2012 17:21** **Dilution: 1**
Analyst: **RXY1** **Prep Batch ID:** **1266476**
Purge Vol: **5 mL** **Batch ID:** **1266476**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	PS	1,1,1-Trichloroethane	50.0	0.00	U	48.8	98	69-140
563-58-6	PS	1,1-Dichloropropene	50.0	0.00	U	48.0	96	71-130
71-36-3	PS	n-Butyl alcohol	5000	0.00	U	5440	109	53-150
56-23-5	PS	Carbon tetrachloride	50.0	0.00	U	51.3	103	69-142
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	U	46.7	93	72-126
71-43-2	PS	Benzene	50.0	0.00	U	48.2	96	73-119
79-01-6	PS	Trichloroethylene	50.0	0.00	U	49.9	100	54-147
78-87-5	PS	1,2-Dichloropropane	50.0	0.00	U	48.6	97	78-123
75-27-4	PS	Bromodichloromethane	50.0	0.00	U	53.5	107	76-131
74-95-3	PS	Dibromomethane	50.0	0.00	U	52.1	104	79-120
108-10-1	PS	4-Methyl-2-pentanone	250	0.00	U	244	97	68-136
10061-01-5	PS	cis-1,3-Dichloropropylene	50.0	0.00	U	54.7	109	72-134
108-88-3	PS	Toluene	50.0	0.00	U	45.2	90	62-126
10061-02-6	PS	trans-1,3-Dichloropropylene	50.0	0.00	U	51.4	103	72-133
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	U	48.9	98	74-120
591-78-6	PS	2-Hexanone	250	0.00	U	182	73	31-132
142-28-9	PS	1,3-Dichloropropane	50.0	0.00	U	45.4	91	73-121
127-18-4	PS	Tetrachloroethylene	50.0	0.00	U	46.7	93	54-139
124-48-1	PS	Dibromochloromethane	50.0	0.00	U	55.9	112	74-128
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	U	53.3	107	80-120
108-90-7	PS	Chlorobenzene	50.0	0.00	U	47.1	94	73-119
100-41-4	PS	Ethylbenzene	50.0	0.00	U	44.1	88	66-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334** **Sample Type:** **Post Spike**
Client ID: **CAMO-13-24271PS** **Matrix:** **W**
Lab Sample ID: **1202787465**
Instrument: **VOA9.I** **Analysis Date:** **11/28/2012 17:21** **Dilution: 1**
Analyst: **RXY1** **Prep Batch ID:** **1266476**
Purge Vol: **5 mL** **Batch ID:** **1266476**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	PS	m,p-Xylenes	100	0.00	U	93.9	94	56-134
95-47-6	PS	o-Xylene	50.0	0.00	U	46.9	94	68-126
100-42-5	PS	Styrene	50.0	0.00	U	48.7	97	57-138
75-25-2	PS	Bromoform	50.0	0.00	U	64.8	130 *	66-129
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	U	52.4	105	44-146
96-18-4	PS	1,2,3-Trichloropropane	50.0	0.00	U	50.5	101	68-129
108-86-1	PS	Bromobenzene	50.0	0.00	U	49.6	99	70-122
103-65-1	PS	n-Propylbenzene	50.0	0.00	U	44.1	88	61-131
95-49-8	PS	2-Chlorotoluene	50.0	0.00	U	47.4	95	66-126
98-82-8	PS	Isopropylbenzene	50.0	0.00	U	47.9	96	65-130
108-67-8	PS	1,3,5-Trimethylbenzene	50.0	0.00	U	46.1	92	58-134
106-43-4	PS	4-Chlorotoluene	50.0	0.00	U	44.7	89	63-125
98-06-6	PS	tert-Butylbenzene	50.0	0.00	U	49.9	100	66-129
95-63-6	PS	1,2,4-Trimethylbenzene	50.0	0.00	U	45.8	92	60-131
135-98-8	PS	sec-Butylbenzene	50.0	0.00	U	46.9	94	62-130
99-87-6	PS	4-Isopropyltoluene	50.0	0.00	U	46.4	93	62-132
541-73-1	PS	1,3-Dichlorobenzene	50.0	0.00	U	46.6	93	66-121
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	U	45.9	92	65-119
104-51-8	PS	n-Butylbenzene	50.0	0.00	U	43.5	87	55-134
96-12-8	PS	1,2-Dibromo-3-chloropropane	50.0	0.00	U	63.5	127	58-137
87-68-3	PS	Hexachlorobutadiene	50.0	0.00	U	49.4	99	49-139
91-20-3	PS	Naphthalene	50.0	0.00	U	53.0	106	46-145

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Sample Type: **Post Spike**
Client ID: **CAMO-13-24271PS**
Matrix: **W**
Lab Sample ID: **1202787465**
Instrument: **VOA9.I**
Analysis Date: **11/28/2012 17:21**
Dilution: 1
Analyst: **RXY1**
Prep Batch ID: **1266476**
Purge Vol: **5 mL**
Batch ID: **1266476**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	PS	1,2,3-Trichlorobenzene	50.0	0.00	U	48.8	98	54-134
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	U	49.7	99	79-128
120-82-1	PS	1,2,4-Trichlorobenzene	50.0	0.00	U	46.8	94	55-128
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	U	48.5	97	68-121

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **CAMO-13-24271PSD**
Lab Sample ID: **1202787466**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/28/2012 17:48**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
75-71-8	PSD	Dichlorodifluoromethane	50.0	0.00	U	45.0	90	36-123	0	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	U	42.0	84	47-134	3	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	U	39.7	79	49-129	3	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	U	47.6	95	56-127	4	0-20
75-00-3	PSD	Chloroethane	50.0	0.00	U	49.0	98	67-122	2	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	U	45.9	92	60-123	2	0-20
60-29-7	PSD	Ethyl ether	50.0	0.00	U	48.9	98	69-121	2	0-20
67-64-1	PSD	Acetone	250	0.00	U	133	53	30-143	6	0-20
75-05-8	PSD	Acetonitrile	1250	0.00	U	1160	93	60-133	4	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	U	49.3	99	67-132	3	0-20
74-88-4	PSD	Iodomethane	250	0.00	U	278	111	69-147	3	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	U	50.3	101	56-135	2	0-20
75-15-0	PSD	Carbon disulfide	250	0.00	U	249	100	65-153	3	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	U	49.2	98	73-126	0	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	U	47.9	96	69-128	1	0-20
108-05-4	PSD	Vinyl acetate	250	0.00	U	200	80	50-143	4	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	U	47.3	95	75-124	1	0-20
78-93-3	PSD	2-Butanone	250	0.00	U	165	66	30-140	8	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	U	47.0	94	52-147	0	0-20
594-20-7	PSD	2,2-Dichloropropane	50.0	0.00	U	47.4	95	67-143	1	0-20
67-66-3	PSD	Chloroform	50.0	0.00	U	46.8	94	75-125	1	0-20
74-97-5	PSD	Bromochloromethane	50.0	0.00	U	54.7	109	80-120	0	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **CAMO-13-24271PSD**
Lab Sample ID: **1202787466**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/28/2012 17:48**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
71-55-6	PSD	1,1,1-Trichloroethane	50.0	0.00	U	49.7	99	69-140	2	0-20
563-58-6	PSD	1,1-Dichloropropene	50.0	0.00	U	47.9	96	71-130	0	0-20
71-36-3	PSD	n-Butyl alcohol	5000	0.00	U	5060	101	53-150	7	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	U	53.2	106	69-142	4	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	U	46.1	92	72-126	1	0-20
71-43-2	PSD	Benzene	50.0	0.00	U	47.8	96	73-119	1	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	U	49.8	100	54-147	0	0-20
78-87-5	PSD	1,2-Dichloropropane	50.0	0.00	U	48.5	97	78-123	0	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	U	53.6	107	76-131	0	0-20
74-95-3	PSD	Dibromomethane	50.0	0.00	U	51.0	102	79-120	2	0-20
108-10-1	PSD	4-Methyl-2-pentanone	250	0.00	U	220	88	68-136	10	0-20
10061-01-5	PSD	cis-1,3-Dichloropropylene	50.0	0.00	U	54.8	110	72-134	0	0-20
108-88-3	PSD	Toluene	50.0	0.00	U	43.4	87	62-126	4	0-20
10061-02-6	PSD	trans-1,3-Dichloropropylene	50.0	0.00	U	49.1	98	72-133	5	0-20
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	U	46.2	92	74-120	6	0-20
591-78-6	PSD	2-Hexanone	250	0.00	U	165	66	31-132	10	0-20
142-28-9	PSD	1,3-Dichloropropane	50.0	0.00	U	43.6	87	73-121	4	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	U	45.7	91	54-139	2	0-20
124-48-1	PSD	Dibromochloromethane	50.0	0.00	U	53.9	108	74-128	4	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	U	51.1	102	80-120	4	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.00	U	46.5	93	73-119	1	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	U	43.6	87	66-125	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **CAMO-13-24271PSD**
Lab Sample ID: **1202787466**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/28/2012 17:48**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	PSD	m,p-Xylenes	100	0.00	U	93.0	93	56-134	1	0-20
95-47-6	PSD	o-Xylene	50.0	0.00	U	46.2	92	68-126	1	0-20
100-42-5	PSD	Styrene	50.0	0.00	U	48.7	97	57-138	0	0-20
75-25-2	PSD	Bromoform	50.0	0.00	U	60.9	122	66-129	6	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	U	48.3	97	44-146	8	0-20
96-18-4	PSD	1,2,3-Trichloropropane	50.0	0.00	U	48.5	97	68-129	4	0-20
108-86-1	PSD	Bromobenzene	50.0	0.00	U	48.9	98	70-122	1	0-20
103-65-1	PSD	n-Propylbenzene	50.0	0.00	U	43.3	87	61-131	2	0-20
95-49-8	PSD	2-Chlorotoluene	50.0	0.00	U	46.4	93	66-126	2	0-20
98-82-8	PSD	Isopropylbenzene	50.0	0.00	U	46.0	92	65-130	4	0-20
108-67-8	PSD	1,3,5-Trimethylbenzene	50.0	0.00	U	45.2	90	58-134	2	0-20
106-43-4	PSD	4-Chlorotoluene	50.0	0.00	U	44.3	89	63-125	1	0-20
98-06-6	PSD	tert-Butylbenzene	50.0	0.00	U	48.1	96	66-129	4	0-20
95-63-6	PSD	1,2,4-Trimethylbenzene	50.0	0.00	U	45.1	90	60-131	2	0-20
135-98-8	PSD	sec-Butylbenzene	50.0	0.00	U	45.7	91	62-130	3	0-20
99-87-6	PSD	4-Isopropyltoluene	50.0	0.00	U	45.7	91	62-132	2	0-20
541-73-1	PSD	1,3-Dichlorobenzene	50.0	0.00	U	46.7	93	66-121	0	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	U	45.9	92	65-119	0	0-20
104-51-8	PSD	n-Butylbenzene	50.0	0.00	U	43.4	87	55-134	0	0-20
96-12-8	PSD	1,2-Dibromo-3-chloropropane	50.0	0.00	U	58.5	117	58-137	8	0-20
87-68-3	PSD	Hexachlorobutadiene	50.0	0.00	U	48.7	97	49-139	2	0-20
91-20-3	PSD	Naphthalene	50.0	0.00	U	48.0	96	46-145	10	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Sample Type: **Post Spike Duplicate**
Client ID: **CAMO-13-24271PSD**
Matrix: **W**
Lab Sample ID: **1202787466**
Instrument: **VOA9.I**
Analysis Date: **11/28/2012 17:48**
Dilution: 1
Analyst: **RXY1**
Prep Batch ID: **1266476**
Purge Vol: **5 mL**
Batch ID: **1266476**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
87-61-6	PSD	1,2,3-Trichlorobenzene	50.0	0.00	U	45.7	91	54-134	7	0-20
630-20-6	PSD	1,1,1,2-Tetrachloroethane	50.0	0.00	U	47.8	96	79-128	4	0-20
120-82-1	PSD	1,2,4-Trichlorobenzene	50.0	0.00	U	44.7	89	55-128	5	0-20
95-50-1	PSD	1,2-Dichlorobenzene	50.0	0.00	U	47.6	95	68-121	2	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **LCS for batch 1266476**
Lab Sample ID: **1202787467**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/28/2012 07:00**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	51.1	102	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	45.1	90	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	43.3	87	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	49.7	99	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	53.9	108	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	52.8	106	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	51.8	104	74-120
67-64-1	LCS	Acetone	250	0.0	258	103	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	1120	90	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	54.4	109	76-127
74-88-4	LCS	Iodomethane	250	0.0	293	117	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	52.7	105	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	269	108	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	50.0	100	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	53.2	106	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	253	101	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	51.2	102	79-120
78-93-3	LCS	2-Butanone	250	0.0	263	105	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	51.7	103	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	55.4	111	76-145
67-66-3	LCS	Chloroform	50.0	0.0	50.4	101	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	55.8	112	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **LCS for batch 1266476**
Lab Sample ID: **1202787467**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/28/2012 07:00**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	55.3	111	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	53.9	108	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	4510	90	66-138
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	59.6	119	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	47.9	96	75-121
71-43-2	LCS	Benzene	50.0	0.0	51.8	104	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	54.7	109	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	50.4	101	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	55.6	111	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	51.9	104	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	248	99	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	57.1	114	80-127
108-88-3	LCS	Toluene	50.0	0.0	48.5	97	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	52.5	105	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	48.2	96	79-120
591-78-6	LCS	2-Hexanone	250	0.0	284	113	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	45.1	90	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	52.7	105	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	55.9	112	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	52.3	105	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	49.8	100	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	47.9	96	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **LCS for batch 1266476**
Lab Sample ID: **1202787467**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/28/2012 07:00**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	101	101	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	50.2	100	80-120
100-42-5	LCS	Styrene	50.0	0.0	51.7	103	80-121
75-25-2	LCS	Bromoform	50.0	0.0	60.1	120	72-125
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	47.3	95	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	46.9	94	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	50.4	101	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	48.0	96	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	50.1	100	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	51.3	103	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	50.2	100	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	48.2	96	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	53.2	106	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	49.6	99	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	50.7	101	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	51.5	103	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	51.0	102	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	49.8	100	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	49.9	100	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	58.7	117	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	56.9	114	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	50.6	101	71-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **LCS for batch 1266476**
Lab Sample ID: **1202787467**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/28/2012 07:00**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	52.1	104	73-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	51.8	104	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	54.8	110	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	50.0	100	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **LCS for batch 1266476**
Lab Sample ID: **1202787468**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/28/2012 08:20**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS	Acrolein	250	0.0	248	99	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	235	94	65-157
107-05-1	LCS	Allyl chloride	250	0.0	225	90	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	222	89	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	50.4	101	45-159
107-12-0	LCS	Propionitrile	250	0.0	229	92	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	212	85	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2030	81	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	216	86	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	197	79	66-132

Method Blank Summary

SDG Number:	**2013-334**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1266476**	**Instrument ID:**	**VOA9.I**	**Data File:**	**112812V9\9O309B.D**
Lab Sample ID:	**1202787464**	**Prep Date:**	**11/28/2012 09:41**	**Analyzed:**	**11/28/12 09:41**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 1266476	1202787467	112812V9\9O303L.D	11/28/12	0700
02	LCS for batch 1266476	1202787468	112812V9\9O306L.D	11/28/12	0820
03	CAMO-13-24234	315450005	112812V9\9O313.D	11/28/12	1128
04	CAMO-13-24235	315450006	112812V9\9O314.D	11/28/12	1155
05	CAMO-13-24251	315450002	112812V9\9O316.D	11/28/12	1249
06	CAMO-13-24252	315450009	112812V9\9O317.D	11/28/12	1316
07	CAMO-13-24271PS	1202787465	112812V9\9O326.D	11/28/12	1721
08	CAMO-13-24271PSD	1202787466	112812V9\9O327.D	11/28/12	1748

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787464**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 09:41**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 09:41**				
Data File:	**112812V9\9O309B.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787464**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 09:41**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 09:41**				
Data File:	**112812V9\9O309B.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787464**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 09:41**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 09:41**				
Data File:	**112812V9\9O309B.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	46.6	50.0	ug/L	93.2	(78%-124%)
Bromofluorobenzene	49.9	50.0	ug/L	99.8	(80%-120%)
Toluene-d8	46.4	50.0	ug/L	92.7	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.301	6.71	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202787465**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24271PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 17:21**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 17:21**				
Data File:	**112812V9\9O326.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		44.8	ug/L	0.300	1.00
74-87-3	Chloromethane		40.9	ug/L	0.300	1.00
75-01-4	Vinyl chloride		38.6	ug/L	0.300	1.00
74-83-9	Bromomethane		45.7	ug/L	0.300	1.00
75-00-3	Chloroethane		47.9	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		45.2	ug/L	0.300	1.00
60-29-7	Ethyl ether		50.0	ug/L	0.300	1.00
67-64-1	Acetone		142	ug/L	3.00	10.0
75-05-8	Acetonitrile		1200	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		47.9	ug/L	0.300	1.00
74-88-4	Iodomethane		269	ug/L	1.50	5.00
75-09-2	Methylene chloride		49.3	ug/L	3.00	10.0
75-15-0	Carbon disulfide		241	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		49.0	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		47.4	ug/L	0.300	1.00
108-05-4	Vinyl acetate		209	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		47.0	ug/L	0.300	1.00
78-93-3	2-Butanone		178	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		47.0	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		46.9	ug/L	0.300	1.00
67-66-3	Chloroform		47.3	ug/L	0.300	1.00
74-97-5	Bromochloromethane		55.0	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		48.8	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		48.0	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5440	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		51.3	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		46.7	ug/L	0.300	1.00
71-43-2	Benzene		48.2	ug/L	0.300	1.00
79-01-6	Trichloroethylene		49.9	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.6	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		53.5	ug/L	0.300	1.00
74-95-3	Dibromomethane		52.1	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		244	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		54.7	ug/L	0.300	1.00
108-88-3	Toluene		45.2	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		51.4	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.9	ug/L	0.300	1.00
591-78-6	2-Hexanone		182	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202787465**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24271PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 17:21**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 17:21**				
Data File:	**112812V9\9O326.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		45.4	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		46.7	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		55.9	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		53.3	ug/L	0.300	1.00
108-90-7	Chlorobenzene		47.1	ug/L	0.300	1.00
100-41-4	Ethylbenzene		44.1	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		93.9	ug/L	0.300	2.00
95-47-6	o-Xylene		46.9	ug/L	0.300	1.00
100-42-5	Styrene		48.7	ug/L	0.300	1.00
75-25-2	Bromoform		64.8	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		52.4	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		50.5	ug/L	0.300	1.00
108-86-1	Bromobenzene		49.6	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		44.1	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		47.4	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		47.9	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		46.1	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		44.7	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		49.9	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		45.8	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		46.9	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		46.4	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		46.6	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		45.9	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		43.5	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		63.5	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		49.4	ug/L	0.300	1.00
91-20-3	Naphthalene		53.0	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		48.8	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202787465**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24271PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 17:21**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 17:21**				
Data File:	**112812V9\9O326.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		49.7	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		46.8	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		48.5	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	45.9	50.0	ug/L	91.8	(78%-124%)
Bromofluorobenzene	51.1	50.0	ug/L	102	(80%-120%)
Toluene-d8	47.9	50.0	ug/L	95.8	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202787466**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24271PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 17:48**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 17:48**				
Data File:	**112812V9\9O327.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		45.0	ug/L	0.300	1.00
74-87-3	Chloromethane		42.0	ug/L	0.300	1.00
75-01-4	Vinyl chloride		39.7	ug/L	0.300	1.00
74-83-9	Bromomethane		47.6	ug/L	0.300	1.00
75-00-3	Chloroethane		49.0	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		45.9	ug/L	0.300	1.00
60-29-7	Ethyl ether		48.9	ug/L	0.300	1.00
67-64-1	Acetone		133	ug/L	3.00	10.0
75-05-8	Acetonitrile		1160	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		49.3	ug/L	0.300	1.00
74-88-4	Iodomethane		278	ug/L	1.50	5.00
75-09-2	Methylene chloride		50.3	ug/L	3.00	10.0
75-15-0	Carbon disulfide		249	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		49.2	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		47.9	ug/L	0.300	1.00
108-05-4	Vinyl acetate		200	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		47.3	ug/L	0.300	1.00
78-93-3	2-Butanone		165	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		47.0	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		47.4	ug/L	0.300	1.00
67-66-3	Chloroform		46.8	ug/L	0.300	1.00
74-97-5	Bromochloromethane		54.7	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		49.7	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		47.9	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5060	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		53.2	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		46.1	ug/L	0.300	1.00
71-43-2	Benzene		47.8	ug/L	0.300	1.00
79-01-6	Trichloroethylene		49.8	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.5	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		53.6	ug/L	0.300	1.00
74-95-3	Dibromomethane		51.0	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		220	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		54.8	ug/L	0.300	1.00
108-88-3	Toluene		43.4	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		49.1	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		46.2	ug/L	0.300	1.00
591-78-6	2-Hexanone		165	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202787466**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24271PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 17:48**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 17:48**				
Data File:	**112812V9\9O327.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		43.6	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		45.7	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		53.9	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		51.1	ug/L	0.300	1.00
108-90-7	Chlorobenzene		46.5	ug/L	0.300	1.00
100-41-4	Ethylbenzene		43.6	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		93.0	ug/L	0.300	2.00
95-47-6	o-Xylene		46.2	ug/L	0.300	1.00
100-42-5	Styrene		48.7	ug/L	0.300	1.00
75-25-2	Bromoform		60.9	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		48.3	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		48.5	ug/L	0.300	1.00
108-86-1	Bromobenzene		48.9	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		43.3	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		46.4	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		46.0	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		45.2	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		44.3	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		48.1	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		45.1	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		45.7	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		45.7	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		46.7	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		45.9	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		43.4	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		58.5	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		48.7	ug/L	0.300	1.00
91-20-3	Naphthalene		48.0	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		45.7	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202787466**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24271PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 17:48**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 17:48**				
Data File:	**112812V9\9O327.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		47.8	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		44.7	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		47.6	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	42.5	50.0	ug/L	85.1	(78%-124%)
Bromofluorobenzene	47.4	50.0	ug/L	94.8	(80%-120%)
Toluene-d8	44.1	50.0	ug/L	88.3	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787467**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 07:00**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 07:00**				
Data File:	**112812V9\9O303L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		51.1	ug/L	0.300	1.00
74-87-3	Chloromethane		45.1	ug/L	0.300	1.00
75-01-4	Vinyl chloride		43.3	ug/L	0.300	1.00
74-83-9	Bromomethane		49.7	ug/L	0.300	1.00
75-00-3	Chloroethane		53.9	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		52.8	ug/L	0.300	1.00
60-29-7	Ethyl ether		51.8	ug/L	0.300	1.00
67-64-1	Acetone		258	ug/L	3.00	10.0
75-05-8	Acetonitrile		1120	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		54.4	ug/L	0.300	1.00
74-88-4	Iodomethane		293	ug/L	1.50	5.00
75-09-2	Methylene chloride		52.7	ug/L	3.00	10.0
75-15-0	Carbon disulfide		269	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		50.0	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		53.2	ug/L	0.300	1.00
108-05-4	Vinyl acetate		253	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		51.2	ug/L	0.300	1.00
78-93-3	2-Butanone		263	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		51.7	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		55.4	ug/L	0.300	1.00
67-66-3	Chloroform		50.4	ug/L	0.300	1.00
74-97-5	Bromochloromethane		55.8	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		55.3	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		53.9	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		4510	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		59.6	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		47.9	ug/L	0.300	1.00
71-43-2	Benzene		51.8	ug/L	0.300	1.00
79-01-6	Trichloroethylene		54.7	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		50.4	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		55.6	ug/L	0.300	1.00
74-95-3	Dibromomethane		51.9	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		248	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		57.1	ug/L	0.300	1.00
108-88-3	Toluene		48.5	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		52.5	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.2	ug/L	0.300	1.00
591-78-6	2-Hexanone		284	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787467**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 07:00**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 07:00**				
Data File:	**112812V9\9O303L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		45.1	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		52.7	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		55.9	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		52.3	ug/L	0.300	1.00
108-90-7	Chlorobenzene		49.8	ug/L	0.300	1.00
100-41-4	Ethylbenzene		47.9	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		101	ug/L	0.300	2.00
95-47-6	o-Xylene		50.2	ug/L	0.300	1.00
100-42-5	Styrene		51.7	ug/L	0.300	1.00
75-25-2	Bromoform		60.1	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		47.3	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		46.9	ug/L	0.300	1.00
108-86-1	Bromobenzene		50.4	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		48.0	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		50.1	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		51.3	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		50.2	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		48.2	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		53.2	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		49.6	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		50.7	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		51.5	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		51.0	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		49.8	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		49.9	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		58.7	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		56.9	ug/L	0.300	1.00
91-20-3	Naphthalene		50.6	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		52.1	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787467**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 07:00**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 07:00**				
Data File:	**112812V9\9O303L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		51.8	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		54.8	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		50.0	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	45.7	50.0	ug/L	91.3	(78%-124%)
Bromofluorobenzene	48.2	50.0	ug/L	96.4	(80%-120%)
Toluene-d8	47.2	50.0	ug/L	94.5	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787468**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 08:20**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 08:20**				
Data File:	**112812V9\9O306L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787468**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 08:20**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 08:20**				
Data File:	**112812V9\9O306L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein		248	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		235	ug/L	1.50	5.00
107-05-1	Allyl chloride		225	ug/L	1.50	5.00
107-13-1	Acrylonitrile		222	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		50.4	ug/L	0.300	1.00
107-12-0	Propionitrile		229	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		212	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2030	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		216	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787468**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 08:20**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 08:20**				
Data File:	**112812V9\9O306L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		197	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	44.4	50.0	ug/L	88.8	(78%-124%)
Bromofluorobenzene	49.5	50.0	ug/L	99.0	(80%-120%)
Toluene-d8	46.0	50.0	ug/L	92.0	(80%-120%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
29-NOV-12	Federal	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
VOA GC/MS	SW846 8260B DOE-AL	Liquid	ESHL 315450, 315545
Batch ID:	**Sample Numbers:**		
1266476	1202787465		

Potentially affected work order(s)(SDG): 315450(2013-334),315545(2013-353)

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. The MS 1202787465 did not meet the acceptable recovery criteria for Bromoform. MS: 130% (Limits of: 66.00% - 129.00%)	1. The data were narrated and reported with an accepable MS/MSD %RPD for Bromoform.

Originator's Name:

Ramona Yarbrough 29-NOV-12

Data Validator/Group Leader:

Erin Haubert 13-DEC-12

Semi-Volatile Analysis

Case Narrative

Semi-Volatile Case Narrative
ARS International (ARSL)
SDG 2013-334

Method/Analysis Information

Procedure:	**Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method:	SW846 8270C
Prep Method:	SW846 3510C
Analytical Batch Number:	1264519
Prep Batch Number:	1264517

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8270C:

Sample ID	Client ID
315450002	CAMO-13-24251
315450009	CAMO-13-24252
1202782898	Method Blank (MB)
1202782899	315285002(WST50-12-23903) Matrix Spike (MS)
1202782900	315285002(WST50-12-23903) Matrix Spike Duplicate (MSD)
1202782901	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 30.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 18.2.

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

CCV Requirements
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG in this batch met the acceptance criteria.

Surrogate Recoveries
Sample 315450002 (CAMO-13-24251) recovered 2,4,6-Tribromophenol at 2.53% (limits are 23%-130%). Sample 315450002 was re-extracted out of holding in batch 1266073. Since the re-extraction was within the acceptance limits for all surrogates and the QC samples met the acceptance criteria, both sets of data results have been reported.

Laboratory Control Sample (LCS) Recovery
The LCS(1202782901) recovered 1,4-Dioxane at 34% (limits: 41%-69%) and Hexachlorocyclopentadiene at 34% (limits are 38%-79%). The LCS(1202782901) spike failures represented less than 5% of the requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported.

QC Sample Designation
Sample 315285002 (WST50-12-23903) was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are used to monitor precision and accuracy of the spiked analytes along with any affect the matrix of the primary associated sample may have on the recovery of the target analytes. Low or high recovery of an analyte may indicate negative or positive bias to the data due to the sample matrix. The MS and MSD data in this report are qualified as out of holding based on industry standard documentation practices. The data associated with this report is considered usable by the lab for monitoring precision and accuracy of the spiked analytes as described in the EPA methodology.

Matrix Spike (MS) Recovery Statement
The MS(1202782899) recovered spike analytes outside of the acceptance limits. Please see the QC Summary report for specific values. Since the MSD displayed similar spike recoveries to the MS, the failures were attributed to sample matrix interference and the data results have been reported.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD(1202782900) recovered spike analytes outside of the acceptance limits. Please see the QC Summary report for specific values. Since the MSD displayed similar spike recoveries to the MS, the failures were attributed to sample matrix interference and the data results have been reported.

MS/MSD Relative Percent Difference (RPD) Statement
The MS(1202782899)/MSD(1202782900) RPD value for Pyridine was 35% (SPC limit: 30%). Since Pyridine was individually within the acceptance limits for the MS and MSD, the non-conformance had no adverse impact on the data and the results have been reported.

Internal Standard (ISTD) Acceptance
The internal standard responses used to quantitate the requested target analytes were within the required acceptance criteria for the SDG associated samples in this batch.

Technical Information:

Holding Time Specifications
All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

Sample Dilutions
The samples in this SDG in this batch did not require dilutions.

Sample Re-extraction/Re-analysis
Sample 315450002 (CAMO-13-24251) was re-extracted out of holding in batch 1266073 due to surrogate failure.

Miscellaneous Information:

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1144143.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

TIC Comment
Tentatively identified compounds (TIC) may be requested for samples in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

Additional Comments
Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and

inserted into the electronic package.

System Configuration

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
MSD3.I	Agilent 7890A/5975C GC/MS w/ 7683 Autosampler	HP7890A/HP5975C	DB-5MS	25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane)

Method/Analysis Information

Procedure:	**Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method:	SW846 8270C
Prep Method:	SW846 3510C
Analytical Batch Number:	1266073
Prep Batch Number:	1266072

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8270C:

Sample ID	Client ID
315450002	CAMO-13-24251
1202786498	Method Blank (MB)
1202786499	Laboratory Control Sample (LCS)
1202786500	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 30.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 18.2.

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

CCV Requirements
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG in this batch met the acceptance criteria.

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria for this SDG in this batch.

Laboratory Control Sample (LCS) Recovery
The LCS(1202786499) recovered Benzidine and Hexachlorocyclopentadiene outside of the acceptance limits. Please see the QC Summary report for specific failures. Benzidine and Hexachlorocyclopentadiene are known to be poor responding analytes as stated in the Method. Benzidine is subject to oxidative losses during solvent concentration and Hexachlorocyclopentadiene is subject to thermal decomposition. This may account for the low recoveries of the analytes in the LCS and LCSD. The data results have been reported. Please note that in the original extraction batch Benzidine met the acceptance criteria in the LCS and there were no detects of the analyte in either extraction.

Laboratory Control Sample Duplicate (LCSD) Recovery
The LCSD(1202786500) recovered Benzidine and Hexachlorocyclopentadiene outside of the acceptance limits. Please see the QC Summary report for specific failures. Benzidine and Hexachlorocyclopentadiene are known to be poor responding analytes as stated in the Method. Benzidine is subject to oxidative losses during solvent concentration and Hexachlorocyclopentadiene is subject to thermal decomposition. This may account for the low recoveries of the analytes in the LCS and LCSD. The data results have been reported. Please note that in the original extraction batch Benzidine met the acceptance criteria in the LCS and there were no detects of the analyte in either extraction.

LCS/LCSD Relative Percent Difference (RPD) Statement
The LCS(1202786499)/LCSD(1202786500) RPD values for Benzidine and Pyridine were outside of the acceptance limits. Please see the QC Summary report for specific failures. Since Pyridine was individually within the acceptance limits in the LCS and LCSD, the non-conformance had no adverse impact on the data and the results have been reported. The Benzidine RPD failure was attributed to a higher percent recovery in the LCSD while there was no recovery in the LCS. The data results have been reported.

QC Sample Designation

A matrix spike/matrix spike duplicate pair was not extracted and analyzed with this SDG.

Matrix Spike (MS) Recovery Statement
A matrix spike/matrix spike duplicate pair was not extracted and analyzed with this SDG.

Matrix Spike Duplicate (MSD) Recovery Statement
A matrix spike/matrix spike duplicate pair was not extracted and analyzed with this SDG.

MS/MSD Relative Percent Difference (RPD) Statement
A matrix spike/matrix spike duplicate pair was not extracted and analyzed with this SDG.

Internal Standard (ISTD) Acceptance
The internal standard responses used to quantitate the requested target analytes were within the required acceptance criteria for the SDG associated samples in this batch.

Technical Information:

Holding Time Specifications
Sample 315450002 (CAMO-13-24251) was re-extracted out of holding from batch 1264519 due to surrogate failure. Since the re-extraction was within the acceptance limits for all surrogates and the QC samples met the acceptance criteria, both sets of data results have been reported. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

Sample Dilutions
The samples in this SDG in this batch did not require dilutions.

Sample Re-extraction/Re-analysis
Sample 315450002 (CAMO-13-24251) was re-extracted out of holding from batch 1264519 due to surrogate failure. Since the re-extraction was within the acceptance limits for all surrogates and the QC samples met the acceptance criteria, both sets of data results have been reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception report 1144060 was generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

TIC Comment
Tentatively identified compounds (TIC) may be requested for samples 1202786498 (MB) and 315450002 (CAMO-13-24251) in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

Additional Comments
Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance

limits.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

System Configuration

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
MSD8.I	Agilent 6890/5973 GC/MS w/ 7683 Autosampler	HP6890/HP5973	DB-5MS	25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-334 GEL Work Order: 315450

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

h Preparation or preservation holding time was exceeded

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Barbara Bailey **Name: Barbara Bailey**

Date: 11 DEC 2012 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 11:51**	**Matrix:**	**W**
Lab Sample ID:	**315450002**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24251**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 17:14**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**920 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2119.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.9	ug/L	3.26	10.9
110-86-1	Pyridine	U	10.9	ug/L	3.26	10.9
62-53-3	Aniline	U	10.9	ug/L	3.26	10.9
108-95-2	Phenol	U	10.9	ug/L	3.26	10.9
111-44-4	bis(2-Chloroethyl) ether	U	10.9	ug/L	3.26	10.9
95-57-8	2-Chlorophenol	U	10.9	ug/L	3.26	10.9
541-73-1	1,3-Dichlorobenzene	U	10.9	ug/L	3.26	10.9
106-46-7	1,4-Dichlorobenzene	U	10.9	ug/L	3.26	10.9
95-50-1	1,2-Dichlorobenzene	U	10.9	ug/L	3.26	10.9
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.9	ug/L	3.26	10.9
100-51-6	Benzyl alcohol	U	10.9	ug/L	3.26	10.9
95-48-7	o-Cresol	U	10.9	ug/L	3.26	10.9
65794-96-9	m,p-Cresols	U	10.9	ug/L	3.26	10.9
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.9	ug/L	3.26	10.9
67-72-1	Hexachloroethane	U	10.9	ug/L	3.26	10.9
98-95-3	Nitrobenzene	U	10.9	ug/L	3.26	10.9
78-59-1	Isophorone	U	10.9	ug/L	3.26	10.9
88-75-5	2-Nitrophenol	U	10.9	ug/L	3.26	10.9
105-67-9	2,4-Dimethylphenol	U	10.9	ug/L	3.26	10.9
111-91-1	bis(2-Chloroethoxy)methane	U	10.9	ug/L	3.26	10.9
120-83-2	2,4-Dichlorophenol	U	10.9	ug/L	3.26	10.9
65-85-0	Benzoic acid	U	21.7	ug/L	6.52	21.7
106-47-8	4-Chloroaniline	U	10.9	ug/L	3.59	10.9
87-68-3	Hexachlorobutadiene	U	10.9	ug/L	3.26	10.9
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.9	ug/L	3.26	10.9
91-57-6	2-Methylnaphthalene	U	1.09	ug/L	0.326	1.09
91-20-3	Naphthalene	U	1.09	ug/L	0.326	1.09
90-12-0	1-Methylnaphthalene	U	1.09	ug/L	0.326	1.09
77-47-4	Hexachlorocyclopentadiene	U	10.9	ug/L	3.26	10.9
88-06-2	2,4,6-Trichlorophenol	U	10.9	ug/L	3.26	10.9
95-95-4	2,4,5-Trichlorophenol	U	10.9	ug/L	3.26	10.9
91-58-7	2-Chloronaphthalene	U	1.09	ug/L	0.326	1.09
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.9	ug/L	3.26	10.9
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.9	ug/L	3.26	10.9
131-11-3	Dimethylphthalate	U	10.9	ug/L	3.26	10.9
606-20-2	2,6-Dinitrotoluene	U	10.9	ug/L	3.26	10.9

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 11:51**	**Matrix:**	**W**
Lab Sample ID:	**315450002**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24251**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 17:14**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**920 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2119.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.9	ug/L	3.26	10.9
208-96-8	Acenaphthylene	U	1.09	ug/L	0.326	1.09
83-32-9	Acenaphthene	U	1.09	ug/L	0.326	1.09
51-28-5	2,4-Dinitrophenol	U	21.7	ug/L	5.43	21.7
132-64-9	Dibenzofuran	U	10.9	ug/L	3.26	10.9
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.9	ug/L	3.26	10.9
84-66-2	Diethylphthalate	U	10.9	ug/L	3.26	10.9
100-02-7	4-Nitrophenol	U	10.9	ug/L	3.26	10.9
86-73-7	Fluorene	U	1.09	ug/L	0.326	1.09
7005-72-3	4-Chlorophenylphenylether	U	10.9	ug/L	3.26	10.9
100-01-6	4-Nitroaniline	U	10.9	ug/L	3.26	10.9
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.9	ug/L	3.26	10.9
122-39-4	Diphenylamine	U	10.9	ug/L	3.26	10.9
122-66-7	Azobenzene	U	10.9	ug/L	3.26	10.9
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.9	ug/L	3.26	10.9
118-74-1	Hexachlorobenzene	U	10.9	ug/L	3.26	10.9
87-86-5	Pentachlorophenol	U	10.9	ug/L	3.26	10.9
88-85-7	Dinoseb	U	10.9	ug/L	3.26	10.9
85-01-8	Phenanthrene	U	1.09	ug/L	0.326	1.09
120-12-7	Anthracene	U	1.09	ug/L	0.326	1.09
84-74-2	Di-n-butylphthalate	U	10.9	ug/L	3.26	10.9
206-44-0	Fluoranthene	U	1.09	ug/L	0.326	1.09
129-00-0	Pyrene	U	1.09	ug/L	0.326	1.09
85-68-7	Butylbenzylphthalate	U	10.9	ug/L	3.26	10.9
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.9	ug/L	3.26	10.9
56-55-3	Benzo(a)anthracene	U	1.09	ug/L	0.326	1.09
218-01-9	Chrysene	U	1.09	ug/L	0.326	1.09
117-84-0	Di-n-octylphthalate	U	10.9	ug/L	3.26	10.9
205-99-2	Benzo(b)fluoranthene	U	1.09	ug/L	0.326	1.09
207-08-9	Benzo(k)fluoranthene	U	1.09	ug/L	0.326	1.09
50-32-8	Benzo(a)pyrene	U	1.09	ug/L	0.478	1.09
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.09	ug/L	0.326	1.09
53-70-3	Dibenzo(a,h)anthracene	U	1.09	ug/L	0.326	1.09
191-24-2	Benzo(ghi)perylene	U	1.09	ug/L	0.326	1.09
123-91-1	1,4-Dioxane	U	10.9	ug/L	3.26	10.9
55-18-5	N-Nitrosodiethylamine	U	10.9	ug/L	3.26	10.9
930-55-2	N-Nitrosopyrrolidine	U	10.9	ug/L	3.26	10.9

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 11:51**	**Matrix:**	**W**
Lab Sample ID:	**315450002**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24251**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 17:14**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**920 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2119.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.9	ug/L	3.26	10.9
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.9	ug/L	3.26	10.9
608-93-5	Pentachlorobenzene	U	10.9	ug/L	3.26	10.9
1912-24-9	Atrazine	U	10.9	ug/L	3.26	10.9
92-87-5	Benzidine	U	10.9	ug/L	3.26	10.9
91-94-1	3,3'-Dichlorobenzidine	U	10.9	ug/L	3.26	10.9
120-82-1	1,2,4-Trichlorobenzene	U	10.9	ug/L	3.26	10.9

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
2,4,6-Tribromophenol	2.75	109	ug/L	2.53	*	(23%-130%)
2-Fluorobiphenyl	23.6	54.3	ug/L	43.5		(30%-104%)
2-Fluorophenol	20.0	109	ug/L	18.4		(14%-77%)
Nitrobenzene-d5	26.6	54.3	ug/L	49.0		(34%-125%)
Phenol-d5	14.3	109	ug/L	13.2		(10%-78%)
p-Terphenyl-d14	27.9	54.3	ug/L	51.4		(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.903	41.2	ug/L	0	J
	unknown	1.932	5.58	ug/L	0	J
	unknown	1.986	15.4	ug/L	0	J
002597-49-1	Cyclobutane, ethenyl-	2.014	19.5	ug/L	95	NJ
	unknown	3.105	16.3	ug/L	0	J

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 11:51**	**Matrix:**	**W**
Lab Sample ID:	**315450002**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24251RE**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1266073**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 20:19**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/27/2012 09:40**	**Aliquot:**	**950 mL**	**Final Volume:**	**1 mL**
Data File:	**s112712.B\s8k2710.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	Uh	10.5	ug/L	3.16	10.5
110-86-1	Pyridine	Uh	10.5	ug/L	3.16	10.5
62-53-3	Aniline	Uh	10.5	ug/L	3.16	10.5
108-95-2	Phenol	Uh	10.5	ug/L	3.16	10.5
111-44-4	bis(2-Chloroethyl) ether	Uh	10.5	ug/L	3.16	10.5
95-57-8	2-Chlorophenol	Uh	10.5	ug/L	3.16	10.5
541-73-1	1,3-Dichlorobenzene	Uh	10.5	ug/L	3.16	10.5
106-46-7	1,4-Dichlorobenzene	Uh	10.5	ug/L	3.16	10.5
95-50-1	1,2-Dichlorobenzene	Uh	10.5	ug/L	3.16	10.5
39638-32-9	bis(2-Chloroisopropyl)ether	Uh	10.5	ug/L	3.16	10.5
100-51-6	Benzyl alcohol	Uh	10.5	ug/L	3.16	10.5
95-48-7	o-Cresol	Uh	10.5	ug/L	3.16	10.5
65794-96-9	m,p-Cresols	Uh	10.5	ug/L	3.16	10.5
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	Uh	10.5	ug/L	3.16	10.5
67-72-1	Hexachloroethane	Uh	10.5	ug/L	3.16	10.5
98-95-3	Nitrobenzene	Uh	10.5	ug/L	3.16	10.5
78-59-1	Isophorone	Uh	10.5	ug/L	3.16	10.5
88-75-5	2-Nitrophenol	Uh	10.5	ug/L	3.16	10.5
105-67-9	2,4-Dimethylphenol	Uh	10.5	ug/L	3.16	10.5
111-91-1	bis(2-Chloroethoxy)methane	Uh	10.5	ug/L	3.16	10.5
120-83-2	2,4-Dichlorophenol	Uh	10.5	ug/L	3.16	10.5
65-85-0	Benzoic acid	Uh	21.1	ug/L	6.32	21.1
106-47-8	4-Chloroaniline	Uh	10.5	ug/L	3.47	10.5
87-68-3	Hexachlorobutadiene	Uh	10.5	ug/L	3.16	10.5
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	Uh	10.5	ug/L	3.16	10.5
91-57-6	2-Methylnaphthalene	Uh	1.05	ug/L	0.316	1.05
91-20-3	Naphthalene	Uh	1.05	ug/L	0.316	1.05
90-12-0	1-Methylnaphthalene	Uh	1.05	ug/L	0.316	1.05
77-47-4	Hexachlorocyclopentadiene	Uh	10.5	ug/L	3.16	10.5
88-06-2	2,4,6-Trichlorophenol	Uh	10.5	ug/L	3.16	10.5
95-95-4	2,4,5-Trichlorophenol	Uh	10.5	ug/L	3.16	10.5
91-58-7	2-Chloronaphthalene	Uh	1.05	ug/L	0.316	1.05
88-74-4	2-Nitroaniline *o-Nitroaniline*	Uh	10.5	ug/L	3.16	10.5
99-09-2	3-Nitroaniline *m-Nitroaniline*	Uh	10.5	ug/L	3.16	10.5
131-11-3	Dimethylphthalate	Uh	10.5	ug/L	3.16	10.5
606-20-2	2,6-Dinitrotoluene	Uh	10.5	ug/L	3.16	10.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 11:51**	**Matrix:**	**W**
Lab Sample ID:	**315450002**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24251RE**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1266073**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 20:19**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/27/2012 09:40**	**Aliquot:**	**950 mL**	**Final Volume:**	**1 mL**
Data File:	**s112712.B\s8k2710.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	Uh	10.5	ug/L	3.16	10.5
208-96-8	Acenaphthylene	Uh	1.05	ug/L	0.316	1.05
83-32-9	Acenaphthene	Uh	1.05	ug/L	0.316	1.05
51-28-5	2,4-Dinitrophenol	Uh	21.1	ug/L	5.26	21.1
132-64-9	Dibenzofuran	Uh	10.5	ug/L	3.16	10.5
58-90-2	2,3,4,6-Tetrachlorophenol	Uh	10.5	ug/L	3.16	10.5
84-66-2	Diethylphthalate	Uh	10.5	ug/L	3.16	10.5
100-02-7	4-Nitrophenol	Uh	10.5	ug/L	3.16	10.5
86-73-7	Fluorene	Uh	1.05	ug/L	0.316	1.05
7005-72-3	4-Chlorophenylphenylether	Uh	10.5	ug/L	3.16	10.5
100-01-6	4-Nitroaniline	Uh	10.5	ug/L	3.16	10.5
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	Uh	10.5	ug/L	3.16	10.5
122-39-4	Diphenylamine	Uh	10.5	ug/L	3.16	10.5
122-66-7	Azobenzene	Uh	10.5	ug/L	3.16	10.5
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	Uh	10.5	ug/L	3.16	10.5
118-74-1	Hexachlorobenzene	Uh	10.5	ug/L	3.16	10.5
87-86-5	Pentachlorophenol	Uh	10.5	ug/L	3.16	10.5
88-85-7	Dinoseb	Uh	10.5	ug/L	3.16	10.5
85-01-8	Phenanthrene	Uh	1.05	ug/L	0.316	1.05
120-12-7	Anthracene	Uh	1.05	ug/L	0.316	1.05
84-74-2	Di-n-butylphthalate	Uh	10.5	ug/L	3.16	10.5
206-44-0	Fluoranthene	Uh	1.05	ug/L	0.316	1.05
129-00-0	Pyrene	Uh	1.05	ug/L	0.316	1.05
85-68-7	Butylbenzylphthalate	Uh	10.5	ug/L	3.16	10.5
117-81-7	bis(2-Ethylhexyl)phthalate	Uh	10.5	ug/L	3.16	10.5
56-55-3	Benzo(a)anthracene	Uh	1.05	ug/L	0.316	1.05
218-01-9	Chrysene	Uh	1.05	ug/L	0.316	1.05
117-84-0	Di-n-octylphthalate	Uh	10.5	ug/L	3.16	10.5
205-99-2	Benzo(b)fluoranthene	Uh	1.05	ug/L	0.316	1.05
207-08-9	Benzo(k)fluoranthene	Uh	1.05	ug/L	0.316	1.05
50-32-8	Benzo(a)pyrene	Uh	1.05	ug/L	0.463	1.05
193-39-5	Indeno(1,2,3-cd)pyrene	Uh	1.05	ug/L	0.316	1.05
53-70-3	Dibenzo(a,h)anthracene	Uh	1.05	ug/L	0.316	1.05
191-24-2	Benzo(ghi)perylene	Uh	1.05	ug/L	0.316	1.05
123-91-1	1,4-Dioxane	Uh	10.5	ug/L	3.16	10.5
55-18-5	N-Nitrosodiethylamine	Uh	10.5	ug/L	3.16	10.5
930-55-2	N-Nitrosopyrrolidine	Uh	10.5	ug/L	3.16	10.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 11:51**	**Matrix:**	**W**
Lab Sample ID:	**315450002**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24251RE**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1266073**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 20:19**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/27/2012 09:40**	**Aliquot:**	**950 mL**	**Final Volume:**	**1 mL**
Data File:	**s112712.B\s8k2710.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	Uh	10.5	ug/L	3.16	10.5
95-94-3	1,2,4,5-Tetrachlorobenzene	Uh	10.5	ug/L	3.16	10.5
608-93-5	Pentachlorobenzene	Uh	10.5	ug/L	3.16	10.5
1912-24-9	Atrazine	Uh	10.5	ug/L	3.16	10.5
92-87-5	Benzidine	Uh	10.5	ug/L	3.16	10.5
91-94-1	3,3'-Dichlorobenzidine	Uh	10.5	ug/L	3.16	10.5
120-82-1	1,2,4-Trichlorobenzene	Uh	10.5	ug/L	3.16	10.5

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	50.5	105	ug/L	48.0	(23%-130%)
2-Fluorobiphenyl	24.5	52.6	ug/L	46.6	(30%-104%)
2-Fluorophenol	43.5	105	ug/L	41.3	(14%-77%)
Nitrobenzene-d5	23.0	52.6	ug/L	43.8	(34%-125%)
Phenol-d5	29.5	105	ug/L	28.0	(10%-78%)
p-Terphenyl-d14	40.0	52.6	ug/L	76.0	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.946	9.46	ug/L	0	J
	unknown	2.154	43.8	ug/L	0	J
	unknown	2.288	10.5	ug/L	0	J
000110-83-8	Cyclohexene	2.341	24	ug/L	97	NJ

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 14:59**	**Matrix:**	**W**
Lab Sample ID:	**315450009**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24252**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 17:39**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**960 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2120.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.4	ug/L	3.13	10.4
110-86-1	Pyridine	U	10.4	ug/L	3.13	10.4
62-53-3	Aniline	U	10.4	ug/L	3.13	10.4
108-95-2	Phenol	U	10.4	ug/L	3.13	10.4
111-44-4	bis(2-Chloroethyl) ether	U	10.4	ug/L	3.13	10.4
95-57-8	2-Chlorophenol	U	10.4	ug/L	3.13	10.4
541-73-1	1,3-Dichlorobenzene	U	10.4	ug/L	3.13	10.4
106-46-7	1,4-Dichlorobenzene	U	10.4	ug/L	3.13	10.4
95-50-1	1,2-Dichlorobenzene	U	10.4	ug/L	3.13	10.4
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.4	ug/L	3.13	10.4
100-51-6	Benzyl alcohol	U	10.4	ug/L	3.13	10.4
95-48-7	o-Cresol	U	10.4	ug/L	3.13	10.4
65794-96-9	m,p-Cresols	U	10.4	ug/L	3.13	10.4
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.4	ug/L	3.13	10.4
67-72-1	Hexachloroethane	U	10.4	ug/L	3.13	10.4
98-95-3	Nitrobenzene	U	10.4	ug/L	3.13	10.4
78-59-1	Isophorone	U	10.4	ug/L	3.13	10.4
88-75-5	2-Nitrophenol	U	10.4	ug/L	3.13	10.4
105-67-9	2,4-Dimethylphenol	U	10.4	ug/L	3.13	10.4
111-91-1	bis(2-Chloroethoxy)methane	U	10.4	ug/L	3.13	10.4
120-83-2	2,4-Dichlorophenol	U	10.4	ug/L	3.13	10.4
65-85-0	Benzoic acid	U	20.8	ug/L	6.25	20.8
106-47-8	4-Chloroaniline	U	10.4	ug/L	3.44	10.4
87-68-3	Hexachlorobutadiene	U	10.4	ug/L	3.13	10.4
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.4	ug/L	3.13	10.4
91-57-6	2-Methylnaphthalene	U	1.04	ug/L	0.313	1.04
91-20-3	Naphthalene	U	1.04	ug/L	0.313	1.04
90-12-0	1-Methylnaphthalene	U	1.04	ug/L	0.313	1.04
77-47-4	Hexachlorocyclopentadiene	U	10.4	ug/L	3.13	10.4
88-06-2	2,4,6-Trichlorophenol	U	10.4	ug/L	3.13	10.4
95-95-4	2,4,5-Trichlorophenol	U	10.4	ug/L	3.13	10.4
91-58-7	2-Chloronaphthalene	U	1.04	ug/L	0.313	1.04
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.4	ug/L	3.13	10.4
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.4	ug/L	3.13	10.4
131-11-3	Dimethylphthalate	U	10.4	ug/L	3.13	10.4
606-20-2	2,6-Dinitrotoluene	U	10.4	ug/L	3.13	10.4

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 14:59**	**Matrix:**	**W**
Lab Sample ID:	**315450009**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24252**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 17:39**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**960 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2120.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.4	ug/L	3.13	10.4
208-96-8	Acenaphthylene	U	1.04	ug/L	0.313	1.04
83-32-9	Acenaphthene	U	1.04	ug/L	0.313	1.04
51-28-5	2,4-Dinitrophenol	U	20.8	ug/L	5.21	20.8
132-64-9	Dibenzofuran	U	10.4	ug/L	3.13	10.4
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.4	ug/L	3.13	10.4
84-66-2	Diethylphthalate	U	10.4	ug/L	3.13	10.4
100-02-7	4-Nitrophenol	U	10.4	ug/L	3.13	10.4
86-73-7	Fluorene	U	1.04	ug/L	0.313	1.04
7005-72-3	4-Chlorophenylphenylether	U	10.4	ug/L	3.13	10.4
100-01-6	4-Nitroaniline	U	10.4	ug/L	3.13	10.4
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.4	ug/L	3.13	10.4
122-39-4	Diphenylamine	U	10.4	ug/L	3.13	10.4
122-66-7	Azobenzene	U	10.4	ug/L	3.13	10.4
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.4	ug/L	3.13	10.4
118-74-1	Hexachlorobenzene	U	10.4	ug/L	3.13	10.4
87-86-5	Pentachlorophenol	U	10.4	ug/L	3.13	10.4
88-85-7	Dinoseb	U	10.4	ug/L	3.13	10.4
85-01-8	Phenanthrene	U	1.04	ug/L	0.313	1.04
120-12-7	Anthracene	U	1.04	ug/L	0.313	1.04
84-74-2	Di-n-butylphthalate	U	10.4	ug/L	3.13	10.4
206-44-0	Fluoranthene	U	1.04	ug/L	0.313	1.04
129-00-0	Pyrene	U	1.04	ug/L	0.313	1.04
85-68-7	Butylbenzylphthalate	U	10.4	ug/L	3.13	10.4
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.4	ug/L	3.13	10.4
56-55-3	Benzo(a)anthracene	U	1.04	ug/L	0.313	1.04
218-01-9	Chrysene	U	1.04	ug/L	0.313	1.04
117-84-0	Di-n-octylphthalate	U	10.4	ug/L	3.13	10.4
205-99-2	Benzo(b)fluoranthene	U	1.04	ug/L	0.313	1.04
207-08-9	Benzo(k)fluoranthene	U	1.04	ug/L	0.313	1.04
50-32-8	Benzo(a)pyrene	U	1.04	ug/L	0.458	1.04
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.04	ug/L	0.313	1.04
53-70-3	Dibenzo(a,h)anthracene	U	1.04	ug/L	0.313	1.04
191-24-2	Benzo(ghi)perylene	U	1.04	ug/L	0.313	1.04
123-91-1	1,4-Dioxane	U	10.4	ug/L	3.13	10.4
55-18-5	N-Nitrosodiethylamine	U	10.4	ug/L	3.13	10.4
930-55-2	N-Nitrosopyrrolidine	U	10.4	ug/L	3.13	10.4

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 14:59**	**Matrix:**	**W**
Lab Sample ID:	**315450009**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24252**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 17:39**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**960 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2120.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.4	ug/L	3.13	10.4
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.4	ug/L	3.13	10.4
608-93-5	Pentachlorobenzene	U	10.4	ug/L	3.13	10.4
1912-24-9	Atrazine	U	10.4	ug/L	3.13	10.4
92-87-5	Benzidine	U	10.4	ug/L	3.13	10.4
91-94-1	3,3'-Dichlorobenzidine	U	10.4	ug/L	3.13	10.4
120-82-1	1,2,4-Trichlorobenzene	U	10.4	ug/L	3.13	10.4

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	51.4	104	ug/L	49.3	(23%-130%)
2-Fluorobiphenyl	27.2	52.1	ug/L	52.3	(30%-104%)
2-Fluorophenol	36.4	104	ug/L	34.9	(14%-77%)
Nitrobenzene-d5	30.6	52.1	ug/L	58.8	(34%-125%)
Phenol-d5	23.1	104	ug/L	22.2	(10%-78%)
p-Terphenyl-d14	26.3	52.1	ug/L	50.4	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.903	45.9	ug/L	0	J
	unknown	1.932	7.32	ug/L	0	J
	unknown	1.986	16	ug/L	0	J
000110-83-8	Cyclohexene	2.011	19.2	ug/L	94	NJ
	unknown	2.804	4.3	ug/L	0	J
1000154-28-6	Cyclopentene, 1,2,3,4,5-pentamethy	3.722	6.94	ug/L	87	NJ

Quality Control Summary

Semi-Volatile

Surrogate Recovery Report

SDG Number: 2013-334

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1202782898	MB for batch 1264517	35	21	60	57	62	58
1202782901	LCS for batch 1264517	34	20	57	54	63	54
1202782899	WST50-12-23903MS	43	32	57	54	58	55
1202782900	WST50-12-23903MSD	48	36	59	55	62	59
315450002	CAMO-13-24251	18	13	49	43	3 *	51
315450009	CAMO-13-24252	35	22	59	52	49	50
1202786498	MB for batch 1266072	41	24	61	68	78	81
1202786499	LCS for batch 1266072	40	24	62	68	75	73
1202786500	LCSD for batch 1266072	45	27	67	77	83	81
315450002	CAMO-13-24251RE	41	28	44	47	48	76

Surrogate			Acceptance Limits
2FP	=	2-Fluorophenol	(14%-77%)
PHL	=	Phenol-d5	(10%-78%)
NBZ	=	Nitrobenzene-d5	(34%-125%)
FBP	=	2-Fluorobiphenyl	(30%-104%)
TBP	=	2,4,6-Tribromophenol	(23%-130%)
TPH	=	p-Terphenyl-d14	(33%-136%)

* Recovery outside Acceptance Limits

\# Column to be used to flag recovery values

D Sample Diluted

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334** **Sample Type:** **Matrix Spike**

Client ID: **WST50-12-23903MS** **Matrix:** **W**

Lab Sample ID: **1202782899**

Instrument: **MSD3.I** **Analysis Date:** **11/21/2012 15:10** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1264517**

Inj. Vol: **1 uL** **Batch ID:** **1264519**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	MS	N-Methyl-N-nitrosomethylam	116	0.00	Uh	50.8	44	27-85
110-86-1	MS	Pyridine	116	0.00	Uh	40.2	35	21-93
62-53-3	MS	Aniline	116	0.00	Uh	0.00	0 *	28-108
108-95-2	MS	Phenol	116	0.00	Uh	41.5	36	15-100
111-44-4	MS	bis(2-Chloroethyl) ether	116	0.00	Uh	67.8	58	27-114
95-57-8	MS	2-Chlorophenol	116	0.00	Uh	68.8	59	32-103
541-73-1	MS	1,3-Dichlorobenzene	116	0.00	Uh	56.2	48	23-84
106-46-7	MS	1,4-Dichlorobenzene	116	0.00	Uh	55.6	48	23-88
95-50-1	MS	1,2-Dichlorobenzene	116	0.00	Uh	57.7	50	24-86
39638-32-9	MS	bis(2-Chloroisopropyl)ether	116	0.00	Uh	73.9	64	19-122
100-51-6	MS	Benzyl alcohol	116	0.00	Uh	55.9	48	34-98
95-48-7	MS	o-Cresol	116	0.00	Uh	36.3	31	29-96
65794-96-9	MS	m,p-Cresols	116	0.00	Uh	35.9	31	26-111
621-64-7	MS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	116	0.00	Uh	68.4	59	32-115
67-72-1	MS	Hexachloroethane	116	0.00	Uh	52.3	45	25-82
98-95-3	MS	Nitrobenzene	116	0.00	Uh	75.1	65	35-124
78-59-1	MS	Isophorone	116	0.00	Uh	78.1	67	37-140
88-75-5	MS	2-Nitrophenol	116	0.00	Uh	84.0	72	33-115
105-67-9	MS	2,4-Dimethylphenol	116	0.00	Uh	0.00	0 *	31-106
111-91-1	MS	bis(2-Chloroethoxy)methane	116	0.00	Uh	68.3	59	35-112
120-83-2	MS	2,4-Dichlorophenol	116	0.00	Uh	73.3	63	36-110
65-85-0	MS	Benzoic acid	233	0.00	Uh	116	50	12-108

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334** **Sample Type:** **Matrix Spike**

Client ID: **WST50-12-23903MS** **Matrix:** **W**

Lab Sample ID: **1202782899**

Instrument: **MSD3.I** **Analysis Date:** **11/21/2012 15:10** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1264517**

Inj. Vol: **1 uL** **Batch ID:** **1264519**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS	4-Chloroaniline	116	0.00	Uh	20.1	17 *	33-120
87-68-3	MS	Hexachlorobutadiene	116	0.00	Uh	66.1	57	19-96
59-50-7	MS	Parachlorometa cresol *4-Chloro-3-methylphenol*	116	0.00	Uh	57.3	49	36-116
91-57-6	MS	2-Methylnaphthalene	116	0.00	Uh	62.0	53	27-103
91-20-3	MS	Naphthalene	116	0.00	Uh	60.0	52	28-99
90-12-0	MS	1-Methylnaphthalene	116	0.00	Uh	66.2	57	29-107
77-47-4	MS	Hexachlorocyclopentadiene	116	0.00	Uh	40.0	34	25-75
88-06-2	MS	2,4,6-Trichlorophenol	116	0.00	Uh	70.7	61	36-111
95-95-4	MS	2,4,5-Trichlorophenol	116	0.00	Uh	74.4	64	34-115
91-58-7	MS	2-Chloronaphthalene	116	0.00	Uh	61.6	53	33-96
88-74-4	MS	2-Nitroaniline *o-Nitroaniline*	116	0.00	Uh	0.00	0 *	31-120
99-09-2	MS	3-Nitroaniline *m-Nitroaniline*	116	0.00	Uh	0.00	0 *	32-123
131-11-3	MS	Dimethylphthalate	116	0.00	Uh	80.0	69	43-115
606-20-2	MS	2,6-Dinitrotoluene	116	0.00	Uh	84.4	73	42-121
121-14-2	MS	2,4-Dinitrotoluene	116	0.00	Uh	86.5	74	37-125
208-96-8	MS	Acenaphthylene	116	0.00	Uh	55.2	48	34-103
83-32-9	MS	Acenaphthene	116	0.00	Uh	60.8	52	31-104
51-28-5	MS	2,4-Dinitrophenol	116	0.00	Uh	76.8	66	25-108
132-64-9	MS	Dibenzofuran	116	0.00	Uh	76.0	65	38-106
58-90-2	MS	2,3,4,6-Tetrachlorophenol	116	0.00	Uh	83.2	72	33-123
84-66-2	MS	Diethylphthalate	116	0.00	Uh	78.1	67	43-116
100-02-7	MS	4-Nitrophenol	116	0.00	Uh	52.0	45	26-72

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334** **Sample Type:** **Matrix Spike**
Client ID: **WST50-12-23903MS** **Matrix:** **W**
Lab Sample ID: **1202782899**
Instrument: **MSD3.I** **Analysis Date:** **11/21/2012 15:10** **Dilution: 1**
Analyst: **JLD1** **Prep Batch ID:** **1264517**
Inj. Vol: **1 uL** **Batch ID:** **1264519**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	116	0.00	Uh	71.9	62	33-110
7005-72-3	MS	4-Chlorophenylphenylether	116	0.00	Uh	76.5	66	30-112
100-01-6	MS	4-Nitroaniline *p-Nitroaniline*	116	0.00	Uh	0.00	0 *	28-131
534-52-1	MS	2-Methyl-4,6-dinitrophenol	116	0.00	Uh	88.0	76	31-113
122-39-4	MS	Diphenylamine	116	0.00	Uh	61.5	53	36-110
122-66-7	MS	Azobenzene *1,2-Diphenylhydrazine*	116	0.00	Uh	61.6	53	33-110
101-55-3	MS	4-Bromophenylphenylether	116	0.00	Uh	77.3	66	33-111
118-74-1	MS	Hexachlorobenzene	116	0.00	Uh	75.7	65	36-113
87-86-5	MS	Pentachlorophenol	116	0.00	Uh	63.3	54	25-110
85-01-8	MS	Phenanthrene	116	0.00	Uh	73.0	63	36-111
120-12-7	MS	Anthracene	116	0.00	Uh	64.0	55	36-107
84-74-2	MS	Di-n-butylphthalate	116	0.00	Uh	75.0	65	38-116
206-44-0	MS	Fluoranthene	116	0.00	Uh	77.4	67	35-116
129-00-0	MS	Pyrene	116	0.00	Uh	72.3	62	28-126
85-68-7	MS	Butylbenzylphthalate	116	0.00	Uh	69.8	60	32-120
117-81-7	MS	bis(2-Ethylhexyl)phthalate	116	0.00	Uh	69.3	60	30-121
56-55-3	MS	Benzo(a)anthracene	116	0.00	Uh	76.7	66	38-110
218-01-9	MS	Chrysene	116	0.00	Uh	75.6	65	35-115
117-84-0	MS	Di-n-octylphthalate	116	0.00	Uh	66.9	58	30-115
205-99-2	MS	Benzo(b)fluoranthene	116	0.00	Uh	77.5	67	37-115
207-08-9	MS	Benzo(k)fluoranthene	116	0.00	Uh	78.2	67	36-118
50-32-8	MS	Benzo(a)pyrene	116	0.00	Uh	67.3	58	36-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334** **Sample Type:** **Matrix Spike**

Client ID: **WST50-12-23903MS** **Matrix:** **W**

Lab Sample ID: **1202782899**

Instrument: **MSD3.I** **Analysis Date:** **11/21/2012 15:10** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1264517**

Inj. Vol: **1 uL** **Batch ID:** **1264519**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	MS	Indeno(1,2,3-cd)pyrene	116	0.00	Uh	82.3	71	28-121
53-70-3	MS	Dibenzo(a,h)anthracene	116	0.00	Uh	85.7	74	26-124
191-24-2	MS	Benzo(ghi)perylene	116	0.00	Uh	74.1	64	25-122
123-91-1	MS	1,4-Dioxane	116	0.00	Uh	52.2	45	26-90
930-55-2	MS	N-Nitrosopyrrolidine	116	0.00	Uh	72.1	62	40-113
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	116	0.00	Uh	61.3	53	32-94
1912-24-9	MS	Atrazine	116	0.00	Uh	57.1	49	36-119
92-87-5	MS	Benzidine	233	0.00	Uh	0.00	0 *	10-125
91-94-1	MS	3,3'-Dichlorobenzidine	116	0.00	Uh	0.00	0 *	27-109
120-82-1	MS	1,2,4-Trichlorobenzene	116	0.00	Uh	61.0	53	23-90

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **WST50-12-23903MSD** **Matrix:** **W**

Lab Sample ID: **1202782900**

Instrument: **MSD3.I** **Analysis Date:** **11/21/2012 15:35** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1264517**

Inj. Vol: **1 uL** **Batch ID:** **1264519**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
62-75-9	MSD	N-Methyl-N-nitrosomethylam	116	0.00	Uh	54.4	47	27-85	7	0-30
110-86-1	MSD	Pyridine	116	0.00	Uh	57.0	49	21-93	35 *	0-30
62-53-3	MSD	Aniline	116	0.00	Uh	0.00	0 *	28-108	0	0-30
108-95-2	MSD	Phenol	116	0.00	Uh	47.5	41	15-100	14	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	116	0.00	Uh	68.7	59	27-114	1	0-30
95-57-8	MSD	2-Chlorophenol	116	0.00	Uh	72.9	63	32-103	6	0-30
541-73-1	MSD	1,3-Dichlorobenzene	116	0.00	Uh	58.6	50	23-84	4	0-30
106-46-7	MSD	1,4-Dichlorobenzene	116	0.00	Uh	58.3	50	23-88	5	0-30
95-50-1	MSD	1,2-Dichlorobenzene	116	0.00	Uh	59.8	51	24-86	4	0-30
39638-32-9	MSD	bis(2-Chloroisopropyl)ether	116	0.00	Uh	76.2	66	19-122	3	0-30
100-51-6	MSD	Benzyl alcohol	116	0.00	Uh	59.8	51	34-98	7	0-30
95-48-7	MSD	o-Cresol	116	0.00	Uh	43.5	37	29-96	18	0-30
65794-96-9	MSD	m,p-Cresols	116	0.00	Uh	47.7	41	26-111	28	0-30
621-64-7	MSD	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	116	0.00	Uh	70.0	60	32-115	2	0-30
67-72-1	MSD	Hexachloroethane	116	0.00	Uh	54.0	46	25-82	3	0-30
98-95-3	MSD	Nitrobenzene	116	0.00	Uh	76.3	66	35-124	2	0-30
78-59-1	MSD	Isophorone	116	0.00	Uh	80.1	69	37-140	3	0-30
88-75-5	MSD	2-Nitrophenol	116	0.00	Uh	84.3	73	33-115	0	0-30
105-67-9	MSD	2,4-Dimethylphenol	116	0.00	Uh	0.00	0 *	31-106	0	0-30
111-91-1	MSD	bis(2-Chloroethoxy)methane	116	0.00	Uh	69.4	60	35-112	2	0-30
120-83-2	MSD	2,4-Dichlorophenol	116	0.00	Uh	78.5	67	36-110	7	0-30
65-85-0	MSD	Benzoic acid	233	0.00	Uh	126	54	12-108	8	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **WST50-12-23903MSD** **Matrix:** **W**

Lab Sample ID: **1202782900**

Instrument: **MSD3.I** **Analysis Date:** **11/21/2012 15:35** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1264517**

Inj. Vol: **1 uL** **Batch ID:** **1264519**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
106-47-8	MSD	4-Chloroaniline	116	0.00	Uh	20.7	18 *	33-120	3	0-30
87-68-3	MSD	Hexachlorobutadiene	116	0.00	Uh	66.7	57	19-96	1	0-30
59-50-7	MSD	Parachlorometa cresol *4-Chloro-3-methylphenol*	116	0.00	Uh	66.6	57	36-116	15	0-30
91-57-6	MSD	2-Methylnaphthalene	116	0.00	Uh	64.0	55	27-103	3	0-30
91-20-3	MSD	Naphthalene	116	0.00	Uh	61.0	53	28-99	2	0-30
90-12-0	MSD	1-Methylnaphthalene	116	0.00	Uh	68.3	59	29-107	3	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	116	0.00	Uh	39.8	34	25-75	0	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	116	0.00	Uh	75.7	65	36-111	7	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	116	0.00	Uh	79.1	68	34-115	6	0-30
91-58-7	MSD	2-Chloronaphthalene	116	0.00	Uh	63.3	54	33-96	3	0-30
88-74-4	MSD	2-Nitroaniline *o-Nitroaniline*	116	0.00	Uh	0.00	0 *	31-120	0	0-30
99-09-2	MSD	3-Nitroaniline *m-Nitroaniline*	116	0.00	Uh	0.00	0 *	32-123	0	0-30
131-11-3	MSD	Dimethylphthalate	116	0.00	Uh	82.1	71	43-115	3	0-30
606-20-2	MSD	2,6-Dinitrotoluene	116	0.00	Uh	85.9	74	42-121	2	0-30
121-14-2	MSD	2,4-Dinitrotoluene	116	0.00	Uh	87.8	76	37-125	1	0-30
208-96-8	MSD	Acenaphthylene	116	0.00	Uh	57.3	49	34-103	4	0-30
83-32-9	MSD	Acenaphthene	116	0.00	Uh	61.9	53	31-104	2	0-30
51-28-5	MSD	2,4-Dinitrophenol	116	0.00	Uh	86.4	74	25-108	12	0-30
132-64-9	MSD	Dibenzofuran	116	0.00	Uh	77.2	66	38-106	2	0-30
58-90-2	MSD	2,3,4,6-Tetrachlorophenol	116	0.00	Uh	87.7	75	33-123	5	0-30
84-66-2	MSD	Diethylphthalate	116	0.00	Uh	79.9	69	43-116	2	0-30
100-02-7	MSD	4-Nitrophenol	116	0.00	Uh	53.4	46	26-72	3	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **WST50-12-23903MSD** **Matrix:** **W**

Lab Sample ID: **1202782900**

Instrument: **MSD3.I** **Analysis Date:** **11/21/2012 15:35** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1264517**

Inj. Vol: **1 uL** **Batch ID:** **1264519**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
86-73-7	MSD	Fluorene	116	0.00	Uh	72.3	62	33-110	1	0-30
7005-72-3	MSD	4-Chlorophenylphenylether	116	0.00	Uh	76.7	66	30-112	0	0-30
100-01-6	MSD	4-Nitroaniline *p-Nitroaniline*	116	0.00	Uh	0.00	0 *	28-131	0	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	116	0.00	Uh	92.9	80	31-113	5	0-30
122-39-4	MSD	Diphenylamine	116	0.00	Uh	64.1	55	36-110	4	0-30
122-66-7	MSD	Azobenzene *1,2-Diphenylhydrazine*	116	0.00	Uh	62.6	54	33-110	2	0-30
101-55-3	MSD	4-Bromophenylphenylether	116	0.00	Uh	78.1	67	33-111	1	0-30
118-74-1	MSD	Hexachlorobenzene	116	0.00	Uh	75.8	65	36-113	0	0-30
87-86-5	MSD	Pentachlorophenol	116	0.00	Uh	68.9	59	25-110	8	0-30
85-01-8	MSD	Phenanthrene	116	0.00	Uh	73.8	63	36-111	1	0-30
120-12-7	MSD	Anthracene	116	0.00	Uh	64.6	56	36-107	1	0-30
84-74-2	MSD	Di-n-butylphthalate	116	0.00	Uh	74.9	64	38-116	0	0-30
206-44-0	MSD	Fluoranthene	116	0.00	Uh	75.4	65	35-116	3	0-30
129-00-0	MSD	Pyrene	116	0.00	Uh	78.1	67	28-126	8	0-30
85-68-7	MSD	Butylbenzylphthalate	116	0.00	Uh	72.4	62	32-120	4	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	116	0.00	Uh	69.0	59	30-121	0	0-30
56-55-3	MSD	Benzo(a)anthracene	116	0.00	Uh	78.5	68	38-110	2	0-30
218-01-9	MSD	Chrysene	116	0.00	Uh	76.8	66	35-115	2	0-30
117-84-0	MSD	Di-n-octylphthalate	116	0.00	Uh	64.1	55	30-115	4	0-30
205-99-2	MSD	Benzo(b)fluoranthene	116	0.00	Uh	78.6	68	37-115	1	0-30
207-08-9	MSD	Benzo(k)fluoranthene	116	0.00	Uh	80.2	69	36-118	2	0-30
50-32-8	MSD	Benzo(a)pyrene	116	0.00	Uh	68.7	59	36-109	2	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **WST50-12-23903MSD**
Lab Sample ID: **1202782900**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/21/2012 15:35**
Prep Batch ID: **1264517**
Batch ID: **1264519**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
193-39-5	MSD	Indeno(1,2,3-cd)pyrene	116	0.00	Uh	83.9	72	28-121	2	0-30
53-70-3	MSD	Dibenzo(a,h)anthracene	116	0.00	Uh	82.6	71	26-124	4	0-30
191-24-2	MSD	Benzo(ghi)perylene	116	0.00	Uh	77.9	67	25-122	5	0-30
123-91-1	MSD	1,4-Dioxane	116	0.00	Uh	55.2	47	26-90	5	0-30
930-55-2	MSD	N-Nitrosopyrrolidine	116	0.00	Uh	74.2	64	40-113	3	0-30
95-94-3	MSD	1,2,4,5-Tetrachlorobenzene	116	0.00	Uh	63.2	54	32-94	3	0-30
1912-24-9	MSD	Atrazine	116	0.00	Uh	58.6	50	36-119	3	0-30
92-87-5	MSD	Benzidine	233	0.00	Uh	0.00	0 *	10-125	0	0-30
91-94-1	MSD	3,3'-Dichlorobenzidine	116	0.00	Uh	0.00	0 *	27-109	0	0-30
120-82-1	MSD	1,2,4-Trichlorobenzene	116	0.00	Uh	61.8	53	23-90	1	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **LCS for batch 1264517**
Lab Sample ID: **1202782901**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/21/2012 12:13**
Prep Batch ID: **1264517**
Batch ID: **1264519**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	LCS	N-Methyl-N-nitrosomethylam	50.0	0.0	16.8	34	29-86
110-86-1	LCS	Pyridine	50.0	0.0	19.3	39	25-96
62-53-3	LCS	Aniline	50.0	0.0	29.0	58	38-105
108-95-2	LCS	Phenol	50.0	0.0	11.2	22	13-137
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	28.0	56	37-110
95-57-8	LCS	2-Chlorophenol	50.0	0.0	29.0	58	41-98
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	24.2	48	33-86
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	24.0	48	33-87
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	24.4	49	34-86
39638-32-9	LCS	bis(2-Chloroisopropyl)ether	50.0	0.0	30.0	60	30-118
100-51-6	LCS	Benzyl alcohol	50.0	0.0	22.2	44	39-88
95-48-7	LCS	o-Cresol	50.0	0.0	24.6	49	37-89
65794-96-9	LCS	m,p-Cresols	50.0	0.0	27.9	56	33-99
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	28.1	56	40-112
67-72-1	LCS	Hexachloroethane	50.0	0.0	22.2	44	31-87
98-95-3	LCS	Nitrobenzene	50.0	0.0	31.2	62	42-118
78-59-1	LCS	Isophorone	50.0	0.0	33.5	67	50-132
88-75-5	LCS	2-Nitrophenol	50.0	0.0	33.8	68	45-109
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	23.7	47	44-98
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	29.0	58	45-109
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	33.2	66	46-106
65-85-0	LCS	Benzoic acid	100	0.0	29.2	29	4-134

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **LCS for batch 1264517**
Lab Sample ID: **1202782901**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/21/2012 12:13**
Prep Batch ID: **1264517**
Batch ID: **1264519**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	LCS	4-Chloroaniline	50.0	0.0	31.8	64	50-122
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	28.4	57	29-94
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	30.5	61	47-110
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	25.6	51	37-100
91-20-3	LCS	Naphthalene	50.0	0.0	25.1	50	35-97
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	27.0	54	38-105
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	16.9	34 *	38-79
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	32.5	65	43-108
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	32.9	66	43-110
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	25.4	51	40-96
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	27.5	55	45-116
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	29.7	59	46-123
131-11-3	LCS	Dimethylphthalate	50.0	0.0	33.5	67	53-111
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	34.9	70	52-117
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	35.4	71	46-124
208-96-8	LCS	Acenaphthylene	50.0	0.0	26.3	53	42-105
83-32-9	LCS	Acenaphthene	50.0	0.0	24.7	49	42-103
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	33.6	67	33-105
132-64-9	LCS	Dibenzofuran	50.0	0.0	31.1	62	46-106
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	34.9	70	46-119
84-66-2	LCS	Diethylphthalate	50.0	0.0	32.4	65	52-115
100-02-7	LCS	4-Nitrophenol	50.0	0.0	6.89	14	12-130

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **LCS for batch 1264517**
Lab Sample ID: **1202782901**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/21/2012 12:13**
Prep Batch ID: **1264517**
Batch ID: **1264519**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	LCS	Fluorene	50.0	0.0	29.2	58	44-110
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	30.9	62	41-113
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	31.0	62	39-132
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	37.0	74	39-111
122-39-4	LCS	Diphenylamine	50.0	0.0	29.6	59	47-111
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	26.4	53	41-111
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	32.5	65	42-113
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	31.9	64	44-115
87-86-5	LCS	Pentachlorophenol	50.0	0.0	23.9	48	36-99
85-01-8	LCS	Phenanthrene	50.0	0.0	30.7	61	47-111
120-12-7	LCS	Anthracene	50.0	0.0	30.0	60	46-109
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	31.2	62	49-115
206-44-0	LCS	Fluoranthene	50.0	0.0	31.9	64	45-118
129-00-0	LCS	Pyrene	50.0	0.0	31.9	64	39-126
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	29.5	59	41-121
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	27.8	56	38-124
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	32.7	65	49-110
218-01-9	LCS	Chrysene	50.0	0.0	32.0	64	45-117
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	25.7	51	34-121
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	31.2	62	47-116
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	32.4	65	47-119
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	31.7	63	48-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **LCS for batch 1264517**
Lab Sample ID: **1202782901**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/21/2012 12:13**
Prep Batch ID: **1264517**
Batch ID: **1264519**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	LCS	Indeno(1,2,3-cd)pyrene	50.0	0.0	41.4	83	38-124
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	53.9	108	38-124
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	38.3	77	36-124
123-91-1	LCS	1,4-Dioxane	50.0	0.0	17.0	34 *	41-69
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	28.8	58	42-105
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	25.4	51	40-93
1912-24-9	LCS	Atrazine	50.0	0.0	24.7	49	47-115
92-87-5	LCS	Benzidine	100	0.0	25.4	25	19-124
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	29.3	59	36-111
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	26.3	53	32-92

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **LCS for batch 1266072**
Lab Sample ID: **1202786499**
Instrument: **MSD8.I**
Analyst: **RMB**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/27/2012 19:11**
Prep Batch ID: **1266072**
Batch ID: **1266073**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	LCS	N-Methyl-N-nitrosomethylam	50.0	0.0	19.4	39	29-86
110-86-1	LCS	Pyridine	50.0	0.0	17.1	34	25-96
62-53-3	LCS	Aniline	50.0	0.0	26.6	53	38-105
108-95-2	LCS	Phenol	50.0	0.0	12.1	24	13-137
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	27.4	55	37-110
95-57-8	LCS	2-Chlorophenol	50.0	0.0	30.7	61	41-98
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	22.2	44	33-86
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	23.2	46	33-87
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	22.9	46	34-86
39638-32-9	LCS	bis(2-Chloroisopropyl)ether	50.0	0.0	23.7	47	30-118
100-51-6	LCS	Benzyl alcohol	50.0	0.0	31.1	62	39-88
95-48-7	LCS	o-Cresol	50.0	0.0	28.0	56	37-89
65794-96-9	LCS	m,p-Cresols	50.0	0.0	29.5	59	33-99
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	30.8	62	40-112
67-72-1	LCS	Hexachloroethane	50.0	0.0	21.8	44	31-87
98-95-3	LCS	Nitrobenzene	50.0	0.0	33.0	66	42-118
78-59-1	LCS	Isophorone	50.0	0.0	34.2	68	50-132
88-75-5	LCS	2-Nitrophenol	50.0	0.0	32.5	65	45-109
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	31.4	63	44-98
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	31.9	64	45-109
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	33.7	67	46-106
65-85-0	LCS	Benzoic acid	100	0.0	35.0	35	4-134

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **LCS for batch 1266072**
Lab Sample ID: **1202786499**
Instrument: **MSD8.I**
Analyst: **RMB**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/27/2012 19:11**
Prep Batch ID: **1266072**
Batch ID: **1266073**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	LCS	4-Chloroaniline	50.0	0.0	35.6	71	50-122
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	24.8	50	29-94
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	34.7	69	47-110
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	26.0	52	37-100
91-20-3	LCS	Naphthalene	50.0	0.0	27.0	54	35-97
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	26.8	54	38-105
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	12.0	24 *	38-79
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	37.9	76	43-108
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	40.8	82	43-110
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	28.6	57	40-96
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	29.3	59	45-116
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	35.3	71	46-123
131-11-3	LCS	Dimethylphthalate	50.0	0.0	36.2	72	53-111
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	37.5	75	52-117
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	38.7	77	46-124
208-96-8	LCS	Acenaphthylene	50.0	0.0	31.6	63	42-105
83-32-9	LCS	Acenaphthene	50.0	0.0	29.0	58	42-103
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	38.1	76	33-105
132-64-9	LCS	Dibenzofuran	50.0	0.0	35.8	72	46-106
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	39.1	78	46-119
84-66-2	LCS	Diethylphthalate	50.0	0.0	37.8	76	52-115
100-02-7	LCS	4-Nitrophenol	50.0	0.0	15.2	30	12-130

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **LCS for batch 1266072**
Lab Sample ID: **1202786499**
Instrument: **MSD8.I**
Analyst: **RMB**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/27/2012 19:11**
Prep Batch ID: **1266072**
Batch ID: **1266073**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	LCS	Fluorene	50.0	0.0	32.8	66	44-110
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	33.2	66	41-113
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	35.5	71	39-132
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	35.8	72	39-111
122-39-4	LCS	Diphenylamine	50.0	0.0	32.4	65	47-111
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	28.6	57	41-111
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	31.4	63	42-113
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	30.6	61	44-115
87-86-5	LCS	Pentachlorophenol	50.0	0.0	38.4	77	36-99
85-01-8	LCS	Phenanthrene	50.0	0.0	32.3	65	47-111
120-12-7	LCS	Anthracene	50.0	0.0	31.9	64	46-109
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	35.2	70	49-115
206-44-0	LCS	Fluoranthene	50.0	0.0	35.2	70	45-118
129-00-0	LCS	Pyrene	50.0	0.0	33.5	67	39-126
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	34.5	69	41-121
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	34.6	69	38-124
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	35.5	71	49-110
218-01-9	LCS	Chrysene	50.0	0.0	35.1	70	45-117
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	34.8	70	34-121
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	34.6	69	47-116
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	34.0	68	47-119
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	33.1	66	48-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **LCS for batch 1266072**
Lab Sample ID: **1202786499**
Instrument: **MSD8.I**
Analyst: **RMB**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/27/2012 19:11**
Prep Batch ID: **1266072**
Batch ID: **1266073**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	LCS	Indeno(1,2,3-cd)pyrene	50.0	0.0	35.0	70	38-124
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	31.0	62	38-124
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	35.4	71	36-124
123-91-1	LCS	1,4-Dioxane	50.0	0.0	21.5	43	41-69
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	30.2	60	42-105
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	27.2	54	40-93
1912-24-9	LCS	Atrazine	50.0	0.0	30.7	61	47-115
92-87-5	LCS	Benzidine	100	0.0	0.00	0 *	19-124
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	29.7	59	36-111
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	23.8	48	32-92

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **LCSD for batch 1266072**
Lab Sample ID: **1202786500**
Instrument: **MSD8.I**
Analyst: **RMB**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample Duplicate**
Matrix: **WATER**
Analysis Date: **11/27/2012 19:45**
Prep Batch ID: **1266072**
Batch ID: **1266073**
Dilution: 1

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
62-75-9	LCSD N-Methyl-N-nitrosomethylam	50.0	0.0	21.5	43	29-86	11	0-30
110-86-1	LCSD Pyridine	50.0	0.0	24.7	49	25-96	36 *	0-30
62-53-3	LCSD Aniline	50.0	0.0	29.7	59	38-105	11	0-30
108-95-2	LCSD Phenol	50.0	0.0	13.8	28	13-137	13	0-30
111-44-4	LCSD bis(2-Chloroethyl) ether	50.0	0.0	29.4	59	37-110	7	0-30
95-57-8	LCSD 2-Chlorophenol	50.0	0.0	32.9	66	41-98	7	0-30
541-73-1	LCSD 1,3-Dichlorobenzene	50.0	0.0	26.0	52	33-86	16	0-30
106-46-7	LCSD 1,4-Dichlorobenzene	50.0	0.0	26.4	53	33-87	13	0-30
95-50-1	LCSD 1,2-Dichlorobenzene	50.0	0.0	25.9	52	34-86	13	0-30
39638-32-9	LCSD bis(2-Chloroisopropyl)ether	50.0	0.0	25.5	51	30-118	7	0-30
100-51-6	LCSD Benzyl alcohol	50.0	0.0	35.5	71	39-88	13	0-30
95-48-7	LCSD o-Cresol	50.0	0.0	30.6	61	37-89	9	0-30
65794-96-9	LCSD m,p-Cresols	50.0	0.0	33.1	66	33-99	12	0-30
621-64-7	LCSD N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	34.0	68	40-112	10	0-30
67-72-1	LCSD Hexachloroethane	50.0	0.0	23.5	47	31-87	8	0-30
98-95-3	LCSD Nitrobenzene	50.0	0.0	35.1	70	42-118	6	0-30
78-59-1	LCSD Isophorone	50.0	0.0	39.0	78	50-132	13	0-30
88-75-5	LCSD 2-Nitrophenol	50.0	0.0	37.1	74	45-109	13	0-30
105-67-9	LCSD 2,4-Dimethylphenol	50.0	0.0	35.8	72	44-98	13	0-30
111-91-1	LCSD bis(2-Chloroethoxy)methane	50.0	0.0	34.7	69	45-109	8	0-30
120-83-2	LCSD 2,4-Dichlorophenol	50.0	0.0	35.9	72	46-106	6	0-30
65-85-0	LCSD Benzoic acid	100	0.0	38.9	39	4-134	10	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **LCSD for batch 1266072**
Lab Sample ID: **1202786500**
Instrument: **MSD8.I**
Analyst: **RMB**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample Duplicate**
Matrix: **WATER**
Analysis Date: **11/27/2012 19:45**
Prep Batch ID: **1266072**
Batch ID: **1266073**
Dilution: 1

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
106-47-8	LCSD 4-Chloroaniline	50.0	0.0	40.1	80	50-122	12	0-30
87-68-3	LCSD Hexachlorobutadiene	50.0	0.0	27.0	54	29-94	8	0-30
59-50-7	LCSD Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	38.1	76	47-110	9	0-30
91-57-6	LCSD 2-Methylnaphthalene	50.0	0.0	28.7	57	37-100	10	0-30
91-20-3	LCSD Naphthalene	50.0	0.0	29.6	59	35-97	9	0-30
90-12-0	LCSD 1-Methylnaphthalene	50.0	0.0	29.6	59	38-105	10	0-30
77-47-4	LCSD Hexachlorocyclopentadiene	50.0	0.0	14.3	29 *	38-79	17	0-30
88-06-2	LCSD 2,4,6-Trichlorophenol	50.0	0.0	41.6	83	43-108	9	0-30
95-95-4	LCSD 2,4,5-Trichlorophenol	50.0	0.0	45.8	92	43-110	12	0-30
91-58-7	LCSD 2-Chloronaphthalene	50.0	0.0	31.9	64	40-96	11	0-30
88-74-4	LCSD 2-Nitroaniline *o-Nitroaniline*	50.0	0.0	33.2	66	45-116	12	0-30
99-09-2	LCSD 3-Nitroaniline *m-Nitroaniline*	50.0	0.0	39.5	79	46-123	11	0-30
131-11-3	LCSD Dimethylphthalate	50.0	0.0	40.5	81	53-111	11	0-30
606-20-2	LCSD 2,6-Dinitrotoluene	50.0	0.0	42.7	85	52-117	13	0-30
121-14-2	LCSD 2,4-Dinitrotoluene	50.0	0.0	43.7	87	46-124	12	0-30
208-96-8	LCSD Acenaphthylene	50.0	0.0	36.5	73	42-105	14	0-30
83-32-9	LCSD Acenaphthene	50.0	0.0	32.6	65	42-103	12	0-30
51-28-5	LCSD 2,4-Dinitrophenol	50.0	0.0	39.5	79	33-105	4	0-30
132-64-9	LCSD Dibenzofuran	50.0	0.0	40.5	81	46-106	12	0-30
58-90-2	LCSD 2,3,4,6-Tetrachlorophenol	50.0	0.0	42.8	86	46-119	9	0-30
84-66-2	LCSD Diethylphthalate	50.0	0.0	41.8	84	52-115	10	0-30
100-02-7	LCSD 4-Nitrophenol	50.0	0.0	17.6	35	12-130	15	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **LCSD for batch 1266072**
Lab Sample ID: **1202786500**
Instrument: **MSD8.I**
Analyst: **RMB**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample Duplicate**
Matrix: **WATER**
Analysis Date: **11/27/2012 19:45**
Prep Batch ID: **1266072**
Batch ID: **1266073**
Dilution: 1

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
86-73-7	LCSD Fluorene	50.0	0.0	36.9	74	44-110	12	0-30
7005-72-3	LCSD 4-Chlorophenylphenylether	50.0	0.0	37.0	74	41-113	11	0-30
100-01-6	LCSD 4-Nitroaniline *p-Nitroaniline*	50.0	0.0	39.9	80	39-132	12	0-30
534-52-1	LCSD 2-Methyl-4,6-dinitrophenol	50.0	0.0	40.0	80	39-111	11	0-30
122-39-4	LCSD Diphenylamine	50.0	0.0	36.8	74	47-111	13	0-30
122-66-7	LCSD Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	32.6	65	41-111	13	0-30
101-55-3	LCSD 4-Bromophenylphenylether	50.0	0.0	35.1	70	42-113	11	0-30
118-74-1	LCSD Hexachlorobenzene	50.0	0.0	34.3	69	44-115	11	0-30
87-86-5	LCSD Pentachlorophenol	50.0	0.0	43.1	86	36-99	12	0-30
85-01-8	LCSD Phenanthrene	50.0	0.0	36.3	73	47-111	12	0-30
120-12-7	LCSD Anthracene	50.0	0.0	34.9	70	46-109	9	0-30
84-74-2	LCSD Di-n-butylphthalate	50.0	0.0	38.7	77	49-115	10	0-30
206-44-0	LCSD Fluoranthene	50.0	0.0	38.3	77	45-118	9	0-30
129-00-0	LCSD Pyrene	50.0	0.0	37.6	75	39-126	11	0-30
85-68-7	LCSD Butylbenzylphthalate	50.0	0.0	38.6	77	41-121	11	0-30
117-81-7	LCSD bis(2-Ethylhexyl)phthalate	50.0	0.0	38.1	76	38-124	10	0-30
56-55-3	LCSD Benzo(a)anthracene	50.0	0.0	39.6	79	49-110	11	0-30
218-01-9	LCSD Chrysene	50.0	0.0	39.1	78	45-117	11	0-30
117-84-0	LCSD Di-n-octylphthalate	50.0	0.0	37.9	76	34-121	9	0-30
205-99-2	LCSD Benzo(b)fluoranthene	50.0	0.0	37.8	76	47-116	9	0-30
207-08-9	LCSD Benzo(k)fluoranthene	50.0	0.0	38.3	77	47-119	12	0-30
50-32-8	LCSD Benzo(a)pyrene	50.0	0.0	36.2	72	48-109	9	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **LCSD for batch 1266072**
Lab Sample ID: **1202786500**
Instrument: **MSD8.I**
Analyst: **RMB**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample Duplicate**
Matrix: **WATER**
Analysis Date: **11/27/2012 19:45**
Prep Batch ID: **1266072**
Batch ID: **1266073**
Dilution: 1

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
193-39-5	LCSD Indeno(1,2,3-cd)pyrene	50.0	0.0	37.7	75	38-124	8	0-30
53-70-3	LCSD Dibenzo(a,h)anthracene	50.0	0.0	33.3	67	38-124	7	0-30
191-24-2	LCSD Benzo(ghi)perylene	50.0	0.0	38.9	78	36-124	10	0-30
123-91-1	LCSD 1,4-Dioxane	50.0	0.0	23.6	47	41-69	9	0-30
930-55-2	LCSD N-Nitrosopyrrolidine	50.0	0.0	36.5	73	42-105	19	0-30
95-94-3	LCSD 1,2,4,5-Tetrachlorobenzene	50.0	0.0	31.7	63	40-93	15	0-30
1912-24-9	LCSD Atrazine	50.0	0.0	36.4	73	47-115	17	0-30
92-87-5	LCSD Benzidine	100	0.0	7.45	7 *	19-124	200 *	0-30
91-94-1	LCSD 3,3'-Dichlorobenzidine	50.0	0.0	34.9	70	36-111	16	0-30
120-82-1	LCSD 1,2,4-Trichlorobenzene	50.0	0.0	27.4	55	32-92	14	0-30

Method Blank Summary

SDG Number:	**2013-334**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1264517**	**Instrument ID:**	**MSD3.I**	**Data File:**	**S112112.B\s3k2106.D**
Lab Sample ID:	**1202782898**	**Prep Date:**	**11/20/2012 08:30**	**Analyzed:**	**11/21/12 11:49**
Column:	**DB-5ms**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1264517	1202782901	S112112.B\s3k2107.D	11/21/12	1213
02 WST50-12-23903MS	1202782899	S112112.B\s3k2114.D	11/21/12	1510
03 WST50-12-23903MSD	1202782900	S112112.B\s3k2115.D	11/21/12	1535
04 CAMO-13-24251	315450002	S112112.B\s3k2119.D	11/21/12	1714
05 CAMO-13-24252	315450009	S112112.B\s3k2120.D	11/21/12	1739

Method Blank Summary

SDG Number:	**2013-334**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1266072**	**Instrument ID:**	**MSD8.I**	**Data File:**	**s112712.B\s8k2707.D**
Lab Sample ID:	**1202786498**	**Prep Date:**	**11/27/2012 09:40**	**Analyzed:**	**11/27/12 18:36**
Column:	**DB-5ms**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1266072	1202786499	s112712.B\s8k2708.D	11/27/12	1911
02 LCSD for batch 1266072	1202786500	s112712.B\s8k2709.D	11/27/12	1945
03 CAMO-13-24251RE	315450002	s112712.B\s8k2710.D	11/27/12	2019

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782898**				
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264517**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 11:49**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2106.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
62-53-3	Aniline	U	10.0	ug/L	3.00	10.0
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
78-59-1	Isophorone	U	10.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
65-85-0	Benzoic acid	U	20.0	ug/L	6.00	20.0
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene	U	10.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	10.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782898**				
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264517**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 11:49**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2106.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline	U	10.0	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene	U	10.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.0	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782898**				
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264517**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 11:49**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2106.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	62.4	100	ug/L	62.4	(23%-130%)
2-Fluorobiphenyl	28.6	50.0	ug/L	57.2	(30%-104%)
2-Fluorophenol	35.4	100	ug/L	35.4	(14%-77%)
Nitrobenzene-d5	30.0	50.0	ug/L	60.0	(34%-125%)
Phenol-d5	21.4	100	ug/L	21.4	(10%-78%)
p-Terphenyl-d14	28.8	50.0	ug/L	57.5	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.901	36.7	ug/L	0	J
	unknown	1.932	5.61	ug/L	0	J
	unknown	1.986	12.7	ug/L	0	J
000110-83-8	Cyclohexene	2.014	15.6	ug/L	94	NJ
197390-29-7	Cyclopentene, 1,2,3,3,4-pentamethy	3.722	4.92	ug/L	90	NJ

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782899**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 15:10**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**430 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2114.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	h	50.8	ug/L	6.98	23.3
110-86-1	Pyridine	h	40.2	ug/L	6.98	23.3
62-53-3	Aniline	Uh	23.3	ug/L	6.98	23.3
108-95-2	Phenol	h	41.5	ug/L	6.98	23.3
111-44-4	bis(2-Chloroethyl) ether	h	67.8	ug/L	6.98	23.3
95-57-8	2-Chlorophenol	h	68.8	ug/L	6.98	23.3
541-73-1	1,3-Dichlorobenzene	h	56.2	ug/L	6.98	23.3
106-46-7	1,4-Dichlorobenzene	h	55.6	ug/L	6.98	23.3
95-50-1	1,2-Dichlorobenzene	h	57.7	ug/L	6.98	23.3
39638-32-9	bis(2-Chloroisopropyl)ether	h	73.9	ug/L	6.98	23.3
100-51-6	Benzyl alcohol	h	55.9	ug/L	6.98	23.3
95-48-7	o-Cresol	h	36.3	ug/L	6.98	23.3
65794-96-9	m,p-Cresols	h	35.9	ug/L	6.98	23.3
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	h	68.4	ug/L	6.98	23.3
67-72-1	Hexachloroethane	h	52.3	ug/L	6.98	23.3
98-95-3	Nitrobenzene	h	75.1	ug/L	6.98	23.3
78-59-1	Isophorone	h	78.1	ug/L	6.98	23.3
88-75-5	2-Nitrophenol	h	84.0	ug/L	6.98	23.3
105-67-9	2,4-Dimethylphenol	Uh	23.3	ug/L	6.98	23.3
111-91-1	bis(2-Chloroethoxy)methane	h	68.3	ug/L	6.98	23.3
120-83-2	2,4-Dichlorophenol	h	73.3	ug/L	6.98	23.3
65-85-0	Benzoic acid	h	116	ug/L	14.0	46.5
106-47-8	4-Chloroaniline	Jh	20.1	ug/L	7.67	23.3
87-68-3	Hexachlorobutadiene	h	66.1	ug/L	6.98	23.3
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	h	57.3	ug/L	6.98	23.3
91-57-6	2-Methylnaphthalene	h	62.0	ug/L	0.698	2.33
91-20-3	Naphthalene	h	60.0	ug/L	0.698	2.33
90-12-0	1-Methylnaphthalene	h	66.2	ug/L	0.698	2.33
77-47-4	Hexachlorocyclopentadiene	h	40.0	ug/L	6.98	23.3
88-06-2	2,4,6-Trichlorophenol	h	70.7	ug/L	6.98	23.3
95-95-4	2,4,5-Trichlorophenol	h	74.4	ug/L	6.98	23.3
91-58-7	2-Chloronaphthalene	h	61.6	ug/L	0.698	2.33
88-74-4	2-Nitroaniline *o-Nitroaniline*	Uh	23.3	ug/L	6.98	23.3
99-09-2	3-Nitroaniline *m-Nitroaniline*	Uh	23.3	ug/L	6.98	23.3
131-11-3	Dimethylphthalate	h	80.0	ug/L	6.98	23.3
606-20-2	2,6-Dinitrotoluene	h	84.4	ug/L	6.98	23.3

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782899**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 15:10**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**430 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2114.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	h	86.5	ug/L	6.98	23.3
208-96-8	Acenaphthylene	h	55.2	ug/L	0.698	2.33
83-32-9	Acenaphthene	h	60.8	ug/L	0.698	2.33
51-28-5	2,4-Dinitrophenol	h	76.8	ug/L	11.6	46.5
132-64-9	Dibenzofuran	h	76.0	ug/L	6.98	23.3
58-90-2	2,3,4,6-Tetrachlorophenol	h	83.2	ug/L	6.98	23.3
84-66-2	Diethylphthalate	h	78.1	ug/L	6.98	23.3
100-02-7	4-Nitrophenol	h	52.0	ug/L	6.98	23.3
86-73-7	Fluorene	h	71.9	ug/L	0.698	2.33
7005-72-3	4-Chlorophenylphenylether	h	76.5	ug/L	6.98	23.3
100-01-6	4-Nitroaniline	Uh	23.3	ug/L	6.98	23.3
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	h	88.0	ug/L	6.98	23.3
122-39-4	Diphenylamine	h	61.5	ug/L	6.98	23.3
122-66-7	Azobenzene	h	61.6	ug/L	6.98	23.3
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	h	77.3	ug/L	6.98	23.3
118-74-1	Hexachlorobenzene	h	75.7	ug/L	6.98	23.3
87-86-5	Pentachlorophenol	h	63.3	ug/L	6.98	23.3
88-85-7	Dinoseb	Uh	23.3	ug/L	6.98	23.3
85-01-8	Phenanthrene	h	73.0	ug/L	0.698	2.33
120-12-7	Anthracene	h	64.0	ug/L	0.698	2.33
84-74-2	Di-n-butylphthalate	h	75.0	ug/L	6.98	23.3
206-44-0	Fluoranthene	h	77.4	ug/L	0.698	2.33
129-00-0	Pyrene	h	72.3	ug/L	0.698	2.33
85-68-7	Butylbenzylphthalate	h	69.8	ug/L	6.98	23.3
117-81-7	bis(2-Ethylhexyl)phthalate	h	69.3	ug/L	6.98	23.3
56-55-3	Benzo(a)anthracene	h	76.7	ug/L	0.698	2.33
218-01-9	Chrysene	h	75.6	ug/L	0.698	2.33
117-84-0	Di-n-octylphthalate	h	66.9	ug/L	6.98	23.3
205-99-2	Benzo(b)fluoranthene	h	77.5	ug/L	0.698	2.33
207-08-9	Benzo(k)fluoranthene	h	78.2	ug/L	0.698	2.33
50-32-8	Benzo(a)pyrene	h	67.3	ug/L	1.02	2.33
193-39-5	Indeno(1,2,3-cd)pyrene	h	82.3	ug/L	0.698	2.33
53-70-3	Dibenzo(a,h)anthracene	h	85.7	ug/L	0.698	2.33
191-24-2	Benzo(ghi)perylene	h	74.1	ug/L	0.698	2.33
123-91-1	1,4-Dioxane	h	52.2	ug/L	6.98	23.3
55-18-5	N-Nitrosodiethylamine	Uh	23.3	ug/L	6.98	23.3
930-55-2	N-Nitrosopyrrolidine	h	72.1	ug/L	6.98	23.3

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782899**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 15:10**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**430 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2114.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	Uh	23.3	ug/L	6.98	23.3
95-94-3	1,2,4,5-Tetrachlorobenzene	h	61.3	ug/L	6.98	23.3
608-93-5	Pentachlorobenzene	Uh	23.3	ug/L	6.98	23.3
1912-24-9	Atrazine	h	57.1	ug/L	6.98	23.3
92-87-5	Benzidine	Uh	23.3	ug/L	6.98	23.3
91-94-1	3,3'-Dichlorobenzidine	Uh	23.3	ug/L	6.98	23.3
120-82-1	1,2,4-Trichlorobenzene	h	61.0	ug/L	6.98	23.3

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	135	233	ug/L	57.9	(23%-130%)
2-Fluorobiphenyl	63.2	116	ug/L	54.3	(30%-104%)
2-Fluorophenol	99.6	233	ug/L	42.8	(14%-77%)
Nitrobenzene-d5	65.7	116	ug/L	56.5	(34%-125%)
Phenol-d5	73.4	233	ug/L	31.6	(10%-78%)
p-Terphenyl-d14	63.7	116	ug/L	54.8	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782900**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 15:35**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**430 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2115.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	h	54.4	ug/L	6.98	23.3
110-86-1	Pyridine	h	57.0	ug/L	6.98	23.3
62-53-3	Aniline	Uh	23.3	ug/L	6.98	23.3
108-95-2	Phenol	h	47.5	ug/L	6.98	23.3
111-44-4	bis(2-Chloroethyl) ether	h	68.7	ug/L	6.98	23.3
95-57-8	2-Chlorophenol	h	72.9	ug/L	6.98	23.3
541-73-1	1,3-Dichlorobenzene	h	58.6	ug/L	6.98	23.3
106-46-7	1,4-Dichlorobenzene	h	58.3	ug/L	6.98	23.3
95-50-1	1,2-Dichlorobenzene	h	59.8	ug/L	6.98	23.3
39638-32-9	bis(2-Chloroisopropyl)ether	h	76.2	ug/L	6.98	23.3
100-51-6	Benzyl alcohol	h	59.8	ug/L	6.98	23.3
95-48-7	o-Cresol	h	43.5	ug/L	6.98	23.3
65794-96-9	m,p-Cresols	h	47.7	ug/L	6.98	23.3
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	h	70.0	ug/L	6.98	23.3
67-72-1	Hexachloroethane	h	54.0	ug/L	6.98	23.3
98-95-3	Nitrobenzene	h	76.3	ug/L	6.98	23.3
78-59-1	Isophorone	h	80.1	ug/L	6.98	23.3
88-75-5	2-Nitrophenol	h	84.3	ug/L	6.98	23.3
105-67-9	2,4-Dimethylphenol	Uh	23.3	ug/L	6.98	23.3
111-91-1	bis(2-Chloroethoxy)methane	h	69.4	ug/L	6.98	23.3
120-83-2	2,4-Dichlorophenol	h	78.5	ug/L	6.98	23.3
65-85-0	Benzoic acid	h	126	ug/L	14.0	46.5
106-47-8	4-Chloroaniline	Jh	20.7	ug/L	7.67	23.3
87-68-3	Hexachlorobutadiene	h	66.7	ug/L	6.98	23.3
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	h	66.6	ug/L	6.98	23.3
91-57-6	2-Methylnaphthalene	h	64.0	ug/L	0.698	2.33
91-20-3	Naphthalene	h	61.0	ug/L	0.698	2.33
90-12-0	1-Methylnaphthalene	h	68.3	ug/L	0.698	2.33
77-47-4	Hexachlorocyclopentadiene	h	39.8	ug/L	6.98	23.3
88-06-2	2,4,6-Trichlorophenol	h	75.7	ug/L	6.98	23.3
95-95-4	2,4,5-Trichlorophenol	h	79.1	ug/L	6.98	23.3
91-58-7	2-Chloronaphthalene	h	63.3	ug/L	0.698	2.33
88-74-4	2-Nitroaniline *o-Nitroaniline*	Uh	23.3	ug/L	6.98	23.3
99-09-2	3-Nitroaniline *m-Nitroaniline*	Uh	23.3	ug/L	6.98	23.3
131-11-3	Dimethylphthalate	h	82.1	ug/L	6.98	23.3
606-20-2	2,6-Dinitrotoluene	h	85.9	ug/L	6.98	23.3

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782900**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 15:35**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**430 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2115.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	h	87.8	ug/L	6.98	23.3
208-96-8	Acenaphthylene	h	57.3	ug/L	0.698	2.33
83-32-9	Acenaphthene	h	61.9	ug/L	0.698	2.33
51-28-5	2,4-Dinitrophenol	h	86.4	ug/L	11.6	46.5
132-64-9	Dibenzofuran	h	77.2	ug/L	6.98	23.3
58-90-2	2,3,4,6-Tetrachlorophenol	h	87.7	ug/L	6.98	23.3
84-66-2	Diethylphthalate	h	79.9	ug/L	6.98	23.3
100-02-7	4-Nitrophenol	h	53.4	ug/L	6.98	23.3
86-73-7	Fluorene	h	72.3	ug/L	0.698	2.33
7005-72-3	4-Chlorophenylphenylether	h	76.7	ug/L	6.98	23.3
100-01-6	4-Nitroaniline *p-Nitroaniline*	Uh	23.3	ug/L	6.98	23.3
534-52-1	2-Methyl-4,6-dinitrophenol	h	92.9	ug/L	6.98	23.3
122-39-4	Diphenylamine	h	64.1	ug/L	6.98	23.3
122-66-7	Azobenzene *1,2-Diphenylhydrazine*	h	62.6	ug/L	6.98	23.3
101-55-3	4-Bromophenylphenylether	h	78.1	ug/L	6.98	23.3
118-74-1	Hexachlorobenzene	h	75.8	ug/L	6.98	23.3
87-86-5	Pentachlorophenol	h	68.9	ug/L	6.98	23.3
88-85-7	Dinoseb	Uh	23.3	ug/L	6.98	23.3
85-01-8	Phenanthrene	h	73.8	ug/L	0.698	2.33
120-12-7	Anthracene	h	64.6	ug/L	0.698	2.33
84-74-2	Di-n-butylphthalate	h	74.9	ug/L	6.98	23.3
206-44-0	Fluoranthene	h	75.4	ug/L	0.698	2.33
129-00-0	Pyrene	h	78.1	ug/L	0.698	2.33
85-68-7	Butylbenzylphthalate	h	72.4	ug/L	6.98	23.3
117-81-7	bis(2-Ethylhexyl)phthalate	h	69.0	ug/L	6.98	23.3
56-55-3	Benzo(a)anthracene	h	78.5	ug/L	0.698	2.33
218-01-9	Chrysene	h	76.8	ug/L	0.698	2.33
117-84-0	Di-n-octylphthalate	h	64.1	ug/L	6.98	23.3
205-99-2	Benzo(b)fluoranthene	h	78.6	ug/L	0.698	2.33
207-08-9	Benzo(k)fluoranthene	h	80.2	ug/L	0.698	2.33
50-32-8	Benzo(a)pyrene	h	68.7	ug/L	1.02	2.33
193-39-5	Indeno(1,2,3-cd)pyrene	h	83.9	ug/L	0.698	2.33
53-70-3	Dibenzo(a,h)anthracene	h	82.6	ug/L	0.698	2.33
191-24-2	Benzo(ghi)perylene	h	77.9	ug/L	0.698	2.33
123-91-1	1,4-Dioxane	h	55.2	ug/L	6.98	23.3
55-18-5	N-Nitrosodiethylamine	Uh	23.3	ug/L	6.98	23.3
930-55-2	N-Nitrosopyrrolidine	h	74.2	ug/L	6.98	23.3

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782900**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 15:35**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**430 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2115.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	Uh	23.3	ug/L	6.98	23.3
95-94-3	1,2,4,5-Tetrachlorobenzene	h	63.2	ug/L	6.98	23.3
608-93-5	Pentachlorobenzene	Uh	23.3	ug/L	6.98	23.3
1912-24-9	Atrazine	h	58.6	ug/L	6.98	23.3
92-87-5	Benzidine	Uh	23.3	ug/L	6.98	23.3
91-94-1	3,3'-Dichlorobenzidine	Uh	23.3	ug/L	6.98	23.3
120-82-1	1,2,4-Trichlorobenzene	h	61.8	ug/L	6.98	23.3

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	144	233	ug/L	61.8	(23%-130%)
2-Fluorobiphenyl	64.5	116	ug/L	55.5	(30%-104%)
2-Fluorophenol	111	233	ug/L	47.6	(14%-77%)
Nitrobenzene-d5	68.1	116	ug/L	58.6	(34%-125%)
Phenol-d5	83.7	233	ug/L	36.0	(10%-78%)
p-Terphenyl-d14	69.0	116	ug/L	59.3	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782901**				
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264517**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 12:13**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2107.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		16.8	ug/L	3.00	10.0
110-86-1	Pyridine		19.3	ug/L	3.00	10.0
62-53-3	Aniline		29.0	ug/L	3.00	10.0
108-95-2	Phenol		11.2	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		28.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol		29.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		24.2	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		24.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		24.4	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether		30.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol		22.2	ug/L	3.00	10.0
95-48-7	o-Cresol		24.6	ug/L	3.00	10.0
65794-96-9	m,p-Cresols		27.9	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		28.1	ug/L	3.00	10.0
67-72-1	Hexachloroethane		22.2	ug/L	3.00	10.0
98-95-3	Nitrobenzene		31.2	ug/L	3.00	10.0
78-59-1	Isophorone		33.5	ug/L	3.00	10.0
88-75-5	2-Nitrophenol		33.8	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		23.7	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		29.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		33.2	ug/L	3.00	10.0
65-85-0	Benzoic acid		29.2	ug/L	6.00	20.0
106-47-8	4-Chloroaniline		31.8	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene		28.4	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		30.5	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		25.6	ug/L	0.300	1.00
91-20-3	Naphthalene		25.1	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene		27.0	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene		16.9	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		32.5	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		32.9	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		25.4	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*		27.5	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		29.7	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		33.5	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		34.9	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782901**				
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264517**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 12:13**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2107.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		35.4	ug/L	3.00	10.0
208-96-8	Acenaphthylene		26.3	ug/L	0.300	1.00
83-32-9	Acenaphthene		24.7	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol		33.6	ug/L	5.00	20.0
132-64-9	Dibenzofuran		31.1	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol		34.9	ug/L	3.00	10.0
84-66-2	Diethylphthalate		32.4	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	J	6.89	ug/L	3.00	10.0
86-73-7	Fluorene		29.2	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether		30.9	ug/L	3.00	10.0
100-01-6	4-Nitroaniline		31.0	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		37.0	ug/L	3.00	10.0
122-39-4	Diphenylamine		29.6	ug/L	3.00	10.0
122-66-7	Azobenzene		26.4	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		32.5	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene		31.9	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		23.9	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene		30.7	ug/L	0.300	1.00
120-12-7	Anthracene		30.0	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		31.2	ug/L	3.00	10.0
206-44-0	Fluoranthene		31.9	ug/L	0.300	1.00
129-00-0	Pyrene		31.9	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate		29.5	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		27.8	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene		32.7	ug/L	0.300	1.00
218-01-9	Chrysene		32.0	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate		25.7	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene		31.2	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		32.4	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		31.7	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene		41.4	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene		53.9	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		38.3	ug/L	0.300	1.00
123-91-1	1,4-Dioxane		17.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		28.8	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782901**				
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264517**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 12:13**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2107.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene		25.4	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine		24.7	ug/L	3.00	10.0
92-87-5	Benzidine		25.4	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		29.3	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		26.3	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	62.8	100	ug/L	62.8	(23%-130%)
2-Fluorobiphenyl	27.1	50.0	ug/L	54.1	(30%-104%)
2-Fluorophenol	34.3	100	ug/L	34.3	(14%-77%)
Nitrobenzene-d5	28.3	50.0	ug/L	56.6	(34%-125%)
Phenol-d5	20.4	100	ug/L	20.4	(10%-78%)
p-Terphenyl-d14	26.9	50.0	ug/L	53.8	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202786498**				
Client Sample:	**QC for batch 1266072**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1266072**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1266073**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 18:36**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/27/2012 09:40**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112712.B\s8k2707.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
62-53-3	Aniline	U	10.0	ug/L	3.00	10.0
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
78-59-1	Isophorone	U	10.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
65-85-0	Benzoic acid	U	20.0	ug/L	6.00	20.0
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene	U	10.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	10.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202786498**				
Client Sample:	**QC for batch 1266072**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1266072**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1266073**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 18:36**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/27/2012 09:40**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112712.B\s8k2707.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline	U	10.0	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene	U	10.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.0	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202786498**				
Client Sample:	**QC for batch 1266072**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1266072**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1266073**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 18:36**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/27/2012 09:40**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112712.B\s8k2707.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	78.1	100	ug/L	78.1	(23%-130%)
2-Fluorobiphenyl	33.9	50.0	ug/L	67.9	(30%-104%)
2-Fluorophenol	40.8	100	ug/L	40.8	(14%-77%)
Nitrobenzene-d5	30.7	50.0	ug/L	61.5	(34%-125%)
Phenol-d5	23.7	100	ug/L	23.7	(10%-78%)
p-Terphenyl-d14	40.5	50.0	ug/L	81.0	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000067-66-3	Trichloromethane	1.946	12.8	ug/L	91	NJ
	unknown	2.154	39.4	ug/L	0	J
	unknown	2.283	8.56	ug/L	0	J
001528-21-8	Ethylidenecyclobutane	2.336	21	ug/L	94	NJ

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202786499**				
Client Sample:	**QC for batch 1266072**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266072**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1266073**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 19:11**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/27/2012 09:40**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112712.B\s8k2708.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		19.4	ug/L	3.00	10.0
110-86-1	Pyridine		17.1	ug/L	3.00	10.0
62-53-3	Aniline		26.6	ug/L	3.00	10.0
108-95-2	Phenol		12.1	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		27.4	ug/L	3.00	10.0
95-57-8	2-Chlorophenol		30.7	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		22.2	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		23.2	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		22.9	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether		23.7	ug/L	3.00	10.0
100-51-6	Benzyl alcohol		31.1	ug/L	3.00	10.0
95-48-7	o-Cresol		28.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols		29.5	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		30.8	ug/L	3.00	10.0
67-72-1	Hexachloroethane		21.8	ug/L	3.00	10.0
98-95-3	Nitrobenzene		33.0	ug/L	3.00	10.0
78-59-1	Isophorone		34.2	ug/L	3.00	10.0
88-75-5	2-Nitrophenol		32.5	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		31.4	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		31.9	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		33.7	ug/L	3.00	10.0
65-85-0	Benzoic acid		35.0	ug/L	6.00	20.0
106-47-8	4-Chloroaniline		35.6	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene		24.8	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		34.7	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		26.0	ug/L	0.300	1.00
91-20-3	Naphthalene		27.0	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene		26.8	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene		12.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		37.9	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		40.8	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		28.6	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*		29.3	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		35.3	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		36.2	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		37.5	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202786499**				
Client Sample:	**QC for batch 1266072**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266072**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1266073**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 19:11**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/27/2012 09:40**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112712.B\s8k2708.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		38.7	ug/L	3.00	10.0
208-96-8	Acenaphthylene		31.6	ug/L	0.300	1.00
83-32-9	Acenaphthene		29.0	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol		38.1	ug/L	5.00	20.0
132-64-9	Dibenzofuran		35.8	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol		39.1	ug/L	3.00	10.0
84-66-2	Diethylphthalate		37.8	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		15.2	ug/L	3.00	10.0
86-73-7	Fluorene		32.8	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether		33.2	ug/L	3.00	10.0
100-01-6	4-Nitroaniline		35.5	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		35.8	ug/L	3.00	10.0
122-39-4	Diphenylamine		32.4	ug/L	3.00	10.0
122-66-7	Azobenzene		28.6	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		31.4	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene		30.6	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		38.4	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene		32.3	ug/L	0.300	1.00
120-12-7	Anthracene		31.9	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		35.2	ug/L	3.00	10.0
206-44-0	Fluoranthene		35.2	ug/L	0.300	1.00
129-00-0	Pyrene		33.5	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate		34.5	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		34.6	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene		35.5	ug/L	0.300	1.00
218-01-9	Chrysene		35.1	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate		34.8	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene		34.6	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		34.0	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		33.1	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene		35.0	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene		31.0	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		35.4	ug/L	0.300	1.00
123-91-1	1,4-Dioxane		21.5	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		30.2	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202786499**				
Client Sample:	**QC for batch 1266072**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266072**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1266073**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 19:11**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/27/2012 09:40**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112712.B\s8k2708.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene		27.2	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine		30.7	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		29.7	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		23.8	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	74.6	100	ug/L	74.6	(23%-130%)
2-Fluorobiphenyl	34.2	50.0	ug/L	68.5	(30%-104%)
2-Fluorophenol	39.9	100	ug/L	39.9	(14%-77%)
Nitrobenzene-d5	30.8	50.0	ug/L	61.6	(34%-125%)
Phenol-d5	24.1	100	ug/L	24.1	(10%-78%)
p-Terphenyl-d14	36.3	50.0	ug/L	72.5	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202786500**				
Client Sample:	**QC for batch 1266072**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCSD for batch 1266072**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1266073**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 19:45**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/27/2012 09:40**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112712.B\s8k2709.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		21.5	ug/L	3.00	10.0
110-86-1	Pyridine		24.7	ug/L	3.00	10.0
62-53-3	Aniline		29.7	ug/L	3.00	10.0
108-95-2	Phenol		13.8	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		29.4	ug/L	3.00	10.0
95-57-8	2-Chlorophenol		32.9	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		26.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		26.4	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		25.9	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether		25.5	ug/L	3.00	10.0
100-51-6	Benzyl alcohol		35.5	ug/L	3.00	10.0
95-48-7	o-Cresol		30.6	ug/L	3.00	10.0
65794-96-9	m,p-Cresols		33.1	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		34.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane		23.5	ug/L	3.00	10.0
98-95-3	Nitrobenzene		35.1	ug/L	3.00	10.0
78-59-1	Isophorone		39.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol		37.1	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		35.8	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		34.7	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		35.9	ug/L	3.00	10.0
65-85-0	Benzoic acid		38.9	ug/L	6.00	20.0
106-47-8	4-Chloroaniline		40.1	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene		27.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		38.1	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		28.7	ug/L	0.300	1.00
91-20-3	Naphthalene		29.6	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene		29.6	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene		14.3	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		41.6	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		45.8	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		31.9	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*		33.2	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		39.5	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		40.5	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		42.7	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202786500**				
Client Sample:	**QC for batch 1266072**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCSD for batch 1266072**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1266073**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 19:45**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/27/2012 09:40**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112712.B\s8k2709.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		43.7	ug/L	3.00	10.0
208-96-8	Acenaphthylene		36.5	ug/L	0.300	1.00
83-32-9	Acenaphthene		32.6	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol		39.5	ug/L	5.00	20.0
132-64-9	Dibenzofuran		40.5	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol		42.8	ug/L	3.00	10.0
84-66-2	Diethylphthalate		41.8	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		17.6	ug/L	3.00	10.0
86-73-7	Fluorene		36.9	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether		37.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline *p-Nitroaniline*		39.9	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol		40.0	ug/L	3.00	10.0
122-39-4	Diphenylamine		36.8	ug/L	3.00	10.0
122-66-7	Azobenzene *1,2-Diphenylhydrazine*		32.6	ug/L	3.00	10.0
101-55-3	4-Bromophenylphenylether		35.1	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene		34.3	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		43.1	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene		36.3	ug/L	0.300	1.00
120-12-7	Anthracene		34.9	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		38.7	ug/L	3.00	10.0
206-44-0	Fluoranthene		38.3	ug/L	0.300	1.00
129-00-0	Pyrene		37.6	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate		38.6	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		38.1	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene		39.6	ug/L	0.300	1.00
218-01-9	Chrysene		39.1	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate		37.9	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene		37.8	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		38.3	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		36.2	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene		37.7	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene		33.3	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		38.9	ug/L	0.300	1.00
123-91-1	1,4-Dioxane		23.6	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		36.5	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202786500**				
Client Sample:	**QC for batch 1266072**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCSD for batch 1266072**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1266073**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 19:45**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/27/2012 09:40**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112712.B\s8k2709.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene		31.7	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine		36.4	ug/L	3.00	10.0
92-87-5	Benzidine	J	7.45	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		34.9	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		27.4	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	82.9	100	ug/L	82.9	(23%-130%)
2-Fluorobiphenyl	38.3	50.0	ug/L	76.6	(30%-104%)
2-Fluorophenol	45.2	100	ug/L	45.2	(14%-77%)
Nitrobenzene-d5	33.5	50.0	ug/L	66.9	(34%-125%)
Phenol-d5	26.7	100	ug/L	26.7	(10%-78%)
p-Terphenyl-d14	40.6	50.0	ug/L	81.1	(33%-136%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
28-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 8270C	Liquid	ARSL (ESHL)
Batch ID:	**Sample Numbers:**		
1266073	See Below		

Potentially affected work order(s)(SDG): 315450(2013-334)

Application Issues:

Failed RPD for MS/MSD, or PS/PSD

Failed Recovery for LCS/LCSD

Sample Prepped out of Holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample 315450002 was re-extracted out of holding from batch 1264519 due to surrogate failure.	1. Since the re-extraction was within the acceptance limits for all surrogates and the QC samples met the acceptance criteria, both sets of data results have been reported.
2. The LCS(1202786499) and LCSD(1202786500) recovered Benzidine and Hexachlorocyclopentadiene outside of the acceptance limits. Please see the QC Summary report for specific failures.	2. Benzidine and Hexachlorocyclopentadiene are known to be poor responding analytes as stated in the Method. Benzidine is subject to oxidative losses during solvent concentration and Hexachlorocyclopentadiene is subject to thermal decomposition. This may account for the low recoveries of the analytes in the LCS and LCSD. The data results have been reported. Please note that in the original extraction batch Benzidine met the acceptance criteria in the LCS and there were no detects of the analyte in either extraction.
3. The LCS(1202786499)/LCSD(1202786500) RPD values for Benzidine and Pyridine were outside of the acceptance limits. Please see the QC Summary report for specific failures.	3. Since Pyridine was individually within the acceptance limits in the LCS and LCSD, the non-conformance had no adverse impact on the data and the results have been reported. The Benzidine RPD failure was attributed to a higher percent recovery in the LCSD while there was no recovery in the LCS. The data results have been reported.

Originator's Name:

Richard Bomar 28-NOV-12

Data Validator/Group Leader:

Barbara Bailey 28-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
28-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 8270C	Liquid	ESHL, LANL
Batch ID:	**Sample Numbers:**		
1264519	See Below		

Potentially affected work order(s)(SDG): 315285(2013-311),315352(2013-322),315450(2013-334)

Application Issues:

Failed Recovery for MS/PS

Failed RPD for MS/MSD, or PS/PSD

Sample received out of holding

Failed Recovery for LCS/LCSD

Failed Yield for Surrogates

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Sample 315285002 was collected on 07-NOV-2012 and received by the laboratory on 15-NOV-2012.	1. Upon receipt, the extraction holding time had expired. The sample was extracted and analyzed. The data have been reported and qualified accordingly
2. The LCS(1202782901) recovered 1,4-Dioxane at 34% (limits: 41%-69%) and Hexachlorocyclopentadiene at 34% (limits are 38%-79%).	2. The LCS(1202782901) spike failures represented less than 5% of the requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported.
3. Sample 315450002 recovered 2,4,6-Tribromophenol at 2.53% (limits are 23%-130%).	3. Sample 315450002 was re-extracted out of holding in batch 1266073. Since the re-extraction was within the acceptance limits for all surrogates and the QC samples met the acceptance criteria, both sets of data results have been reported.
4. The MS(1202782899) and MSD(1202782900) recovered spike analytes outside of the acceptance limits. Please see the QC Summary report for specific values.	4. Since the MSD displayed similar spike recoveries to the MS, the failures were attributed to sample matrix interference and the data results have been reported.
5. The MS(1202782899)/MSD(1202782900) RPD value for Pyridine was 35% (SPC limit: 30%).	5. Since Pyridine was individually within the acceptance limits for the MS and MSD, the non-conformance had no adverse impact on the data and the results have been reported.

Originator's Name:

Jennifer Dunagan Jones 28-NOV-12

Data Validator/Group Leader:

Barbara Bailey 29-NOV-12

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC/MSMS
ARS International (ARSL)
SDG 2013-334

Method/Analysis Information

Procedure:	**Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method:	SW846 6850 Modified
Prep Method:	SW846 6850 Modified
Analytical Batch Number:	1265809
Prep Batch Number:	1265808

Sample Analysis

Sample ID	Client ID
315450004	CAMO-13-24268
315450007	CAMO-13-24269
1202785746	Interference Check Sample (ICS)
1202785740	Method Blank (MB)
1202785741	Laboratory Control Sample (LCS)
1202785742	315450004(CAMO-13-24268) Matrix Spike (MS)
1202785743	315450004(CAMO-13-24268) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 9.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

ICV Requirements
All associated initial calibration verification standards (ICV) met the acceptance criteria.

CCB Requirements
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

CCV Requirements
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

Low Level Standard (CRI) Requirements
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Interference Check Sample (ICS)
The interference check sample (ICS) met all recovery acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Client sample 315450004 (CAMO-13-24268) was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
A low recovery for Perchlorate-101 was observed in MS (1202785742). The acceptance range is 75-125%. This may be the result of the background concentration or matrix effect present in the parent sample, 315450004 (CAMO-13-24268), and the need to dilute all at a 1:10 dilution prior to analysis.

Matrix Spike Duplicate (MSD) Recovery Statement
A negative recovery for Perchlorate-101 was observed in MSD (1202785743). The acceptance range is 75-125%. This may be the result of the background concentration or matrix effect present in the parent sample, 315450004 (CAMO-13-24268), and the need to dilute all at a 1:10 dilution prior to analysis.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits.

Retention Time Standard Area Acceptance
The retention time standard areas were within the required acceptance criteria for all samples and QC.

Retention Time
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Sample 315450004 (CAMO-13-24268) and QC samples 1202785742 (CAMO-13-24268MS) and 1202785743 (CAMO-13-24268MSD) were diluted to bring the over range concentrations within the calibration range.

Parmname	**315450 004**
All	10X

Sample Re-extraction/Re-analysis
Sample 315450007 (CAMO-13-24269) was re-analyzed to confirm the potential of carryover from the previous sample. The re-analysis data are reported.

Miscellaneous Information

Data Exception (DER) Documentation
Data Exception Report 1146217 was generated for this SDG.

A low recovery for Perchlorate-101 was observed in MS (1202785742). The acceptance range is 75-125%. This may be the result of the background concentration or matrix effect present in the parent sample, 315450004 (CAMO-13-24268), and the need to dilute all at a 1:10 dilution prior to analysis.

A negative recovery for Perchlorate-101 was observed in MSD (1202785743). The acceptance range is 75-125%. This may be the result of the background concentration or matrix effect present in the parent sample, 315450004 (CAMO-13-24268), and the need to dilute all at a 1:10 dilution prior to analysis.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

Additional Comments
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples.

Please see the isotope ratio criteria in the Miscellaneous Section.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-334 GEL Work Order: 315450

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 06 DEC 2012 **Title: Group Leader**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24268

Date Received: 17-NOV-12

GEL Job No (SDG): 2013-334

GEL Sample ID: 315450004

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	6.13	ug/L		10	30-NOV-12 14:12	per1130012a
	Perchlorate Isotope Ratio			3.05			10	30-NOV-12 14:12	per1130012a
14797-73-0	Perchlorate-101	.5	2	6.29	ug/L		10	30-NOV-12 14:12	per1130012a
	Perchlorate-O(18)			4.99	ug/L		10	30-NOV-12 14:12	per1130012a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24269

Date Received: 17-NOV-12

GEL Job No (SDG): 2013-334

GEL Sample ID: 315450007

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.253	ug/L		1	30-NOV-12 14:44	per1130015a
	Perchlorate Isotope Ratio			3.18			1	30-NOV-12 14:44	per1130015a
14797-73-0	Perchlorate-101	.05	.2	0.250	ug/L		1	30-NOV-12 14:44	per1130015a
	Perchlorate-O(18)			0.557	ug/L		1	30-NOV-12 14:44	per1130015a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2013-334

Extract Batch Code: 1265808

Date Filtered: 27-NOV-12

Matrix: WATER

Sample ID: 1202785741

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.195	ug/L	97.3		85 - 115
Perchlorate Isotope Ratio		3.2				-
Perchlorate-101	0.200	.195	ug/L	97.3		85 - 115
Perchlorate-O(18)		.492	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2013-334

Extract Batch Code: 1265808

Date Extracted: 27-NOV-12

GEL MS/PS ID: 1202785742

Client ID: CAMO-13-24268

GEL MSD/PSD ID: 1202785743

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Recovery Limit
Perchlorate	0.200	6.13	ug/L	6.31	90.5		6.37	121		.968		30	75 - 125
Perchlorate Isotope Ratio	0	3.05		3.14			3.2			2.03			-
Perchlorate-101	0.200	6.29	ug/L	6.30	4.99	*	6.23	-28.4	*	1.07		30	75 - 125
Perchlorate-O(18)	0	4.99	ug/L	5.05			5.06			.136			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 27-NOV-12

GEL Job No (SDG): 2013-334

GEL Sample ID: 1202785740

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	28-NOV-12 14:44	per1128012a
	Perchlorate Isotope Ratio						1	28-NOV-12 14:44	per1128012a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	28-NOV-12 14:44	per1128012a
	Perchlorate-O(18)			0.500	ug/L		1	28-NOV-12 14:44	per1128012a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 27-NOV-12

GEL Job No (SDG): 2013-334

GEL Sample ID: 1202785741

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.195	ug/L	J	1	28-NOV-12 14:56	per1128013a
	Perchlorate Isotope Ratio			3.2			1	28-NOV-12 14:56	per1128013a
14797-73-0	Perchlorate-101	.05	.2	0.195	ug/L	J	1	28-NOV-12 14:56	per1128013a
	Perchlorate-O(18)			0.492	ug/L		1	28-NOV-12 14:56	per1128013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2013-334

GEL Sample ID: 1202785746

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.198	ug/L	J	1	28-NOV-12 15:08	per1128014a
	Perchlorate Isotope Ratio			3.07			1	28-NOV-12 15:08	per1128014a
14797-73-0	Perchlorate-101	.05	.2	0.206	ug/L		1	28-NOV-12 15:08	per1128014a
	Perchlorate-O(18)			0.522	ug/L		1	28-NOV-12 15:08	per1128014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24268MS

Date Received: 17-NOV-12

GEL Job No (SDG): 2013-334

GEL Sample ID: 1202785742

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	6.31	ug/L		10	30-NOV-12 14:22	per1130013a
	Perchlorate Isotope Ratio			3.14			10	30-NOV-12 14:22	per1130013a
14797-73-0	Perchlorate-101	.5	2	6.30	ug/L		10	30-NOV-12 14:22	per1130013a
	Perchlorate-O(18)			5.05	ug/L		10	30-NOV-12 14:22	per1130013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24268MSD

Date Received: 17-NOV-12

GEL Job No (SDG): 2013-334

GEL Sample ID: 1202785743

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	6.37	ug/L		10	30-NOV-12 14:33	per1130014a
	Perchlorate Isotope Ratio			3.2			10	30-NOV-12 14:33	per1130014a
14797-73-0	Perchlorate-101	.5	2	6.23	ug/L		10	30-NOV-12 14:33	per1130014a
	Perchlorate-O(18)			5.06	ug/L		10	30-NOV-12 14:33	per1130014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
05-DEC-12	Federal	Others	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LC-MS/MS	SW846-6850 Modified	Liquid	ARSL001
Batch ID:	**Sample Numbers:**		
1265809	See below		

Potentially affected work order(s)(SDG): 315267(2013-312),315285(2013-311),315351(2013-321),315352(2013-322),315450(2013-334)

Application Issues:

Failed Recovery for MS/PS

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Spike recoveries outside the acceptance range of 75-125% were observed for MS (1202785744) and MSD (1202785745). Please see the Form 3 in the data package for a complete list of recoveries. 2. Low recovery for Perchlorate-101 was observed in MS (1202785742). The acceptance range is 75-125%. 3. A negative recovery for Perchlorate-101 was observed in MSD (1202785743). The acceptance range is 75-125%.	1. The outliers observed in the matrix spikes may be the result of the background concentration present in the parent sample, 315285003, and the need to dilute all at a 1:250 dilution prior to analysis. 2. & 3. The outliers observed in the matrix spikes may be the result of the background concentration present in the parent sample, 315450004, and the need to dilute all at a 1:10 dilution prior to analysis.

Originator's Name:

Charles Wilson 05-DEC-12

Data Validator/Group Leader:

Michael Penny 05-DEC-12

Explosives by LCMSMS Analysis

Case Narrative

LC/MS/MS Case Narrative
ARS International (ARSL)
SDG 2013-334

Method/Analysis Information

Procedure:	**Definitive Low Level Analysis of Nitroaromatic Explosives Utilizing Liquid Chromatography / Mass Spectrometry / Mass Spectrometry (LC/MS/MS) by SW-846 Method 8321 Modified (8321M)**
Analytical Method:	SW846 3535/8321A Modified
Prep Method:	SW846 Method 3535
Analytical Batch Number:	1264448
Prep Batch Number:	1264447

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3535/8321A Modified :

Sample ID	Client ID
315450003	CAMO-13-24251
315450010	CAMO-13-24252
1202782739	Method Blank (MB)
1202782740	Laboratory Control Sample (LCS)
1202782741	315450003(CAMO-13-24251) Matrix Spike (MS)
1202782742	315450003(CAMO-13-24251) Matrix Spike Duplicate (MSD)

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-056 REV# 17.

Primary Analyte Analysis

Calibration Information

Initial Calibration
All initial calibration requirements for this analysis have been met for this SDG.

Calibration Verification Standard Requirements
All associated calibration verification standards (ICV and CCV) for this analysis met the acceptance criteria.

Calibration Blank Requirements
All initial and continuing calibration blanks (ICB and CCB) bracketing the analyses associated with this batch for this analysis were within acceptance criteria.

Due to software limitations, the CCBs and/or the ICBs may have a concentration for target analytes in the Found column. These values should be zero.

CRI Requirements
All low level calibration verification (CRI) requirements for this analysis were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG for this analysis met the acceptance criteria.

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria in this SDG in this analytical batch for this analysis.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries were within the established acceptance limits.

QC Sample Designation
Client sample 315450003 (CAMO-13-24251) was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
Matrix Spike (MS) Recovery Statement
The MS spike recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD spike recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits for this analysis.

Internal Standard (ISTD) Acceptance
A final internal standard concentration of 100ug/L is employed in order to meet the minimum response factor requirement of 0.01 per EPA Method 8000C for the analysis of explosives on the API 4000.

The internal standard responses were within the required acceptance criteria for all samples and QC in this SDG.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
According to the GEL SOP for Method 8321A, all sample and QC extracts are diluted 1:1 v/v with HPLC grade water.

The samples in this SDG in this analytical batch for this analysis did not require any additional dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG in this analytical batch for this analysis.

Secondary Analyte Analysis

Calibration Information

Initial Calibration
All initial calibration requirements for this analysis have been met for this SDG.

Calibration Verification Standard Requirements
Calibration verification standard EXS12060028 did not meet acceptance criteria of 80-120% for 2,6-Diamino-4-nitrotoluene at 133% in the Secondary analyte analysis. The data are Q qualified and are reported as stated in the SOP.

All other associated calibration verification standards (ICV and CCV) for this analysis met the acceptance criteria.

Calibration Blank Requirements
All initial and continuing calibration blanks (ICB and CCB) bracketing the analyses associated with this batch for this analysis were within acceptance criteria.

Due to software limitations, the CCBs and/or the ICBs may have a concentration for target analytes in the Found column. These values should be zero.

CRI Requirements
All low level calibration verification (CRI) requirements for this analysis were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG for this analysis met the acceptance criteria.

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria in this SDG in this analytical batch for this analysis.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries were within the established acceptance limits.

QC Sample Designation
Client sample 315450003 (CAMO-13-24251) was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
The MS (1202782741) did not meet acceptance criteria for the recovery of 2,6-Diamino-4-nitrotoluene at 122%. The limits are 72-112%. The MSD (1202782742) duplicated the recovery at 125%. The LCS (1202782740) had a passing recovery of 101%. Since the MS and MSD recoveries were biased high and target analytes were not detected in 315450003 (CAMO-13-24251), the data are considered unaffected. The data are reported with the appropriate DER.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD (1202782742) did not meet acceptance criteria for the recovery of 2,6-Diamino-4-nitrotoluene at 125%. The limits are 72-112%. The MS (1202782741) duplicated the recovery at 122%. The LCS (1202782740) had a passing recovery of 101%. Since the MS and MSD recoveries were biased high and target analytes were not detected in 315450003 (CAMO-13-24251), the data are considered unaffected. The data are reported with the appropriate DER.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits for this analysis.

Internal Standard (ISTD) Acceptance
The internal standards were not added to the Secondary analyte extracts.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
According to the GEL SOP for Method 8321A, all sample and QC extracts are diluted 1:1 v/v with HPLC grade water.

The samples in this SDG in this analytical batch for this analysis did not require any additional dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG in this analytical batch for this analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data Exception Report 1147969 was generated for this SDG.

The MS (1202782741) did not meet acceptance criteria for the recovery of 2,6-Diamino-4-nitrotoluene at 122%. The limits are 72-112%. The MSD (1202782742) duplicated the recovery at 125%. The LCS (1202782740) had a passing recovery of 101%. Since the MS and MSD recoveries were biased high and target analytes were not detected in 315450003 (CAMO-13-24251), the data are considered unaffected. The data are reported with the appropriate DER.

The MSD (1202782742) did not meet acceptance criteria for the recovery of 2,6-Diamino-4-nitrotoluene at 125%. The limits are 72-112%. The MS (1202782741) duplicated the recovery at 122%. The LCS (1202782740) had a passing recovery of 101%. Since the MS and MSD recoveries were biased high and target analytes were not detected in 315450003 (CAMO-13-24251), the data are considered unaffected. The data are reported with the appropriate DER.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Flagging Convention
The samples were not originally analyzed using SW-846 Method 8330.

Additional Comments
Due to software limitations, all initial calibration blanks must be designated as XIB001 in order for the forms to be correct.

Due to software limitations in the Secondary analyte analysis, false positives and analytes detected below the MDL cannot be deleted from the raw data.

Due to software limitations, file extensions such as DL, RE, etc. may not appear on the generated forms and/or raw data.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Primary analyte analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an APCI (Atmospheric Pressure chemical Ionization) probe that is operated in the negative ionization mode for the Primary analyte analysis.

The laboratory also utilizes an Agilent 1100 liquid chromatography instrument for either Primary or Secondary analyte analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as either LCMSMS #3 or LCMSMS #4. It is fitted with an APCI (Atmospheric Pressure chemical Ionization) probe that is operated in the negative ionization mode for both the Primary and Secondary analyte analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

The detection of the Primary analyte Nitroaromatic and Nitramines is accomplished through analysis on the following reversed phase column:

Phenomenex: Ultracarb 5u ODS (20), 250 x 4.60 mm ID.

The detection of the Secondary analytes is accomplished through analysis on the following reversed phase column:

YMC: J'sphere ODS-H80, 150 x 4.6mm I.D.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-334 GEL Work Order: 315450

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 11 DEC 2012 **Title: Group Leader**

Sample Data Summary

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24251

Lab Code: GEL

GEL Job No (SDG) 2013-334

Matrix: WATER

GEL Sample ID: 315450003

Sample Amount 910 mL

Date Received: 17-NOV-12

Moisture:

Extraction Batch ID: 1264447

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP1206036.wiff

Date Analyzed: 07-DEC-12 08:49

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	0.275	U	0.0879	0.275
118-96-7	*2,4,6-Trinitrotoluene*				
121-14-2	2,4-Dinitrotoluene	0.275	U	0.0879	0.275
121-14-2	*2,4-Dinitrotoluene*				
121-82-4	RDX	0.275	U	0.0879	0.275
121-82-4	*RDX*				
13980-04-6	TNX	0.275	U	0.0879	0.275
13980-04-6	*TNX*				
19406-51-0	4-Amino-2,6-dinitrotoluene	0.275	U	0.0879	0.275
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
2691-41-0	HMX	0.275	U	0.0879	0.275
2691-41-0	*HMX*				
35572-78-2	2-Amino-4,6-dinitrotoluene	0.275	U	0.0879	0.275
35572-78-2	*2-Amino-4,6-dinitrotoluene*				
5755-27-1	MNX	0.275	U	0.0879	0.275
5755-27-1	*MNX*				
606-20-2	2,6-Dinitrotoluene	0.275	U	0.0879	0.275
606-20-2	*2,6-Dinitrotoluene*				
80251-29-2	DNX	0.275	U	0.0879	0.275
80251-29-2	*DNX*				
88-72-2	o-Nitrotoluene	0.275	U	0.0901	0.275
88-72-2	*o-Nitrotoluene*				
98-95-3	Nitrobenzene	0.275	U	0.0879	0.275
98-95-3	*Nitrobenzene*				
99-08-1	m-Nitrotoluene	0.275	U	0.0879	0.275
99-08-1	*m-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24251

Lab Code: GEL

GEL Job No (SDG) 2013-334

Matrix: WATER

GEL Sample ID: 315450003

Sample Amount 910 mL

Date Received: 17-NOV-12

Moisture:

Extraction Batch ID: 1264447

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-35-4	1,3,5-Trinitrobenzene	0.275	U	0.0879	0.275
99-35-4	*1,3,5-Trinitrobenzene*				
99-65-0	m-Dinitrobenzene	0.275	U	0.0879	0.275
99-65-0	*m-Dinitrobenzene*				
479-45-8	Tetryl	0.549	U	0.0879	0.549
479-45-8	*Tetryl*				
78-11-5	PETN	0.549	U	0.110	0.549
78-11-5	*PETN*				
99-99-0	p-Nitrotoluene	0.549	U	0.165	0.549
99-99-0	*p-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24251

Lab Code: GEL

GEL Job No (SDG) 2013-334

Matrix: WATER

GEL Sample ID: 315450003

Sample Amount 910 mL

Date Received: 17-NOV-12

Moisture:

Extraction Batch ID: 1264447

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS12060024.wiff

Date Analyzed: 06-DEC-12 19:08

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.10	U	0.330	1.10
3058-38-6	*TATB*				
618-87-1	3,5-Dinitroaniline	1.10	U	0.330	1.10
618-87-1	*3,5-Dinitroaniline*				
78-30-8	tris(o-cresyl) phosphate	1.10	U	0.330	1.10
78-30-8	*tris(o-cresyl) phosphate*				
59229-75-3	2,6-Diamino-4-nitrotoluene	2.75	QU	0.549	2.75
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
6629-29-4	2,4-Diamino-6-nitrotoluene	2.75	U	0.549	2.75
6629-29-4	*2,4-Diamino-6-nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24252

Lab Code: GEL

GEL Job No (SDG) 2013-334

Matrix: WATER

GEL Sample ID: 315450010

Sample Amount 920 mL

Date Received: 17-NOV-12

Moisture:

Extraction Batch ID: 1264447

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP1206039.wiff

Date Analyzed: 07-DEC-12 10:34

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	0.272	U	0.087	0.272
118-96-7	*2,4,6-Trinitrotoluene*				
121-14-2	2,4-Dinitrotoluene	0.272	U	0.087	0.272
121-14-2	*2,4-Dinitrotoluene*				
121-82-4	RDX	0.272	U	0.087	0.272
121-82-4	*RDX*				
13980-04-6	TNX	0.272	U	0.087	0.272
13980-04-6	*TNX*				
19406-51-0	4-Amino-2,6-dinitrotoluene	0.272	U	0.087	0.272
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
2691-41-0	HMX	0.272	U	0.087	0.272
2691-41-0	*HMX*				
35572-78-2	2-Amino-4,6-dinitrotoluene	0.272	U	0.087	0.272
35572-78-2	*2-Amino-4,6-dinitrotoluene*				
5755-27-1	MNX	0.272	U	0.087	0.272
5755-27-1	*MNX*				
606-20-2	2,6-Dinitrotoluene	0.272	U	0.087	0.272
606-20-2	*2,6-Dinitrotoluene*				
80251-29-2	DNX	0.272	U	0.087	0.272
80251-29-2	*DNX*				
88-72-2	o-Nitrotoluene	0.272	U	0.0891	0.272
88-72-2	*o-Nitrotoluene*				
98-95-3	Nitrobenzene	0.272	U	0.087	0.272
98-95-3	*Nitrobenzene*				
99-08-1	m-Nitrotoluene	0.272	U	0.087	0.272
99-08-1	*m-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24252

Lab Code: GEL

GEL Job No (SDG) 2013-334

Matrix: WATER

GEL Sample ID: 315450010

Sample Amount 920 mL

Date Received: 17-NOV-12

Moisture:

Extraction Batch ID: 1264447

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-35-4	1,3,5-Trinitrobenzene	0.272	U	0.087	0.272
99-35-4	*1,3,5-Trinitrobenzene*				
99-65-0	m-Dinitrobenzene	0.272	U	0.087	0.272
99-65-0	*m-Dinitrobenzene*				
479-45-8	Tetryl	0.543	U	0.087	0.543
479-45-8	*Tetryl*				
78-11-5	PETN	0.543	U	0.109	0.543
78-11-5	*PETN*				
99-99-0	p-Nitrotoluene	0.543	U	0.163	0.543
99-99-0	*p-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24252

Lab Code: GEL

GEL Job No (SDG) 2013-334

Matrix: WATER

GEL Sample ID: 315450010

Sample Amount 920 mL

Date Received: 17-NOV-12

Moisture:

Extraction Batch ID: 1264447

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS12060027.wiff

Date Analyzed: 06-DEC-12 19:58

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.09	U	0.326	1.09
3058-38-6	*TATB*				
618-87-1	3,5-Dinitroaniline	1.09	U	0.326	1.09
618-87-1	*3,5-Dinitroaniline*				
78-30-8	tris(o-cresyl) phosphate	1.09	U	0.326	1.09
78-30-8	*tris(o-cresyl) phosphate*				
59229-75-3	2,6-Diamino-4-nitrotoluene	2.72	QU	0.543	2.72
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
6629-29-4	2,4-Diamino-6-nitrotoluene	2.72	U	0.543	2.72
6629-29-4	*2,4-Diamino-6-nitrotoluene*				

Quality Control Summary

High Explosives Surrogate Recovery Summary

Lab Name: GEL Laboratories LLC **GEL Job No (SDG):** 2013-334

Lab Code: GEL **HPLC Column:** Phenomenex Ultracarb 5u ODS(20)

Lab Sample ID	Client Sample ID	DNT	QC Limits	Flg
315450003	CAMO-13-24251	88.8	66 - 120	
315450003	CAMO-13-24251	86	66 - 120	
315450010	CAMO-13-24252	89.2	66 - 120	
315450010	CAMO-13-24252	84.8	66 - 120	
1202782739	MB for batch 1264447	91.2	66 - 120	
1202782739	MB for batch 1264447	87.6	66 - 120	
1202782740	LCS for batch 1264447	85.6	66 - 120	
1202782740	LCS for batch 1264447	82.8	66 - 120	
1202782741	CAMO-13-24251MS	88.8	66 - 120	
1202782741	CAMO-13-24251MS	88.8	66 - 120	
1202782742	CAMO-13-24251MSD	87.2	66 - 120	
1202782742	CAMO-13-24251MSD	83.6	66 - 120	

DNT = 3,4-Dinitrotoluene

3B
High Explosives LCS/LCS Duplicate Summary

Lab Name: GEL Laboratories LLC

Client ID: LCS

Lab Code: GEL

GEL Job No (SDG) 2013-334

Extract Batch Code: 1264447

Date Extracted:

GEL LCS ID: 1202782740

GEL LCSDUP ID:

Analysis Date/Time: 07-DEC-12 08:14

DUP Analysis Date/Time:

Reporting Units: ug/L

QC Type: LCS/LCSD

Compound	Spike Added	LCS Conc	LCS Rec #	LCSD Conc	LCSD Rec #	RPD #	RPD	Recovery Limits
1,3,5-Trinitrobenzene	5	4.3	86					62 - 114
2,4,6-Trinitrotoluene	5	4.49	89.8					72 - 124
2,4-Dinitrotoluene	5	4.34	86.8					75 - 119
2,6-Dinitrotoluene	5	4.35	87					77 - 111
2-Amino-4,6-dinitrotoluene	5	4.66	93.2					73 - 121
4-Amino-2,6-dinitrotoluene	5	4.52	90.4					72 - 122
DNX	5	4.37	87.4					72 - 117
HMX	5	3.83	76.6					66 - 110
MNX	5	4.49	89.8					67 - 125
Nitrobenzene	5	4.65	93					64 - 112
PETN	5	4.28	85.6					64 - 121
RDX	5	4.51	90.2					77 - 122
TNX	5	4.14	82.8					65 - 116
Tetryl	5	4.23	84.6					40 - 118
m-Dinitrobenzene	5	4.38	87.6					79 - 119
m-Nitrotoluene	5	4.03	80.6					59 - 115
o-Nitrotoluene	5	4.36	87.2					60 - 111
p-Nitrotoluene	5	4.56	91.2					61 - 113

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

3B
High Explosives LCS/LCS Duplicate Summary

Lab Name: GEL Laboratories LLC

Client ID: LCS

Lab Code: GEL

GEL Job No (SDG) 2013-334

Extract Batch Code: 1264447

Date Extracted:

GEL LCS ID: 1202782740

GEL LCSDUP ID:

Analysis Date/Time: 06-DEC-12 18:52

DUP Analysis Date/Time:

Reporting Units: ug/L

QC Type: LCS/LCSD

Compound	Spike Added	LCS Conc	LCS Rec #	LCSD Conc	LCSD Rec #	RPD #	RPD	Recovery Limits
2,4-Diamino-6-nitrotoluene	5	4.33	86.6					61 - 105
2,6-Diamino-4-nitrotoluene	5	5.06	101					64 - 115
3,5-Dinitroaniline	5	4.64	92.8					73 - 112
TATB	5	1.77	35.4					32 - 169
tris(o-cresyl) phosphate	5	3.46	69.2					30 - 82

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

High Explosives MS/MSD Summary

Lab Name: GEL Laboratories LLC

Client ID: CAMO-13-24251

Lab Code: GEL

GEL Job No (SDG) 2013-334

Extract Batch Code: 1264447

Date Extracted: 07-DEC-12

GEL Spike ID: 1202782741

GEL SpikeDup ID: 1202782742

Analysis Date/Time: 07-DEC-12 09:24

MSD Analysis Date/Time: 07-DEC-12 09:59

Reporting Units: ug/L

QC Type: MS/MSD

Compound	Spike Added	Sample Conc	MS Conc	MS Rec #	MSD Conc	MSD Rec #	RPD #	RPD Limit	Rec Limits
1,3,5-Trinitrobenzene	5.40541	.015	4.76	87.7	5.07	91.9	6.3	25	58 - 121
2,4,6-Trinitrotoluene	5.40541	.0158	5.12	94.5	5.33	96.7	3.93	25	64 - 132
2,4-Dinitrotoluene	5.40541	.0143	5.07	93.5	5.24	95.1	3.33	25	72 - 126
4-Amino-2,6-dinitrotoluene	5.40541	.0152	5.14	94.7	5.29	95.9	2.89	25	64 - 132
2-Amino-4,6-dinitrotoluene	5.40541	0	5.56	103	5.34	97.2	3.97	25	67 - 129
2,6-Dinitrotoluene	5.40541	.0148	4.99	92.1	4.96	89.9	.775	25	74 - 117
DNX	5.40541	.0136	4.99	92.1	4.99	90.6	.112	25	67 - 124
MNX	5.40541	.0175	4.68	86.3	4.89	88.7	4.37	25	67 - 127
PETN	5.40541	0	4.66	86.2	4.87	88.6	4.38	25	58 - 127
p-Nitrotoluene	5.40541	0	5.23	96.8	4.85	88.2	7.67	25	54 - 119
o-Nitrotoluene	5.40541	0	4.86	90	4.96	90.2	1.86	25	57 - 113
m-Nitrotoluene	5.40541	0	4.34	80.2	4.75	86.4	9.08	25	56 - 114
m-Dinitrobenzene	5.40541	.0144	5.02	92.5	5.14	93.3	2.49	25	73 - 126
Tetryl	5.40541	.0111	3.94	72.6	4.23	76.8	7.24	25	30 - 110
TNX	5.40541	.0141	4.44	81.9	4.32	78.3	2.84	25	61 - 117
RDX	5.40541	.0164	4.92	90.7	5.4	97.9	9.24	25	64 - 137
Nitrobenzene	5.40541	0	4.52	83.6	5.02	91.4	10.5	25	60 - 113
HMX	5.40541	.0168	4.96	91.5	4.67	84.7	6.06	25	60 - 121

#Column to be used to flag recovery and RPD values with an asterisk

High Explosives MS/MSD Summary

Lab Name: GEL Laboratories LLC

Client ID: CAMO-13-24251

Lab Code: GEL

GEL Job No (SDG) 2013-334

Extract Batch Code: 1264447

Date Extracted: 06-DEC-12

GEL Spike ID: 1202782741

GEL SpikeDup ID: 1202782742

Analysis Date/Time: 06-DEC-12 19:25

MSD Analysis Date/Time: 06-DEC-12 19:42

Reporting Units: ug/L

QC Type: MS/MSD

Compound	Spike Added	Sample Conc	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Rec Limits
2,4-Diamino-6-nitrotoluene	5.40541	0	5.17	95.6		5.69	104		9.66		25	66 - 108
2,6-Diamino-4-nitrotoluene	5.40541	0	6.61	122	*	6.86	125	*	3.74		25	72 - 112
3,5-Dinitroaniline	5.40541	0	5.26	97.4		5.53	101		4.87		25	75 - 116
TATB	5.40541	0	2	37		2.12	38.6		5.87		25	32 - 96
tris(o-cresyl) phosphate	5.40541	.0391	3.84	70.3		3.43	61.7		11.3		25	30 - 80

#Column to be used to flag recovery and RPD values with an asterisk

Quality Control Data

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1264447

Lab Code: GEL

GEL Job No (SDG) 2013-334

Matrix: WATER

GEL Sample ID: 1202782739

Sample Amount 1000 mL

Date Received: 17-NOV-12

Moisture:

Extraction Batch ID: 1264447

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP1206034.wiff

Date Analyzed: 07-DEC-12 07:39

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	0.250	U	0.080	0.250
118-96-7	*2,4,6-Trinitrotoluene*				
121-14-2	2,4-Dinitrotoluene	0.250	U	0.080	0.250
121-14-2	*2,4-Dinitrotoluene*				
121-82-4	RDX	0.250	U	0.080	0.250
121-82-4	*RDX*				
13980-04-6	TNX	0.250	U	0.080	0.250
13980-04-6	*TNX*				
19406-51-0	4-Amino-2,6-dinitrotoluene	0.250	U	0.080	0.250
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
2691-41-0	HMX	0.250	U	0.080	0.250
2691-41-0	*HMX*				
35572-78-2	2-Amino-4,6-dinitrotoluene	0.250	U	0.080	0.250
35572-78-2	*2-Amino-4,6-dinitrotoluene*				
5755-27-1	MNX	0.250	U	0.080	0.250
5755-27-1	*MNX*				
606-20-2	2,6-Dinitrotoluene	0.250	U	0.080	0.250
606-20-2	*2,6-Dinitrotoluene*				
80251-29-2	DNX	0.250	U	0.080	0.250
80251-29-2	*DNX*				
88-72-2	o-Nitrotoluene	0.250	U	0.082	0.250
88-72-2	*o-Nitrotoluene*				
98-95-3	Nitrobenzene	0.250	U	0.080	0.250
98-95-3	*Nitrobenzene*				
99-08-1	m-Nitrotoluene	0.250	U	0.080	0.250
99-08-1	*m-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1264447

Lab Code: GEL

GEL Job No (SDG) 2013-334

Matrix: WATER

GEL Sample ID: 1202782739

Sample Amount 1000 mL

Date Received: 17-NOV-12

Moisture:

Extraction Batch ID: 1264447

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-35-4	1,3,5-Trinitrobenzene	0.250	U	0.080	0.250
99-35-4	*1,3,5-Trinitrobenzene*				
99-65-0	m-Dinitrobenzene	0.250	U	0.080	0.250
99-65-0	*m-Dinitrobenzene*				
479-45-8	Tetryl	0.500	U	0.080	0.500
479-45-8	*Tetryl*				
78-11-5	PETN	0.500	U	0.100	0.500
78-11-5	*PETN*				
99-99-0	p-Nitrotoluene	0.500	U	0.150	0.500
99-99-0	*p-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1264447

Lab Code: GEL

GEL Job No (SDG) 2013-334

Matrix: WATER

GEL Sample ID: 1202782739

Sample Amount 1000 mL

Date Received: 17-NOV-12

Moisture:

Extraction Batch ID: 1264447

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS12060022.wiff

Date Analyzed: 06-DEC-12 18:35

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.00	U	0.300	1.00
3058-38-6	*TATB*				
618-87-1	3,5-Dinitroaniline	1.00	U	0.300	1.00
618-87-1	*3,5-Dinitroaniline*				
78-30-8	tris(o-cresyl) phosphate	1.00	U	0.300	1.00
78-30-8	*tris(o-cresyl) phosphate*				
59229-75-3	2,6-Diamino-4-nitrotoluene	2.50	QU	0.500	2.50
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
6629-29-4	2,4-Diamino-6-nitrotoluene	2.50	U	0.500	2.50
6629-29-4	*2,4-Diamino-6-nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1264447

Lab Code: GEL

GEL Job No (SDG) 2013-334

Matrix: WATER

GEL Sample ID: 1202782740

Sample Amount 1000 mL

Date Received: 17-NOV-12

Moisture:

Extraction Batch ID: 1264447

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP1206035.wiff

Date Analyzed: 07-DEC-12 08:14

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
2691-41-0	HMX	3.83		0.080	0.250
2691-41-0	*HMX*				
99-08-1	m-Nitrotoluene	4.03		0.080	0.250
99-08-1	*m-Nitrotoluene*				
13980-04-6	TNX	4.14		0.080	0.250
13980-04-6	*TNX*				
479-45-8	Tetryl	4.23		0.080	0.500
479-45-8	*Tetryl*				
78-11-5	PETN	4.28		0.100	0.500
78-11-5	*PETN*				
99-35-4	1,3,5-Trinitrobenzene	4.3		0.080	0.250
99-35-4	*1,3,5-Trinitrobenzene*				
121-14-2	2,4-Dinitrotoluene	4.34		0.080	0.250
121-14-2	*2,4-Dinitrotoluene*				
606-20-2	2,6-Dinitrotoluene	4.35		0.080	0.250
606-20-2	*2,6-Dinitrotoluene*				
88-72-2	o-Nitrotoluene	4.36		0.082	0.250
88-72-2	*o-Nitrotoluene*				
80251-29-2	DNX	4.37		0.080	0.250
80251-29-2	*DNX*				
99-65-0	m-Dinitrobenzene	4.38		0.080	0.250
99-65-0	*m-Dinitrobenzene*				
118-96-7	2,4,6-Trinitrotoluene	4.49		0.080	0.250
118-96-7	*2,4,6-Trinitrotoluene*				
5755-27-1	MNX	4.49		0.080	0.250
5755-27-1	*MNX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1264447

Lab Code: GEL

GEL Job No (SDG) 2013-334

Matrix: WATER

GEL Sample ID: 1202782740

Sample Amount 1000 mL

Date Received: 17-NOV-12

Moisture:

Extraction Batch ID: 1264447

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-82-4	RDX	4.51		0.080	0.250
121-82-4	*RDX*				
19406-51-0	4-Amino-2,6-dinitrotoluene	4.52		0.080	0.250
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
99-99-0	p-Nitrotoluene	4.56		0.150	0.500
99-99-0	*p-Nitrotoluene*				
98-95-3	Nitrobenzene	4.65		0.080	0.250
98-95-3	*Nitrobenzene*				
35572-78-2	2-Amino-4,6-dinitrotoluene	4.66		0.080	0.250
35572-78-2	*2-Amino-4,6-dinitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1264447

Lab Code: GEL

GEL Job No (SDG) 2013-334

Matrix: WATER

GEL Sample ID: 1202782740

Sample Amount 1000 mL

Date Received: 17-NOV-12

Moisture:

Extraction Batch ID: 1264447

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS12060023.wiff

Date Analyzed: 06-DEC-12 18:52

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.77		0.300	1.00
3058-38-6	*TATB*				
78-30-8	tris(o-cresyl) phosphate	3.46		0.300	1.00
78-30-8	*tris(o-cresyl) phosphate*				
6629-29-4	2,4-Diamino-6-nitrotoluene	4.33		0.500	2.50
6629-29-4	*2,4-Diamino-6-nitrotoluene*				
618-87-1	3,5-Dinitroaniline	4.64		0.300	1.00
618-87-1	*3,5-Dinitroaniline*				
59229-75-3	2,6-Diamino-4-nitrotoluene	5.06	Q	0.500	2.50
59229-75-3	*2,6-Diamino-4-nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24251(315450003MS)MS

Lab Code: GEL

GEL Job No (SDG) 2013-334

Matrix: WATER

GEL Sample ID: 1202782741

Sample Amount 925 mL

Date Received: 17-NOV-12

Moisture:

Extraction Batch ID: 1264447

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP1206037.wiff

Date Analyzed: 07-DEC-12 09:24

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
479-45-8	Tetryl	3.94		0.0865	0.541
479-45-8	*Tetryl*				
99-08-1	m-Nitrotoluene	4.34		0.0865	0.270
99-08-1	*m-Nitrotoluene*				
13980-04-6	TNX	4.44		0.0865	0.270
13980-04-6	*TNX*				
98-95-3	Nitrobenzene	4.52		0.0865	0.270
98-95-3	*Nitrobenzene*				
78-11-5	PETN	4.66		0.108	0.541
78-11-5	*PETN*				
5755-27-1	MNX	4.68		0.0865	0.270
5755-27-1	*MNX*				
99-35-4	1,3,5-Trinitrobenzene	4.76		0.0865	0.270
99-35-4	*1,3,5-Trinitrobenzene*				
88-72-2	o-Nitrotoluene	4.86		0.0886	0.270
88-72-2	*o-Nitrotoluene*				
121-82-4	RDX	4.92		0.0865	0.270
121-82-4	*RDX*				
2691-41-0	HMX	4.96		0.0865	0.270
2691-41-0	*HMX*				
606-20-2	2,6-Dinitrotoluene	4.99		0.0865	0.270
606-20-2	*2,6-Dinitrotoluene*				
80251-29-2	DNX	4.99		0.0865	0.270
80251-29-2	*DNX*				
99-65-0	m-Dinitrobenzene	5.02		0.0865	0.270
99-65-0	*m-Dinitrobenzene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24251(315450003MS)MS

Lab Code: GEL

GEL Job No (SDG) 2013-334

Matrix: WATER

GEL Sample ID: 1202782741

Sample Amount 925 mL

Date Received: 17-NOV-12

Moisture:

Extraction Batch ID: 1264447

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-14-2	2,4-Dinitrotoluene	5.07		0.0865	0.270
121-14-2	*2,4-Dinitrotoluene*				
118-96-7	2,4,6-Trinitrotoluene	5.12		0.0865	0.270
118-96-7	*2,4,6-Trinitrotoluene*				
19406-51-0	4-Amino-2,6-dinitrotoluene	5.14		0.0865	0.270
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
99-99-0	p-Nitrotoluene	5.23		0.162	0.541
99-99-0	*p-Nitrotoluene*				
35572-78-2	2-Amino-4,6-dinitrotoluene	5.56		0.0865	0.270
35572-78-2	*2-Amino-4,6-dinitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24251(315450003MS)MS

Lab Code: GEL

GEL Job No (SDG) 2013-334

Matrix: WATER

GEL Sample ID: 1202782741

Sample Amount 925 mL

Date Received: 17-NOV-12

Moisture:

Extraction Batch ID: 1264447

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS12060025.wiff

Date Analyzed: 06-DEC-12 19:25

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	2		0.324	1.08
3058-38-6	*TATB*				
78-30-8	tris(o-cresyl) phosphate	3.84		0.324	1.08
78-30-8	*tris(o-cresyl) phosphate*				
6629-29-4	2,4-Diamino-6-nitrotoluene	5.17		0.541	2.70
6629-29-4	*2,4-Diamino-6-nitrotoluene*				
618-87-1	3,5-Dinitroaniline	5.26		0.324	1.08
618-87-1	*3,5-Dinitroaniline*				
59229-75-3	2,6-Diamino-4-nitrotoluene	6.61	Q	0.541	2.70
59229-75-3	*2,6-Diamino-4-nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24251(315450003MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2013-334

Matrix: WATER

GEL Sample ID: 1202782742

Sample Amount 910 mL

Date Received: 17-NOV-12

Moisture:

Extraction Batch ID: 1264447

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP1206038.wiff

Date Analyzed: 07-DEC-12 09:59

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
479-45-8	Tetryl	4.23		0.0879	0.549
479-45-8	*Tetryl*				
13980-04-6	TNX	4.32		0.0879	0.275
13980-04-6	*TNX*				
2691-41-0	HMX	4.67		0.0879	0.275
2691-41-0	*HMX*				
99-08-1	m-Nitrotoluene	4.75		0.0879	0.275
99-08-1	*m-Nitrotoluene*				
99-99-0	p-Nitrotoluene	4.85		0.165	0.549
99-99-0	*p-Nitrotoluene*				
78-11-5	PETN	4.87		0.110	0.549
78-11-5	*PETN*				
5755-27-1	MNX	4.89		0.0879	0.275
5755-27-1	*MNX*				
606-20-2	2,6-Dinitrotoluene	4.96		0.0879	0.275
606-20-2	*2,6-Dinitrotoluene*				
88-72-2	o-Nitrotoluene	4.96		0.0901	0.275
88-72-2	*o-Nitrotoluene*				
80251-29-2	DNX	4.99		0.0879	0.275
80251-29-2	*DNX*				
98-95-3	Nitrobenzene	5.02		0.0879	0.275
98-95-3	*Nitrobenzene*				
99-35-4	1,3,5-Trinitrobenzene	5.07		0.0879	0.275
99-35-4	*1,3,5-Trinitrobenzene*				
99-65-0	m-Dinitrobenzene	5.14		0.0879	0.275
99-65-0	*m-Dinitrobenzene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24251(315450003MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2013-334

Matrix: WATER

GEL Sample ID: 1202782742

Sample Amount 910 mL

Date Received: 17-NOV-12

Moisture:

Extraction Batch ID: 1264447

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-14-2	2,4-Dinitrotoluene	5.24		0.0879	0.275
121-14-2	*2,4-Dinitrotoluene*				
19406-51-0	4-Amino-2,6-dinitrotoluene	5.29		0.0879	0.275
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
118-96-7	2,4,6-Trinitrotoluene	5.33		0.0879	0.275
118-96-7	*2,4,6-Trinitrotoluene*				
35572-78-2	2-Amino-4,6-dinitrotoluene	5.34		0.0879	0.275
35572-78-2	*2-Amino-4,6-dinitrotoluene*				
121-82-4	RDX	5.4		0.0879	0.275
121-82-4	*RDX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24251(315450003MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2013-334

Matrix: WATER

GEL Sample ID: 1202782742

Sample Amount 910 mL

Date Received: 17-NOV-12

Moisture:

Extraction Batch ID: 1264447

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS12060026.wiff

Date Analyzed: 06-DEC-12 19:42

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	2.12		0.330	1.10
3058-38-6	*TATB*				
78-30-8	tris(o-cresyl) phosphate	3.43		0.330	1.10
78-30-8	*tris(o-cresyl) phosphate*				
618-87-1	3,5-Dinitroaniline	5.53		0.330	1.10
618-87-1	*3,5-Dinitroaniline*				
6629-29-4	2,4-Diamino-6-nitrotoluene	5.69		0.549	2.75
6629-29-4	*2,4-Diamino-6-nitrotoluene*				
59229-75-3	2,6-Diamino-4-nitrotoluene	6.86	Q	0.549	2.75
59229-75-3	*2,6-Diamino-4-nitrotoluene*				

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-334

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 06-DEC-12 12:26

GEL Data File: EXP1206001.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-334

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 06-DEC-12 13:01

GEL Data File: EXP1206002.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-334

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 06-DEC-12 12:43

GEL Data File: EXS12060001.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	3
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-334

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 06-DEC-12 13:00

GEL Data File: EXS12060002.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-334

Lab Code: GEL

Lab Sample ID: XIBLK02

Analysis Date: 06-DEC-12 17:06

GEL Data File: EXP1206009.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-334

Lab Code: GEL

Lab Sample ID: XIBLK03

Analysis Date: 06-DEC-12 18:16

GEL Data File: EXP1206011.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-334

Lab Code: GEL

Lab Sample ID: XIBLK04

Analysis Date: 06-DEC-12 22:20

GEL Data File: EXP1206018.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	.776
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-334

Lab Code: GEL

Lab Sample ID: XIBLK05

Analysis Date: 07-DEC-12 00:05

GEL Data File: EXP1206021.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-334

Lab Code: GEL

Lab Sample ID: XIBLK06

Analysis Date: 07-DEC-12 01:15

GEL Data File: EXP1206023.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-334

Lab Code: GEL

Lab Sample ID: XIBLK07

Analysis Date: 07-DEC-12 05:20

GEL Data File: EXP1206030.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	.89
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-334

Lab Code: GEL

Lab Sample ID: XIBLK08

Analysis Date: 07-DEC-12 06:29

GEL Data File: EXP1206032.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-334

Lab Code: GEL

Lab Sample ID: XIBLK09

Analysis Date: 07-DEC-12 11:44

GEL Data File: EXP1206041.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-334

Lab Code: GEL

Lab Sample ID: XIBLK02

Analysis Date: 06-DEC-12 15:14

GEL Data File: EXS12060010.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	10.8
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-334

Lab Code: GEL

Lab Sample ID: XIBLK03

Analysis Date: 06-DEC-12 15:48

GEL Data File: EXS12060012.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	4.97
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-334

Lab Code: GEL

Lab Sample ID: XIBLK04

Analysis Date: 06-DEC-12 18:01

GEL Data File: EXS12060020.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
tris(o-cresyl) phosphate	0	4.94
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
3,4-Dinitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-334

Lab Code: GEL

Lab Sample ID: XIBLK05

Analysis Date: 06-DEC-12 20:32

GEL Data File: EXS12060029.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	4.59
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
11-DEC-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LC-MS/MS	SW846 3535/8321A Modified	Liquid	ARSL
Batch ID:	**Sample Numbers:**		
1264448	See Below		

Potentially affected work order(s)(SDG): 315450(2013-334)

Application Issues:

Failed Recovery for MS/PS

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. The MS (1202782741) did not meet acceptance criteria for the recovery of 2,6-Diamino-4-nitrotoluene at 122%. The limits are 72-112%.	1. The MSD (1202782742) duplicated the recovery at 125%. The LCS (1202782740) had a passing recovery of 101%. Since the MS and MSD recoveries were biased high and target analytes were not detected in the parent sample, the data are considered unaffected. The data are reported with the discrepancy noted in the Case Narrative.
2. The MSD (1202782742) did not meet acceptance criteria for the recovery of 2,6-Diamino-4-nitrotoluene at 125%. The limits are 72-112%.	2. The MS (1202782741) duplicated the recovery at 122%. The LCS (1202782740) had a passing recovery of 101%. Since the MS and MSD recoveries were biased high and target analytes were not detected in the parent sample, the data are considered unaffected. The data are reported with the discrepancy noted in the Case Narrative.

Originator's Name:

Lynne Russell 11-DEC-12

Data Validator/Group Leader:

Michael Penny 11-DEC-12

PCB Analysis

Case Narrative

PCB Case Narrative
ARS International (ARSL)
SDG 2013-334

Method/Analysis Information

Procedure:	**Analysis of Polychlorinated Biphenyls by ECD**
Analytical Method:	SW846 3535A/8082
Prep Method:	SW846 3535A
Analytical Batch Number:	1265739
Prep Batch Number:	1265738

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3535A/8082:

Sample ID	Client ID
315450001	CAMO-13-24251
315450008	CAMO-13-24252
1202785589	Method Blank (MB)
1202785590	314987001(CAMO-13-24253) Matrix Spike (MS)
1202785591	314987001(CAMO-13-24253) Matrix Spike Duplicate (MSD)
1202785592	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-040 REV# 19.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 23.0.

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standards (ICV or CCV) met the acceptance criteria. All analytes were

within the established retention time windows for this method.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
An ARSL sample of similar matrix in SDG 2013-297 was selected for the matrix spike and matrix spike duplicate analysis for this batch of the samples.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the MS and MSD met the acceptance limits.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns. All sample extracts were cleaned using alumina. The QC samples MB and LCS, along with a sample in another SDG, were cleaned with copper to remove sulfur.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions were not required in this SDG.

Miscellaneous Information

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception report (DER) is generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
Certain standards and samples may have required manual integration to correctly position the baseline as set in the calibration standard injections. If manual integration was performed, copies of all manual integration peak profiles are included in the raw data section of this PCB fraction.

Additional Comments
The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

The higher results from either column have been chosen and reported in the data package for the client samples, MB and LCS. The data reported for the MS and MSD are from the same analytical column as the parent sample.

Due to software issue, the surrogate recovery range was not indicated or possibly indicated incorrectly in Quantitation Report. Please see Surrogate Recovery Report for correct surrogate acceptance limits.

Due to rounding differences in the calculation between the forms, the data reported in Sample Summary (form 1) and Spike Recovery Report (form 3) may differ slightly from the data reported in Identification Summary (form 10).

Aroclors quantitated on the raw data report by ChemStation data system do not necessarily represent positive Aroclor identification. In order for positive identification to be made, the Aroclor must match in pattern and retention time; as well as quantitate relatively close between the primary and confirmation columns, as specified in SW846 method 8000. When these conditions are not met, the Aroclor is reported as a non-detect on the data report.

System Configuration

The Semi-Volatiles-PCB analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
ECD8A.I_1	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP I	30m x 0.25mm, 0.25um (Rtx-CLPesticide I)
ECD8A.I_2	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP II	30m x 0.25mm, 0.20um (Rtx-CLPesticide II)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the

requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-334 GEL Work Order: 315450

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Jimi Cao **Name: Jimin Cao**

Date: 30 NOV 2012 **Title: Data Validator**

Sample Data Summary

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 11:51**	**Matrix:**	**W**
Lab Sample ID:	**315450001**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24251**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1265739**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 11:58**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/26/2012 01:45**	**Aliquot:**	**960 mL**	**Final Volume:**	**1 mL**
Data File:	**112712.B\e8k2727.D**	**Column:**	**1 RTX-CLPEST1**		
	112712.B\e8k2727.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.104	ug/L	0.0347	0.104	1
11104-28-2	Aroclor-1221	U	0.104	ug/L	0.0347	0.104	1
11141-16-5	Aroclor-1232	U	0.104	ug/L	0.0347	0.104	1
53469-21-9	Aroclor-1242	U	0.104	ug/L	0.0347	0.104	1
12672-29-6	Aroclor-1248	U	0.104	ug/L	0.0347	0.104	1
11097-69-1	Aroclor-1254	U	0.104	ug/L	0.0347	0.104	1
11096-82-5	Aroclor-1260	U	0.104	ug/L	0.0347	0.104	1
37324-23-5	Aroclor-1262	U	0.104	ug/L	0.0347	0.104	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.147	0.208	ug/L	70.5	(42%-120%)
Decachlorobiphenyl	0.169	0.208	ug/L	81.3	(41%-120%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**	**Date Collected:**	**11/15/2012 14:59**	**Matrix:**	**W**
Lab Sample ID:	**315450008**	**Date Received:**	**11/17/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24252**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1265739**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 12:36**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/26/2012 01:45**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**112712.B\e8k2730.D**	**Column:**	**1 RTX-CLPEST1**		
	112712.B\e8k2730.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.100	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260	U	0.100	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.144	0.200	ug/L	71.8	(42%-120%)
Decachlorobiphenyl	0.176	0.200	ug/L	88.0	(41%-120%)

Quality Control Summary

PCB

Surrogate Recovery Report

SDG Number: 2013-334

Matrix Type: LIQUID

Sample ID	Client ID	4CMX 1 %REC #	4CMX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #
1202785590	CAMO-13-24253MS	65	65	76	74
1202785591	CAMO-13-24253MSD	66	66	80	79
315450001	CAMO-13-24251	71	70	81	81
315450008	CAMO-13-24252	72	71	86	88
1202785589	MB for batch 1265738	76	76	90	91
1202785592	LCS for batch 1265738	77	77	89	92

Surrogate		Acceptance Limits
4CMX	= 4cmx	(42%-120%)
DCB	= Decachlorobiphenyl	(41%-120%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **CAMO-13-24253MS**
Lab Sample ID: **1202785590**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/27/2012 10:44**
Prep Batch ID: **1265738**
Batch ID: **1265739**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	MS	Aroclor-1016	2.00	0.00	U	1.39	70	34-123
11096-82-5	MS	Aroclor-1260	2.00	0.00	U	1.57	79	30-127

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **CAMO-13-24253MSD**
Lab Sample ID: **1202785591**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/27/2012 10:56**
Prep Batch ID: **1265738**
Batch ID: **1265739**
Dilution: 1

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
12674-11-2	MSD Aroclor-1016	2.00	0.00	U	1.41	70	34-123	1	0-30
11096-82-5	MSD Aroclor-1260	2.00	0.00	U	1.62	81	30-127	3	0-30

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-334**
Client ID: **LCS for batch 1265738**
Lab Sample ID: **1202785592**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/27/2012 13:13**
Prep Batch ID: **1265738**
Batch ID: **1265739**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	LCS	Aroclor-1016	1.00	0.0	0.800	80	47-115
11096-82-5	LCS	Aroclor-1260	1.00	0.0	0.890	89	42-115

Method Blank Summary

SDG Number:	**2013-334**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1265738**	**Instrument ID:**	**ECD8A.I_1** **ECD8A.I_2**	**Data File:**	**112712.B\e8k2732.D** **112712.B\e8k2732.D**
Lab Sample ID:	**1202785589**				
Column:	**RTX-CLPEST1** **RTX-CLPEST2**	**Prep Date:**	**11/26/2012 01:45**	**Analyzed:**	**11/27/12 13:01**

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 CAMO-13-24253MS	**1202785590**	**112712.B\e8k2721.D** **112712.B\e8k2721.D**	**11/27/12**	**1044**
02 CAMO-13-24253MSD	**1202785591**	**112712.B\e8k2722.D** **112712.B\e8k2722.D**	**11/27/12**	**1056**
03 CAMO-13-24251	**315450001**	**112712.B\e8k2727.D** **112712.B\e8k2727.D**	**11/27/12**	**1158**
04 CAMO-13-24252	**315450008**	**112712.B\e8k2730.D** **112712.B\e8k2730.D**	**11/27/12**	**1236**
05 LCS for batch 1265738	**1202785592**	**112712.B\e8k2733.D** **112712.B\e8k2733.D**	**11/27/12**	**1313**

Quality Control Data

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202785589**				
Client Sample:	**QC for batch 1265738**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1265738**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1265739**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 13:01**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/26/2012 01:45**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**112712.B\e8k2732.D**	**Column:**	**1 RTX-CLPEST1**		
	112712.B\e8k2732.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.100	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260	U	0.100	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.152	0.200	ug/L	76.1	(42%-120%)
Decachlorobiphenyl	0.182	0.200	ug/L	91.1	(41%-120%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-334**			**Matrix:**	**WATER**
Lab Sample ID:	**1202785592**				
Client Sample:	**QC for batch 1265738**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1265738**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1265739**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 13:13**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/26/2012 01:45**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**112712.B\e8k2733.D**	**Column:**	**1 RTX-CLPEST1**		
	112712.B\e8k2733.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		0.800	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260		0.890	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.155	0.200	ug/L	77.4	(42%-120%)
Decachlorobiphenyl	0.183	0.200	ug/L	91.6	(41%-120%)

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-334

Sample Analysis

Sample ID	Client ID
315450004	CAMO-13-24268
315450007	CAMO-13-24269
1202783822	Method Blank (MB) **ICP**
1202783823	Laboratory Control Sample (LCS)
1202783826	315453014(CAPA-13-24782L) Serial Dilution (SD)
1202783824	315453014(CAPA-13-24782D) Sample Duplicate (DUP)
1202783825	315453014(CAPA-13-24782S) Matrix Spike (MS)
1202783827	Method Blank (MB) **ICP-MS**
1202783828	Laboratory Control Sample (LCS)
1202783831	315267002(CASA-13-24218L) Serial Dilution (SD)
1202783829	315267002(CASA-13-24218D) Sample Duplicate (DUP)
1202783830	315267002(CASA-13-24218S) Matrix Spike (MS)
1202791367	Method Blank (MB) **CVAA**
1202791368	Laboratory Control Sample (LCS)
1202791371	315545002(CAMO-13-24282L) Serial Dilution (SD)
1202791369	315545002(CAMO-13-24282D) Sample Duplicate (DUP)
1202791370	315545002(CAMO-13-24282S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1264954, 1264956, 1268112 and 1270221
Prep Batch :	1264953, 1264955 and 1268111
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 8
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B
Prep Method :	SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 315453014 (CAPA-13-24782)-ICP, 315267002 (CASA-13-24218)-ICP-MS and 315545002 (CAMO-13-24282)-CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral

element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The sample 315450007 on the ICP required dilution in order to bring over range silica concentrations within the linear calibration range of the instrument.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Nick Cole A. Elmore **Date:** 12.13.12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-334 GEL Work Order: 315450

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by Nick-Cole A. Elmore 12.13.12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-334 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 315450004 **BASIS:** As Received **DATE COLLECTED** 15-NOV-12

CLIENT ID: CAMO-13-24268 **LEVEL:** Low **DATE RECEIVED** 17-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	12/06/12 10:34	120612W1-9	1268112

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-334 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 315450004 **BASIS:** As Received **DATE COLLECTED** 15-NOV-12

CLIENT ID: CAMO-13-24268 **LEVEL:** Low **DATE RECEIVED** 17-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	107	ug/L	J	68	200	200	1	P	HSC	12/05/12 14:54	120512A-1	1264954
7440-36-0	Antimony	1.07	ug/L	J	1	3	3	1	MS	SKJ	12/05/12 06:05	121204-3	1264956
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	SKJ	12/07/12 09:08	121206-8	1264956
7440-39-3	Barium	31.3	ug/L		1	5	5	1	P	HSC	12/05/12 14:54	120512A-1	1264954
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	12/05/12 14:54	120512A-1	1264954
7440-42-8	Boron	20.4	ug/L	J	15	50	50	1	P	HSC	12/05/12 14:54	120512A-1	1264954
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	SKJ	12/05/12 06:05	121204-3	1264956
7440-70-2	Calcium	5880	ug/L		50	200	200	1	P	HSC	12/05/12 14:54	120512A-1	1264954
7440-47-3	Chromium	16.4	ug/L		2	10	10	1	MS	SKJ	12/05/12 06:05	121204-3	1264956
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	12/05/12 14:54	120512A-1	1264954
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	12/05/12 14:54	120512A-1	1264954
7439-89-6	Iron	72	ug/L	J	30	100	100	1	P	HSC	12/05/12 14:54	120512A-1	1264954
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	SKJ	12/05/12 06:05	121204-3	1264956
7439-95-4	Magnesium	2380	ug/L		110	300	300	1	P	HSC	12/05/12 14:54	120512A-1	1264954
7439-96-5	Manganese	33.7	ug/L		2	10	10	1	P	HSC	12/05/12 14:54	120512A-1	1264954
7439-98-7	Molybdenum	2.14	ug/L		0.165	0.5	0.5	1	MS	SKJ	12/05/12 06:05	121204-3	1264956
7440-02-0	Nickel	2.66	ug/L		0.5	2	2	1	MS	SKJ	12/05/12 06:05	121204-3	1264956
7440-09-7	Potassium	27400	ug/L		50	150	150	1	P	HSC	12/05/12 14:54	120512A-1	1264954
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	SKJ	12/07/12 09:08	121206-8	1264956
7631-86-9	Silica	102000	ug/L		53	213	213	1	P	HSC	12/05/12 14:54	120512A-1	1264954
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	SKJ	12/05/12 06:05	121204-3	1264956
7440-23-5	Sodium	13300	ug/L		100	300	300	1	P	HSC	12/05/12 14:54	120512A-1	1264954
7440-24-6	Strontium	25.8	ug/L		1	5	5	1	P	HSC	12/05/12 14:54	120512A-1	1264954
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	SKJ	12/06/12 17:51	121206-4	1264956
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	12/05/12 14:54	120512A-1	1264954
7440-61-1	Uranium	0.255	ug/L		0.067	0.2	0.2	1	MS	SKJ	12/05/12 06:05	121204-3	1264956
7440-62-2	Vanadium	4.21	ug/L	J	1	5	5	1	P	HSC	12/05/12 14:54	120512A-1	1264954
7440-66-6	Zinc	22.1	ug/L		3.3	10	10	1	P	HSC	12/05/12 14:54	120512A-1	1264954

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-334 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 315450004 **BASIS:** As Received **DATE COLLECTED** 15-NOV-12

CLIENT ID: CAMO-13-24268 **LEVEL:** Low **DATE RECEIVED** 17-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	24.5	mg/L		0.453	1.24	1.24	1		JJ2	12/13/12 08:32		1270221

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1264954	1264953	SW846 3005A	50	mL	50	mL	11/26/12	MTM1
1264956	1264955	SW846 3005A	50	mL	50	mL	11/26/12	MTM1
1268112	1268111	EPA 245.1/245.2 Prep	20	mL	20	mL	12/05/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-334 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 315450007 **BASIS:** As Received **DATE COLLECTED** 15-NOV-12

CLIENT ID: CAMO-13-24269 **LEVEL:** Low **DATE RECEIVED** 17-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	12/06/12 10:37	120612W1-9	1268112

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-334 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 315450007 **BASIS:** As Received **DATE COLLECTED** 15-NOV-12

CLIENT ID: CAMO-13-24269 **LEVEL:** Low **DATE RECEIVED** 17-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	197	ug/L	J	68	200	200	1	P	HSC	12/05/12 14:57	120512A-1	1264954
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	SKJ	12/05/12 06:11	121204-3	1264956
7440-38-2	Arsenic	2.99	ug/L	J	1.7	5	5	1	MS	SKJ	12/07/12 09:12	121206-8	1264956
7440-39-3	Barium	32.6	ug/L		1	5	5	1	P	HSC	12/05/12 14:57	120512A-1	1264954
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	12/05/12 14:57	120512A-1	1264954
7440-42-8	Boron	29	ug/L	J	15	50	50	1	P	HSC	12/05/12 14:57	120512A-1	1264954
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	SKJ	12/05/12 06:11	121204-3	1264956
7440-70-2	Calcium	7990	ug/L		50	200	200	1	P	HSC	12/05/12 14:57	120512A-1	1264954
7440-47-3	Chromium	2.18	ug/L	J	2	10	10	1	MS	SKJ	12/05/12 06:11	121204-3	1264956
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	12/05/12 14:57	120512A-1	1264954
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	12/05/12 14:57	120512A-1	1264954
7439-89-6	Iron	331	ug/L		30	100	100	1	P	HSC	12/05/12 14:57	120512A-1	1264954
7439-92-1	Lead	0.785	ug/L	J	0.5	2	2	1	MS	SKJ	12/05/12 06:11	121204-3	1264956
7439-95-4	Magnesium	3370	ug/L		110	300	300	1	P	HSC	12/05/12 14:57	120512A-1	1264954
7439-96-5	Manganese	91.5	ug/L		2	10	10	1	P	HSC	12/05/12 14:57	120512A-1	1264954
7439-98-7	Molybdenum	6.81	ug/L		0.165	0.5	0.5	1	MS	SKJ	12/05/12 06:11	121204-3	1264956
7440-02-0	Nickel	1.84	ug/L	J	0.5	2	2	1	MS	SKJ	12/05/12 06:11	121204-3	1264956
7440-09-7	Potassium	21800	ug/L		50	150	150	1	P	HSC	12/05/12 14:57	120512A-1	1264954
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	SKJ	12/07/12 09:12	121206-8	1264956
7631-86-9	Silica	120000	ug/L		530	2130	2130	10	P	HSC	12/12/12 08:58	121212A-2	1264954
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	SKJ	12/05/12 06:11	121204-3	1264956
7440-23-5	Sodium	20700	ug/L		100	300	300	1	P	HSC	12/05/12 14:57	120512A-1	1264954
7440-24-6	Strontium	33.6	ug/L		1	5	5	1	P	HSC	12/05/12 14:57	120512A-1	1264954
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	SKJ	12/06/12 17:54	121206-4	1264956
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	12/05/12 14:57	120512A-1	1264954
7440-61-1	Uranium	0.224	ug/L		0.067	0.2	0.2	1	MS	SKJ	12/05/12 06:11	121204-3	1264956
7440-62-2	Vanadium	5.11	ug/L		1	5	5	1	P	HSC	12/05/12 14:57	120512A-1	1264954
7440-66-6	Zinc	10.4	ug/L		3.3	10	10	1	P	HSC	12/05/12 14:57	120512A-1	1264954

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-334 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 315450007 **BASIS:** As Received **DATE COLLECTED** 15-NOV-12

CLIENT ID: CAMO-13-24269 **LEVEL:** Low **DATE RECEIVED** 17-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	33.8	mg/L		0.453	1.24	1.24	1		JJ2	12/13/12 08:32		1270221

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1264954	1264953	SW846 3005A	50	mL	50	mL	11/26/12	MTM1
1264956	1264955	SW846 3005A	50	mL	50	mL	11/26/12	MTM1
1268112	1268111	EPA 245.1/245.2 Prep	20	mL	20	mL	12/05/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−334

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202783822								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	50	ug/L	+/−150	U	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202783827								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202791367								
	Mercury	0.067	ug/L	+/−0.2	U	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−334 **Client ID** CAPA−13−24782S

Contract: LANL00110 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315453014 **Spike ID:** 1202783825

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5430		68	U	5000	108		P
Barium	ug/L	75−125	526		1	U	500	105		P
Beryllium	ug/L	75−125	528		1	U	500	106		P
Boron	ug/L	75−125	521		15	U	500	104		P
Calcium	ug/L	75−125	5310		53.2	J	5000	105		P
Cobalt	ug/L	75−125	521		1	U	500	104		P
Copper	ug/L	75−125	529		3	U	500	106		P
Iron	ug/L	75−125	5440		30	U	5000	108		P
Magnesium	ug/L	75−125	5500		110	U	5000	110		P
Manganese	ug/L	75−125	531		2.59	J	500	106		P
Potassium	ug/L	75−125	5380		50	U	5000	108		P
Silica	ug/L	75−125	11100		98.8	J	10700	103		P
Sodium	ug/L	75−125	6000		140	J	5000	117		P
Strontium	ug/L	75−125	540		1	U	500	108		P
Tin	ug/L	75−125	521		2.5	U	500	104		P
Vanadium	ug/L	75−125	531		1	U	500	106		P
Zinc	ug/L	75−125	504		3.3	U	500	101		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−334 **Client ID** CASA−13−24218S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315267002 **Spike ID:** 1202783830

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	200		1	U	200	99.6		MS
Arsenic	ug/L	75−125	76.1		1.7	U	80	95		MS
Cadmium	ug/L	75−125	10.2		0.11	U	10	102		MS
Chromium	ug/L	75−125	50.9		6.25	J	50	89.4		MS
Lead	ug/L	75−125	40.7		0.5	U	40	102		MS
Molybdenum	ug/L	75−125	50.7		1.36		50	98.6		MS
Nickel	ug/L	75−125	60.1		14.9		50	90.4		MS
Selenium	ug/L	75−125	19.6		1.5	U	20	97.4		MS
Silver	ug/L	75−125	51.2		0.2	U	50	102		MS
Thallium	ug/L	75−125	94.4		0.45	U	100	94.4		MS
Uranium	ug/L	75−125	51.3		0.693		50	101		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−334 **Client ID** CAMO−13−24282S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315545002 **Spike ID:** 1202791370

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.08		0.067	U	2	104		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−334 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAPA−13−24782D

Matrix: LIQUID **Level:** Low

Sample ID: 315453014 **Duplicate ID:** 1202783824 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L		1	U	1	U			P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	15	U			P
Calcium	ug/L	+/−200	53.2	J	54.3	J	2.11		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L		3	U	3	U			P
Iron	ug/L		30	U	30	U			P
Magnesium	ug/L		110	U	110	U			P
Manganese	ug/L	+/−10	2.59	J	2.87	J	10.2		P
Potassium	ug/L		50	U	50	U			P
Silica	ug/L	+/−213	98.8	J	149	J	40.3		P
Sodium	ug/L	+/−300	140	J	191	J	31.1		P
Strontium	ug/L		1	U	1	U			P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L		1	U	1	U			P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−334 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CASA−13−24218D

Matrix: LIQUID **Level:** Low

Sample ID: 315267002 **Duplicate ID:** 1202783829 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	6.25	J	5.64	J	10.2		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.36		1.28		6.21		MS
Nickel	ug/L	+/−20%	14.9		13.8		7.97		MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.693		0.637		8.42		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−334 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24282D

Matrix: LIQUID **Level:** Low

Sample ID: 315545002 **Duplicate ID:** 1202791369 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−334

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783823								
	Aluminum	ug/L	5000	5180		104	80−120	P
	Barium	ug/L	500	508		102	80−120	P
	Beryllium	ug/L	500	514		103	80−120	P
	Boron	ug/L	500	505		101	80−120	P
	Calcium	ug/L	5000	5100		102	80−120	P
	Cobalt	ug/L	500	499		99.8	80−120	P
	Copper	ug/L	500	516		103	80−120	P
	Iron	ug/L	5000	5250		105	80−120	P
	Magnesium	ug/L	5000	5280		106	80−120	P
	Manganese	ug/L	500	515		103	80−120	P
	Potassium	ug/L	5000	5150		103	80−120	P
	Silica	ug/L	10700	10600		98.8	80−120	P
	Sodium	ug/L	5000	5540		111	80−120	P
	Strontium	ug/L	500	519		104	80−120	P
	Tin	ug/L	500	502		100	80−120	P
	Vanadium	ug/L	500	517		103	80−120	P
	Zinc	ug/L	500	491		98.3	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−334

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783828								
	Antimony	ug/L	50	50.2		100	80−120	MS
	Arsenic	ug/L	50	48.4		96.9	80−120	MS
	Cadmium	ug/L	50	50.6		101	80−120	MS
	Chromium	ug/L	50	50.3		101	80−120	MS
	Lead	ug/L	50	52.5		105	80−120	MS
	Molybdenum	ug/L	50	48.5		97	80−120	MS
	Nickel	ug/L	50	52.4		105	80−120	MS
	Selenium	ug/L	50	49.3		98.6	80−120	MS
	Silver	ug/L	50	52.4		105	80−120	MS
	Thallium	ug/L	50	50.6		101	80−120	MS
	Uranium	ug/L	50	51.5		103	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−334

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202791368								
	Mercury	ug/L	2	2.11		105	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−334 **Client ID** CAPA−13−24782L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315453014 **Serial Dilution ID:** 1202783826

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	1	U	5	U				P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	53.2	J	250	U	100			P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	110	U	550	U				P
Manganese	2.59	J	10	U	100			P
Potassium	50	U	250	U				P
Silica	98.8	J	265	U	100			P
Sodium	140	J	500	U	100			P
Strontium	1	U	5	U				P
Tin	2.5	U	12.5	U				P
Vanadium	1	U	5	U				P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−334 **Client ID** CASA−13−24218L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315267002 **Serial Dilution ID:** 1202783831

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	6.25	J	10	U	100			MS
Lead	.5	U	12.6					MS
Molybdenum	1.36		2.34	J	71.4			MS
Nickel	14.9		15		.779			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.693		.64	J	7.65			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−334 **Client ID** CAMO−13−24268L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315545002 **Serial Dilution ID:** 1202791371

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-334

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1265851 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
315450003	CAMO-13-24251
315450010	CAMO-13-24252
1202785852	Method Blank (MB)
1202785853	315351001(CASA-13-24211) Sample Duplicate (DUP)
1202785854	315351001(CASA-13-24211) Post Spike (PS)
1202785855	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315351001 (CASA-13-24211).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1267060	**Method:**	EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
315450004	CAMO-13-24268
315450007	CAMO-13-24269
1202788865	315351002(CASA-13-24219) Sample Duplicate (DUP)
1202788867	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315351002 (CASA-13-24219).

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1265360 **Method:** EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
315450004	CAMO-13-24268
315450007	CAMO-13-24269
1202784743	315351002(CASA-13-24219) Sample Duplicate (DUP)
1202784744	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315351002 (CASA-13-24219).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following samples from this sample group were received by the lab outside of the method specified holding time: 315450004 (CAMO-13-24268) and 315450007 (CAMO-13-24269).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1143472 315450004 (CAMO-13-24268) and 315450007 (CAMO-13-24269).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1264118	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
315450004	CAMO-13-24268
315450007	CAMO-13-24269
1202781990	Method Blank (MB)
1202781991	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202781992	315267002(CASA-13-24218) Post Spike (PS)
1202781993	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202781991 (CASA-13-24218), 1202781992 (CASA-13-24218), 315450004 (CAMO-13-24268) and 315450007 (CAMO-13-24269).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1265956	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1265955	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
315450004	CAMO-13-24268
315450007	CAMO-13-24269
1202786153	Method Blank (MB)
1202786154	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202786155	315267002(CASA-13-24218) Matrix Spike (MS)
1202786156	315267002(CASA-13-24218) Matrix Spike Duplicate (MSD)
1202786157	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The relative percent difference (RPD) between the Spike and Spike Duplicate was outside of the required acceptance limits. However, both the Spike and Spike Duplicate recoveries were within the required acceptance limits; therefore, the data is deemed acceptable. 1202786156 (CASA-13-24218).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

The following DER was generated for this SDG: 1143774 1202786156 (CASA-13-24218).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1265958	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1265957	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
315450003	CAMO-13-24251
315450010	CAMO-13-24252
1202786158	Method Blank (MB)
1202786159	315267001(CASA-13-24210) Sample Duplicate (DUP)
1202786161	315267001(CASA-13-24210) Matrix Spike (MS)
1202786165	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 13.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267001 (CASA-13-24210).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202786161 (CASA-13-24210).

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202786159 (CASA-13-24210).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1147238 1202786161 (CASA-13-24210).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1265759	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
315450004	CAMO-13-24268
315450007	CAMO-13-24269
1202785633	Method Blank (MB)
1202785634	315450004(CAMO-13-24268) Sample Duplicate (DUP)
1202785635	315545002(CAMO-13-24282) Sample Duplicate (DUP)
1202785636	315450004(CAMO-13-24268) Post Spike (PS)
1202785637	315545002(CAMO-13-24282) Post Spike (PS)
1202785638	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 315450004 (CAMO-13-24268) and 315545002 (CAMO-13-24282).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1202785636 (CAMO-13-24268).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202785634 (CAMO-13-24268), 1202785636 (CAMO-13-24268) and 315450004 (CAMO-13-24268).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1143441 1202785636 (CAMO-13-24268).

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1263579	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1263578	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
315450004	CAMO-13-24268
315450007	CAMO-13-24269
1202780723	Method Blank (MB)
1202780727	Laboratory Control Sample (LCS)
1202786124	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202786125	315267002(CASA-13-24218) Matrix Spike (MS)
1202786126	315267002(CASA-13-24218) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 315450004 (CAMO-13-24268) and 315450007 (CAMO-13-24269).

Sample Re-analysis
The following sample was re-analyzed due to instrument failure: 1202780727 (LCS).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Solids, Total Dissolved**

Analytical Batch: 1264462 and 1264928 **Method:** EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
315450004	CAMO-13-24268
315450007	CAMO-13-24269
1202782757	Method Blank (MB)
1202782758	315351002(CASA-13-24219) Sample Duplicate (DUP)
1202782759	315361001(SWWS46-13-24772) Sample Duplicate (DUP)
1202782760	Laboratory Control Sample (LCS)
1202783776	Method Blank (MB)
1202783778	Laboratory Control Sample (LCS)
1202784567	315450004(CAMO-13-24268) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 315351002 (CASA-13-24219), 315361001 (SWWS46-13-24772)- Batch 1264462 and 315450004 (CAMO-13-24268)- Batch 1264928.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1146449 Batch 1264928. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Alkalinity**

Analytical Batch: 1266562 **Method:** EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
315450004	CAMO-13-24268
315450007	CAMO-13-24269
1202787691	315450004(CAMO-13-24268) Sample Duplicate (DUP)
1202787695	315450004(CAMO-13-24268) Matrix Spike (MS)
1202787699	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315450004 (CAMO-13-24268).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____14Dec12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-334 GEL Work Order: 315450

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J Value is estimated

Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

h Preparation or preservation holding time was exceeded

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 14, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-334

Client Sample ID:	CAMO-13-24251	Project:	ESHL00210
Sample ID:	315450003	Client ID:	ARSL001
Matrix:	W		
Collect Date:	15-NOV-12 11:51		
Receive Date:	17-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average		1.59	0.330	1.00	mg/L	1	TSM	11/29/12	1805	1265851	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl		0.126	0.033	0.100	mg/L	1	KLP1	12/07/12	1513	1265958	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	12/06/12	1500	1265957

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 14, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-334

Client Sample ID:	CAMO-13-24268	Project:	ESHL00210
Sample ID:	315450004	Client ID:	ARSL001
Matrix:	W		
Collect Date:	15-NOV-12 11:51		
Receive Date:	17-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		181	1.00	1.00	umhos/cm	1	LXA1	11/30/12	1423	1267060	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 14.0C	H	6.78	0.010	0.100	SU	1	LYG1	11/21/12	0857	1265360	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	11/30/12	2025	1264118	3
Chloride		3.17	0.067	0.200	mg/L	1					
Fluoride		0.589	0.033	0.100	mg/L	1					
Sulfate		5.41	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	J	0.0253	0.017	0.050	mg/L	1	KLP1	11/27/12	1109	1265956	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		1.58	0.085	0.250	mg/L	5	AXH3	11/26/12	0921	1265759	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		11.8	0.170	0.500	mg/L	10	KLP1	11/27/12	1708	1263579	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		203	3.40	14.3	mg/L		LYG1	11/20/12	1417	1264928	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		41.7	0.725	1.00	mg/L		LXA1	11/29/12	1252	1266562	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/26/12	1700	1265955
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/26/12	1700	1263578

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 14, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-334
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24268	Project:	ESHL00210
Sample ID:	315450004	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 14, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-334

Client Sample ID:	CAMO-13-24269	Project:	ESHL00210
Sample ID:	315450007	Client ID:	ARSL001
Matrix:	W		
Collect Date:	15-NOV-12 14:59		
Receive Date:	17-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		197	1.00	1.00	umhos/cm	1	LXA1	11/30/12	1424	1267060	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 12.9C	H	6.69	0.010	0.100	SU	1	LYG1	11/21/12	0858	1265360	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	11/30/12	2054	1264118	3
Chloride		2.63	0.067	0.200	mg/L	1					
Fluoride		0.739	0.033	0.100	mg/L	1					
Sulfate		2.16	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	U	ND	0.017	0.050	mg/L	1	KLP1	11/27/12	1110	1265956	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.270	0.017	0.050	mg/L	1	AXH3	11/26/12	0925	1265759	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		19.1	0.170	0.500	mg/L	10	KLP1	11/27/12	1709	1263579	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		256	3.40	14.3	mg/L		LYG1	11/19/12	0819	1264462	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		51.5	0.725	1.00	mg/L		LXA1	11/29/12	1311	1266562	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/26/12	1700	1265955
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/26/12	1700	1263578

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 14, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-334
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24269	Project:	ESHL00210
Sample ID:	315450007	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 14, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-334

Client Sample ID:	CAMO-13-24252	Project:	ESHL00210
Sample ID:	315450010	Client ID:	ARSL001
Matrix:	W		
Collect Date:	15-NOV-12 14:59		
Receive Date:	17-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average		3.65	0.330	1.00	mg/L	1	TSM	11/29/12	1839	1265851	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl		0.140	0.033	0.100	mg/L	1	KLP1	12/07/12	1514	1265958	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	12/06/12	1500	1265957

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: December 14, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **315450**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis											
Batch 1265851											
QC1202785853 315351001 DUP											
Total Organic Carbon Average		U	ND	J	0.356	mg/L	N/A			TSM	11/29/12 15:56
QC1202785855 LCS											
Total Organic Carbon Average	10.0				10.0	mg/L		100	(85%-115%)		11/29/12 15:14
QC1202785852 MB											
Total Organic Carbon Average				U	ND	mg/L					11/29/12 15:05
QC1202785854 315351001 PS											
Total Organic Carbon Average	10.0	U	ND		10.7	mg/L		104	(65%-120%)		11/29/12 16:16
Conductivity Analysis											
Batch 1267060											
QC1202788865 315351002 DUP											
Conductivity			171		170	umhos/cm	0.294		(0%-10%)	LXA1	11/30/12 14:21
QC1202788867 LCS											
Conductivity	1410				1420	umhos/cm		100	(95%-105%)		11/30/12 14:14
Electrode Analysis											
Batch 1265360											
QC1202784743 315351002 DUP											
pH		H	7.85	H	7.85	SU	0.00		(0%-10%)	LYG1	11/21/12 08:50
QC1202784744 LCS											
pH	7.00				7.04	SU		101	(99%-101%)		11/21/12 08:40
Ion Chromatography											
Batch 1264118											
QC1202781991 315267002 DUP											
Bromide		U	ND	U	ND	mg/L	N/A			MAR1	11/30/12 16:34
Chloride			6.27		6.30	mg/L	0.352		(0%-20%)		
Fluoride			0.332		0.333	mg/L	0.271 ^		(+/-0.100)		
Sulfate			5.52		5.55	mg/L	0.524		(0%-20%)		
QC1202781993 LCS											
Bromide	2.50				2.62	mg/L		105	(90%-110%)		11/30/12 15:36
Chloride	10.0				9.24	mg/L		92.4	(90%-110%)		
Fluoride	5.00				4.89	mg/L		97.9	(90%-110%)		
Sulfate	20.0				19.3	mg/L		96.4	(90%-110%)		
QC1202781990 MB											
Bromide				U	ND	mg/L					11/30/12 15:07
Chloride				U	ND	mg/L					
Fluoride				U	ND	mg/L					
Sulfate				U	ND	mg/L					
QC1202781992 315267002 PS											
Bromide	2.50	U	ND		2.59	mg/L		101	(90%-110%)		11/30/12 17:03
Chloride	10.0		6.27		16.2	mg/L		99.7	(90%-110%)		

QC Summary

Workorder: 315450

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1264118											
Fluoride	5.00		0.332		5.12	mg/L		95.8	(90%-110%)		
Sulfate	20.0		5.52		25.0	mg/L		97.3	(90%-110%)	MAR1	11/30/12 17:03
Nutrient Analysis											
Batch 1263579											
QC1202786124 315267002 DUP											
Phosphorus, Total as P		U	ND	U	ND	mg/L	N/A			KLP1	11/27/12 16:55
QC1202780727 LCS											
Phosphorus, Total as P	1.00				0.924	mg/L		92.4	(76%-120%)		11/27/12 16:50
QC1202780723 MB											
Phosphorus, Total as P				U	ND	mg/L					11/27/12 16:37
QC1202786125 315267002 MS											
Phosphorus, Total as P	1.00	U	ND		0.850	mg/L		85	(62%-139%)		11/27/12 16:56
QC1202786126 315267002 MSD											
Phosphorus, Total as P	1.00	U	ND		0.915	mg/L	7.37	91.5	(0%-20%)		11/27/12 16:57
Batch 1265759											
QC1202785634 315450004 DUP											
Nitrogen, Nitrate/Nitrite			1.58		1.54	mg/L	2.56		(0%-20%)	AXH3	11/26/12 09:23
QC1202785635 315545002 DUP											
Nitrogen, Nitrate/Nitrite			0.370		0.371	mg/L	0.270		(0%-20%)		11/26/12 09:27
QC1202785638 LCS											
Nitrogen, Nitrate/Nitrite	1.00				1.03	mg/L		103	(90%-110%)		11/26/12 09:02
QC1202785633 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					11/26/12 09:01
QC1202785636 315450004 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.316		1.43	mg/L		111*	(90%-110%)		11/26/12 09:24
QC1202785637 315545002 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.370		1.43	mg/L		106	(90%-110%)		11/26/12 09:33
Batch 1265956											
QC1202786154 315267002 DUP											
Nitrogen, Ammonia		J	0.0497	J	0.0418	mg/L	17.3 ^		(+/-0.050)	KLP1	11/27/12 10:59
QC1202786157 LCS											
Nitrogen, Ammonia	1.00				1.05	mg/L		105	(90%-110%)		11/27/12 10:58
QC1202786153 MB											
Nitrogen, Ammonia				U	ND	mg/L					11/27/12 10:57
QC1202786155 315267002 MS											
Nitrogen, Ammonia	1.00	J	0.0497		0.981	mg/L		93.1	(90%-110%)		11/27/12 11:00
QC1202786156 315267002 MSD											
Nitrogen, Ammonia	1.00	J	0.0497		1.15	mg/L	15.9*	110	(0%-15%)		11/27/12 11:01
Batch 1265958											
QC1202786159 315267001 DUP											
Nitrogen, Total Kjeldahl		U	ND	U	ND	mg/L	N/A			KLP1	12/07/12 15:02
QC1202786165 LCS											
Nitrogen, Total Kjeldahl	1.00				0.987	mg/L		98.7	(90%-110%)		12/07/12 15:00
QC1202786158 MB											
Nitrogen, Total Kjeldahl				U	ND	mg/L					12/07/12 14:59
QC1202786161 315267001 MS											
Nitrogen, Total Kjeldahl	1.00	U	ND		0.881	mg/L		88.1*	(90%-110%)		12/07/12 15:03

QC Summary

Workorder: 315450

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Solids Analysis											
Batch 1264462											
QC1202782758 315351002 DUP											
Total Dissolved Solids			149		151	mg/L	1.90		(0%-10%)	LYG1	11/19/12 08:19
QC1202782759 315361001 DUP											
Total Dissolved Solids			231		239	mg/L	3.04		(0%-10%)		11/19/12 08:19
QC1202782760 LCS											
Total Dissolved Solids	300				291	mg/L		97.1	(95%-105%)		11/19/12 08:19
QC1202782757 MB											
Total Dissolved Solids				U	ND	mg/L					11/19/12 08:19
Batch 1264928											
QC1202784567 315450004 DUP											
Total Dissolved Solids			203		200	mg/L	1.42		(0%-10%)	LYG1	11/20/12 14:17
QC1202783778 LCS											
Total Dissolved Solids	300				290	mg/L		96.7	(95%-105%)		11/20/12 07:48
QC1202783776 MB											
Total Dissolved Solids				U	ND	mg/L					11/20/12 07:48
Titration Analysis											
Batch 1266562											
QC1202787691 315450004 DUP											
Alkalinity, Total as CaCO3			41.7		41.7	mg/L	0.00		(0%-20%)	LXA1	11/29/12 13:04
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A				
QC1202787699 LCS											
Alkalinity, Total as CaCO3	50.0				50.5	mg/L		101	(90%-110%)		11/29/12 12:50
QC1202787695 315450004 MS											
Alkalinity, Total as CaCO3	50.0		41.7		92.7	mg/L		102	(80%-120%)		11/29/12 13:09

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E Organics--Concentration of the target analyte exceeds the instrument calibration range
- F Estimated Value
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded

QC Summary

Workorder: **315450**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
26-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 353.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1265759	See below.		

Potentially affected work order(s)(SDG): 315439,315450(2013-334),315545(2013-353)

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for PS: QC 1202785636PS	1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits.

Originator's Name:

Aubrey Kingsbury 26-NOV-12

Data Validator/Group Leader:

Julia Hamilton 29-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
26-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1265360	See below.		

Potentially affected work order(s)(SDG): 315351(2013-321),315352(2013-322),315353(2013-323),315450(2013-334),315545(2013-353)

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 315351 002 315352 002,006 315353 002 315450 004,007 315545 002,004	1. Samples were received out of holding.

Originator's Name:

Lisa Gregory 26-NOV-12

Data Validator/Group Leader:

Julia Hamilton 13-DEC-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
27-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1	Liquid	ESHL, ORNL
Batch ID:	**Sample Numbers:**		
1265956	See below.		

Potentially affected work order(s)(SDG): **315267(2013-312),315351(2013-321),315352(2013-322),315353(2013-323),315450(2013-334),315545(2013-353),315650**

Application Issues:

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Failed RPD for MS/MSD: QC 1202786156MSD	1. The relative percent difference (RPD) between the Spike and Spike Duplicate was outside of the required acceptance limits. However, both the Spike and Spike Duplicate recoveries were within the required acceptance limits; therefore, the data is deemed acceptable.

Originator's Name:
Kristen Parson 27-NOV-12

Data Validator/Group Leader:
Julia Hamilton 27-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
07-DEC-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1265958	See below.		

Potentially affected work order(s)(SDG): **315267(2013-312),315311,315351(2013-321),315352(2013-322),315353(2013-323),315450(2013-334),315545(2013-353),315780**

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS: QC 1202786161MS	1. The spike recovery falls outside of the established acceptance limits due to matrix interference:

Originator's Name:

Kristen Parson 07-DEC-12

Data Validator/Group Leader:

Julia Hamilton 10-DEC-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-334
Work Order 315450

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1264269

Sample ID	**Client ID**
315450003	CAMO-13-24251
315450010	CAMO-13-24252
1202782355	Method Blank (MB)
1202782356	315545003(CAMO-13-24271) Sample Duplicate (DUP)
1202782357	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202782355 (MB) and 1202782357 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315545003 (CAMO-13-24271). The QC was from ARSL work order 315545.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1264270

Sample ID	Client ID
315450003	CAMO-13-24251
315450010	CAMO-13-24252
1202782358	Method Blank (MB)
1202782359	315545003(CAMO-13-24271) Sample Duplicate (DUP)
1202782360	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202782358 (MB) and 1202782360 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315545003 (CAMO-13-24271). The QC was from ARSL work order 315545.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1264271

Sample ID	Client ID
315450003	CAMO-13-24251
315450010	CAMO-13-24252
1202782361	Method Blank (MB)
1202782362	315545003(CAMO-13-24271) Sample Duplicate (DUP)
1202782363	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202782361 (MB) and 1202782363 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315545003 (CAMO-13-24271). The QC was from ARSL work order 315545.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1264174

Sample ID	Client ID
315450003	CAMO-13-24251
315450010	CAMO-13-24252
1202782104	Method Blank (MB)
1202782105	315352001(CASA-13-24212) Sample Duplicate (DUP)
1202782106	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in June 2012, July 2012 and August 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 315352001 (CASA-13-24212). The QC was from ARSL work order 315352.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1264650

Sample ID	Client ID
315450003	CAMO-13-24251
315450010	CAMO-13-24252
1202783218	Method Blank (MB)
1202783219	315352005(CASA-13-24206) Sample Duplicate (DUP)
1202783220	315352005(CASA-13-24206) Matrix Spike (MS)
1202783221	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202783218 (MB) and 1202783221 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315352005 (CASA-13-24206). The QC was from ARSL work order 315352.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202783219 (CASA-13-24206) was recounted due to high relative percent difference/relative error ratio. The recount is reported. Sample 315450010 (CAMO-13-24252) was recounted due to a suspected false positive. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202783220 (CASA-13-24206), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1268150

Sample ID	Client ID
315450003	CAMO-13-24251
315450010	CAMO-13-24252
1202791495	Method Blank (MB)
1202791496	315159001(CAMO-13-24249) Sample Duplicate (DUP)
1202791497	315159001(CAMO-13-24249) Matrix Spike (MS)
1202791498	315159001(CAMO-13-24249) Matrix Spike Duplicate (MSD)
1202791499	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in December 2012. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202791495 (MB) and 1202791499 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315159001 (CAMO-13-24249). The QC was from ARSL work order 315159.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Samples were reprepped due to high relative percent difference/relative error ratio. The re-analysis is being reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike and matrix spike duplicate, 1202791497 (CAMO-13-24249) and 1202791498 (CAMO-13-24249), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-334 GEL Work Order: 315450

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Heather M. McCarty **Name:** **Heather McCarty**

Date: **11 DEC 2012** **Title:** **Analyst II**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24251
Sample ID: 315450003
Matrix: W
Collect Date: 15-NOV-12
Receive Date: 17-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.00246	+/-0.0055	0.028	+/-0.0055	0.050	pCi/L		HAKB	11/26/12	1259	1264269	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.00309	+/-0.00535	0.0297	+/-0.00535	0.050	pCi/L		HAKB	11/23/12	1247	1264270	2
Plutonium-239/240	U	0.00309	+/-0.0069	0.0493	+/-0.0069	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.168	+/-0.0276	0.0695	+/-0.0299	1.00	pCi/L		HAKB	11/23/12	1246	1264271	3
Uranium-235/236	U	0.0037	+/-0.00979	0.0434	+/-0.0098	1.00	pCi/L						
Uranium-238		0.102	+/-0.0189	0.0472	+/-0.0201	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	1.18	+/-1.78	6.79	+/-1.78	8.00	pCi/L		KXG3	11/19/12	0931	1264174	4
Cobalt-60	U	-0.487	+/-1.39	5.20	+/-1.39	8.00	pCi/L						
Neptunium-237	U	2.80	+/-3.36	12.2	+/-3.36	10.0	pCi/L						
Potassium-40	U	41.1	+/-19.1	80.4	+/-19.1	10.0	pCi/L						
Sodium-22	U	0.865	+/-1.45	5.25	+/-1.45	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	-0.0396	+/-0.131	0.486	+/-0.131	0.500	pCi/L		VXC2	11/30/12	1610	1264650	5
WSP-GrossA/B "As Received"													
Beta		22.8	+/-1.71	2.17	+/-2.55	3.00	pCi/L		DYT1	12/05/12	1620	1268150	6
Alpha		3.93	+/-1.18	2.28	+/-1.23	3.00	pCi/L		DYT1	12/06/12	1301	1268150	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1264269	89.4	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1264270	70.4	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1264271	72.9	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1264650	89.3	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24251
Sample ID: 315450003

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24252
Sample ID: 315450010
Matrix: W
Collect Date: 15-NOV-12
Receive Date: 17-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.00325	+/-0.0086	0.037	+/-0.0086	0.050	pCi/L		HAKB	11/26/12	1259	1264269	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.00786	+/-0.00694	0.0252	+/-0.00694	0.050	pCi/L		HAKB	11/23/12	1247	1264270	2
Plutonium-239/240	U	0.0105	+/-0.00741	0.0418	+/-0.00743	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.215	+/-0.0315	0.0761	+/-0.0348	1.00	pCi/L		HAKB	11/23/12	1246	1264271	3
Uranium-235/236	U	0.00	+/-0.00811	0.0475	+/-0.00811	1.00	pCi/L						
Uranium-238		0.197	+/-0.0262	0.0516	+/-0.0293	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	1.02	+/-1.61	6.00	+/-1.61	8.00	pCi/L		KXG3	11/19/12	0931	1264174	4
Cobalt-60	U	2.88	+/-1.47	6.47	+/-1.47	8.00	pCi/L						
Neptunium-237	U	-1.0	+/-3.22	11.0	+/-3.22	10.0	pCi/L						
Potassium-40	U	17.7	+/-22.0	85.5	+/-22.0	10.0	pCi/L						
Sodium-22	U	-0.572	+/-1.45	5.38	+/-1.45	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.122	+/-0.143	0.499	+/-0.143	0.500	pCi/L		VXC2	12/02/12	1345	1264650	5
WSP-GrossA/B "As Received"													
Beta		18.7	+/-1.60	2.24	+/-2.25	3.00	pCi/L		DYT1	12/05/12	1620	1268150	6
Alpha		5.49	+/-1.45	2.39	+/-1.52	3.00	pCi/L		DYT1	12/06/12	1301	1268150	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1264269	73.7	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1264270	82.5	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1264271	65.5	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1264650	99.1	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24252
Sample ID: 315450010

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: December 11, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **315450**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1264269										
QC1202782356 315545003 DUP										
Americium-241	U	0.010	U	0.00735	pCi/L	0.0927		(0-1)	HAKB	11/26/1212:59
	Uncert:	+/-0.00793		+/-0.00648						
	TPU:	+/-0.00794		+/-0.00649						
**Americium-243 Tracer	2.60	2.31		2.41	pCi/L		92.5	(50%-105%)		
	Uncert:	+/-0.0803		+/-0.0798						
	TPU:	+/-0.137		+/-0.136						
QC1202782357 LCS										
Americium-241	1.41			1.47	pCi/L		104	(80%-120%)	HAKB	11/26/1212:59
	Uncert:			+/-0.053						
	TPU:			+/-0.0813						
**Americium-243 Tracer	2.08			2.09	pCi/L		100	(50%-105%)		
	Uncert:			+/-0.0623						
	TPU:			+/-0.107						
QC1202782355 MB										
Americium-241			U	0.00	pCi/L				HAKB	11/26/1212:59
	Uncert:			+/-0.00454						
	TPU:			+/-0.00454						
**Americium-243 Tracer	2.08			1.95	pCi/L		93.7	(50%-105%)		
	Uncert:			+/-0.0619						
	TPU:			+/-0.107						
Batch 1264270										
QC1202782359 315545003 DUP										
Plutonium-238	U	-0.0027	U	-0.00277	pCi/L	0.0034		(0-1)	HAKB	11/23/1212:47
	Uncert:	+/-0.00468		+/-0.0062						
	TPU:	+/-0.00468		+/-0.0062						
Plutonium-239/240	U	0.00	U	0.00832	pCi/L	0.358		(0-1)		
	Uncert:	+/-0.0054		+/-0.0062						
	TPU:	+/-0.0054		+/-0.00621						
**Plutonium-242 Tracer	2.43	1.95		1.93	pCi/L		79.3	(50%-105%)		
	Uncert:	+/-0.0811		+/-0.0822						
	TPU:	+/-0.134		+/-0.136						
QC1202782360 LCS										
Plutonium-238			U	0.0176	pCi/L			(80%-120%)	HAKB	11/23/1212:47
	Uncert:			+/-0.00647						
	TPU:			+/-0.00652						
Plutonium-239/240	2.03			2.00	pCi/L		98.7	(80%-120%)		
	Uncert:			+/-0.0626						
	TPU:			+/-0.106						
**Plutonium-242 Tracer	1.94			1.78	pCi/L		91.5	(50%-105%)		
	Uncert:			+/-0.0617						
	TPU:			+/-0.104						
QC1202782358 MB										

QC Summary

Workorder: 315450

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1264270										
Plutonium-238			U	0.00	pCi/L				HAKB	11/23/1212:47
	Uncert:			+/-0.00274						
	TPU:			+/-0.00274						
Plutonium-239/240			U	0.00387	pCi/L					
	Uncert:			+/-0.00387						
	TPU:			+/-0.00387						
**Plutonium-242 Tracer	1.94			1.73	pCi/L		89.1	(50%-105%)		
	Uncert:			+/-0.0614						
	TPU:			+/-0.103						
Batch 1264271										
QC1202782362 315545003 DUP										
Uranium-234		0.311		0.370	pCi/L	0.375		(0-1)	HAKB	11/23/1212:46
	Uncert:	+/-0.0301		+/-0.0343						
	TPU:	+/-0.0365		+/-0.0423						
Uranium-235/236	U	0.00648	U	0.0141	pCi/L	0.213		(0-1)		
	Uncert:	+/-0.00916		+/-0.00862						
	TPU:	+/-0.00917		+/-0.00867						
Uranium-238		0.197		0.199	pCi/L	0.0254		(0-1)		
	Uncert:	+/-0.0233		+/-0.0248						
	TPU:	+/-0.0265		+/-0.028						
**Uranium-232 Tracer	2.73	2.48		2.13	pCi/L		77.9	(50%-105%)		
	Uncert:	+/-0.085		+/-0.0891						
	TPU:	+/-0.196		+/-0.199						
QC1202782363 LCS										
Uranium-234				2.63	pCi/L				HAKB	11/23/1212:46
	Uncert:			+/-0.0837						
	TPU:			+/-0.194						
Uranium-235/236				0.148	pCi/L					
	Uncert:			+/-0.0228						
	TPU:			+/-0.0248						
Uranium-238	2.70			2.59	pCi/L		95.8	(80%-120%)		
	Uncert:			+/-0.0828						
	TPU:			+/-0.191						
**Uranium-232 Tracer	2.19			1.41	pCi/L		64.5	(50%-105%)		
	Uncert:			+/-0.0765						
	TPU:			+/-0.164						
QC1202782361 MB										
Uranium-234			U	0.00481	pCi/L				HAKB	11/23/1212:46
	Uncert:			+/-0.0101						
	TPU:			+/-0.0101						
Uranium-235/236			U	0.00572	pCi/L					
	Uncert:			+/-0.007						
	TPU:			+/-0.00701						
Uranium-238			U	0.00462	pCi/L					
	Uncert:			+/-0.00731						
	TPU:			+/-0.00732						
**Uranium-232 Tracer	2.19			1.67	pCi/L		76.3	(50%-105%)		
	Uncert:			+/-0.0715						

QC Summary

Workorder: 315450

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1264271										
	TPU:			+/-0.159						
Rad Gamma Spec										
Batch 1264174										
QC1202782105 315352001 DUP										
Cesium-137	U	0.667	U	-1.76	pCi/L	0.452		(0-1)	KXG3	11/19/1212:03
	Uncert:	+/-1.26		+/-1.43						
	TPU:	+/-1.26		+/-1.43						
Cobalt-60	U	-0.571	U	-1.22	pCi/L	0.120		(0-1)		
	Uncert:	+/-1.09		+/-1.61						
	TPU:	+/-1.09		+/-1.61						
Neptunium-237	U	-0.694	U	-3.29	pCi/L	0.215		(0-1)		
	Uncert:	+/-3.03		+/-3.01						
	TPU:	+/-3.03		+/-3.01						
Potassium-40	U	-17.2	U	-34	pCi/L	0.230		(0-1)		
	Uncert:	+/-19.7		+/-16.8						
	TPU:	+/-19.7		+/-16.8						
Sodium-22	U	0.918	U	0.637	pCi/L	0.0497		(0-1)		
	Uncert:	+/-1.26		+/-1.57						
	TPU:	+/-1.26		+/-1.57						
QC1202782106 LCS										
Americium-241	2780			2900	pCi/L		104	(80%-120%)	KXG3	11/19/1209:32
	Uncert:			+/-202						
	TPU:			+/-202						
Cesium-137	6090			6150	pCi/L		101	(80%-120%)		
	Uncert:			+/-255						
	TPU:			+/-255						
Cobalt-60	5640			5620	pCi/L		99.7	(80%-120%)		
	Uncert:			+/-233						
	TPU:			+/-233						
Neptunium-237			U	-33.7	pCi/L					
	Uncert:			+/-21.1						
	TPU:			+/-21.1						
Potassium-40			U	-65.4	pCi/L					
	Uncert:			+/-46.2						
	TPU:			+/-46.2						
Sodium-22			U	-6.45	pCi/L					
	Uncert:			+/-6.01						
	TPU:			+/-6.01						
QC1202782104 MB										
Cesium-137			U	-0.063	pCi/L				KXG3	11/19/1209:32
	Uncert:			+/-1.06						
	TPU:			+/-1.06						
Cobalt-60			U	1.61	pCi/L					
	Uncert:			+/-1.30						
	TPU:			+/-1.30						
Neptunium-237			U	1.61	pCi/L					
	Uncert:			+/-2.44						
	TPU:			+/-2.44						

QC Summary

Workorder: 315450

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1264174										
Potassium-40			U	16.7	pCi/L					
Uncert:				+/-14.8						
TPU:				+/-14.8						
Sodium-22			U	0.208	pCi/L					
Uncert:				+/-1.16						
TPU:				+/-1.16						
Rad Gas Flow										
Batch 1264650										
QC1202783219 315352005 DUP										
Strontium-90	U	-0.0566	U	-0.266	pCi/L	0.500		(0-1)	VXC2	12/03/1212:39
Uncert:		+/-0.120		+/-0.0895						
TPU:		+/-0.120		+/-0.0896						
**Strontium Carrier	7.17	6.60		7.10	mg		99.1	(50%-105%)		
QC1202783221 LCS										
Strontium-90	24.8			22.4	pCi/L		90.1	(80%-120%)	VXC2	11/30/1216:05
Uncert:				+/-0.604						
TPU:				+/-1.95						
**Strontium Carrier	7.17			7.10	mg		99.1	(50%-105%)		
QC1202783218 MB										
Strontium-90			U	0.227	pCi/L				VXC2	11/30/1216:11
Uncert:				+/-0.149						
TPU:				+/-0.150						
**Strontium Carrier	7.17			6.90	mg		96.3	(50%-105%)		
QC1202783220 315352005 MS										
Strontium-90	124 U	-0.0566		113	pCi/L		91.1	(75%-125%)	VXC2	11/30/1216:04
Uncert:		+/-0.120		+/-3.14						
TPU:		+/-0.120		+/-9.63						
**Strontium Carrier	7.17	6.60		6.60	mg		92.1	(50%-105%)		
Batch 1268150										
QC1202791496 315159001 DUP										
Alpha	U	0.830	U	0.155	pCi/L	0.312		(0-1)	DYT1	12/06/1213:08
Uncert:		+/-0.612		+/-0.463						
TPU:		+/-0.616		+/-0.464						
Beta	U	1.67	U	1.12	pCi/L	0.184		(0-1)		12/05/1216:21
Uncert:		+/-0.821		+/-0.671						
TPU:		+/-0.833		+/-0.677						
QC1202791499 LCS										
Alpha	12.0			11.7	pCi/L		97.3	(80%-120%)	DYT1	12/06/1213:02
Uncert:				+/-0.616						
TPU:				+/-1.20						
Beta	49.6			51.8	pCi/L		104	(80%-120%)		12/05/1216:18
Uncert:				+/-0.934						
TPU:				+/-4.41						
QC1202791495 MB										
Alpha			U	-0.0368	pCi/L				DYT1	12/06/1213:07
Uncert:				+/-0.0451						
TPU:				+/-0.0452						
Beta			U	-0.135	pCi/L					12/05/1216:20

QC Summary

Workorder: 315450

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1268150										
	Uncert:			+/-0.106						
	TPU:			+/-0.106						
QC1202791497 315159001 MS										
Alpha	481	0.830	U	473	pCi/L		98.2	(75%-125%)	DYT1	12/06/1213:01
	Uncert:	+/-0.612		+/-24.9						
	TPU:	+/-0.616		+/-47.7						
Beta	1980	1.67	U	2190	pCi/L		110	(75%-125%)		12/05/1216:18
	Uncert:	+/-0.821		+/-39.0						
	TPU:	+/-0.833		+/-185						
QC1202791498 315159001 MSD										
Alpha	481	0.830	U	472	pCi/L	0.000951	98.1	(0-1)	DYT1	12/06/1213:01
	Uncert:	+/-0.612		+/-25.1						
	TPU:	+/-0.616		+/-48.5						
Beta	1980	1.67	U	2150	pCi/L	0.0534	108	(0-1)		12/05/1216:18
	Uncert:	+/-0.821		+/-38.8						
	TPU:	+/-0.833		+/-191						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.

QC Summary

Workorder: 315450

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-322

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8082-PCB	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CASA-13-24212	Nov 14 2012	13:48	W		2	3			1			1	1	
CASA-13-24220	Nov 14 2012	13:48	W				1	1		1	1			
CASA-13-24205	Nov 14 2012	13:48	W	3	2	3								
CASA-13-24206	Nov 14 2012	13:48	W		2	3			1			1	1	
CASA-13-24207	Nov 14 2012	13:48	W				1	1		1	1			
CASA-13-24208	Nov 14 2012	13:48	W		2									

Special Instructions:

Relinquished by: Melissa Martyn		Date/Time: 11/15/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24212 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		DW 11/14/12 11/14/~~12~~ 2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1348	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-36		FIELD PREP:	UF	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
	WSP-8270C-SVOA	1 LITER AMBER GLASS	~~3~~ 2	ICE DW 11/14/12		
	WSP-GrossA/B	1 LITER POLY	1	NONE		
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 50 feet of a running diesel generator

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 5.97 mg/L Oxidation-Reduction Potential 208.7 MV pH 7.33 SU

Specific Conductance 195 uS/cm Temperature 19.84 deg C Turbidity 0.89 NTU

COLLECTED BY (PRINT) A Stocker

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) D Woody	11/14/12 1440	(Printed Name) (Signature)	11/14/12 1440
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**
(Printed Name) (Signature)		(Printed Name) (Signature)	

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24206 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/14/2012	FIELD MATRIX: WG		OK
TIME COLLECTED (HH:MM):		1348	MEDIA: UA		OK
PRS ID:		OK	SAMPLE TECH CODE: UA		GSI
LOCATION ID: R-36			FIELD PREP: UF		OK
LOCATION TYPE:			FIELD QC TYPE: FD		
PORT: SINGLE COMPLETION			SAMPLE USAGE: QC		

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
	WSP-8270C-SVOA	1 LITER AMBER GLASS	2 3	HW 11/14/12 ICE		
	WSP-GrossA/B	1 LITER POLY	1	NONE		
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

See CASA-13-24212

COLLECTED BY (PRINT) A Stocker

RELINQUISHED BY (Printed Name) D Woody (Signature) David Woody	**Date/Time** 11/14/12 1400	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time** 11/14/12 1400
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24205

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/14/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1348	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	DC
LOCATION ID:	R-36		FIELD PREP:	UF	OK
LOCATION TYPE:			FIELD QC TYPE:	FB	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	~~2~~ 1	ICE BW 11/14/12	Y	NA
	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL		
	WSP-8270C-SVOA	1 LITER AMBER GLASS	~~3~~ 1	ICE BW 11/14/12		

SAMPLE COMMENTS:

LOCATION COMMENTS:

See CASA-13-24212

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) A Stacker

RELINQUISHED BY (Printed Name) D Woody (Signature) David Woody	**Date/Time** 11/14/12 1400	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time** 11/14/12 1400
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24220 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/14/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1348	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-36	↓	FIELD PREP:	F	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
↓	WSP-GENINORG	1 LITER POLY	1	ICE	↓	↓
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

See CASA-13-24212

COLLECTED BY (PRINT) A Stocker

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/14/12 1440	(Printed Name) (Signature)	11/14/12 1440
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24207 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/14/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1348	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-36		FIELD PREP:	F	OK
LOCATION TYPE:			FIELD QC TYPE:	FD	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
	WSP-GENINORG	1 LITER POLY	1	ICE		
	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

See CASA-13-24212

COLLECTED BY (PRINT) A Stocker

RELINQUISHED BY (Printed Name) D Woody (Signature) David Woody	**Date/Time** 11/14/12 1400	**RECEIVED BY** (Printed Name) A. Martinez (Signature)	**Date/Time** 11/14/12 1400
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24208 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/14/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1348	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	DC
LOCATION ID:	R-36		FIELD PREP:	UF	OK
LOCATION TYPE:			FIELD QC TYPE:	FTB	
PORT:	SINGLE COMPLETION	✓	SAMPLE USAGE:	QC	✓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	PW 11/14/12 HCL	Y	NA

SAMPLE COMMENTS:

LOCATION COMMENTS:

See ~~CAMO~~-13-24212 CASA JW 11/14/12

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) A Stocker

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
D Woody David Woody	11/14/12 1400	[illegible]	11/14/12 1400
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-322

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
315352	EPA:120.1	1	1			
315352	EPA:150.1	1	1			
315352	EPA:160.1	1	1			
315352	EPA:245.2	1	1			
315352	EPA:300.0	1	1			
315352	EPA:310.1	1	1			
315352	EPA:350.1	1	1			
315352	EPA:351.2	1	1			
315352	EPA:353.2	1	1			
315352	EPA:365.4	1	1			
315352	EPA:900	1	1			
315352	EPA:901.1	1	1			
315352	EPA:905.0	1	1			
315352	HASL-300:AM-241	1	1			
315352	HASL-300:ISOPU	1	1			
315352	HASL-300:ISOU	1	1			
315352	SM:A2340B	1	1			
315352	SW-846:6010B	1	1			
315352	SW-846:6020	1	1			
315352	SW-846:6850	1	1			
315352	SW-846:8082				1	
315352	SW-846:8260B	1	1	1	1	
315352	SW-846:8270C	1	1		1	
315352	SW-846:9060	1	1			

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
315352	EPA:120.1	1267060	1267060	1	1						
315352	EPA:150.1	1265360	1265360	1	1						
315352	EPA:160.1	1264462	1264462	1	1				1		
315352	EPA:245.2	1266834	1266827	1	1				1	1	
315352	EPA:300.0	1264118	1264118	1	1				1		
315352	EPA:310.1	1265998	1265998	1	1				2	1	
315352	EPA:350.1	1265956	1265955	1	1				1	1	1
315352	EPA:351.2	1265958	1265957	1	1				1	1	
315352	EPA:353.2	1263016	1263016	1	1				1		
315352	EPA:365.4	1263579	1263578	1	1				1	1	1
315352	EPA:900	1268150	1268150	1	1				1	1	1
315352	EPA:901.1	1264174	1264174	1	1				1		
315352	EPA:905.0	1264650	1264650	1	1				1	1	
315352	HASL-300:AM-241	1264269	1264269	1	1				1		
315352	HASL-300:ISOPU	1264270	1264270	1	1				1		
315352	HASL-300:ISOU	1264271	1264271	1	1				1		
315352	SM:A2340B	1270221	1270221	1	1						
315352	SW-846:6010B	1264954	1264953	1	1				1	1	
315352	SW-846:6020	1264956	1264955	1	1				1	1	
315352	SW-846:6850	1265809	1265808	1	1				1	2	2

Data Validation Report for: Chain Of Custody No. 2013-322

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				1			
		1				1			
		1				2			
		1				1			
		1				1			
		2				1			
		1				1			
		1				1			
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1							

315352	SW-846:8082	1265739	1265738				1		1	1	1
315352	SW-846:8260B	1264441	1264441	1	1	1	1		1		
315352	SW-846:8270C	1264519	1264517	1	1		1		1	1	1
315352	SW-846:9060	1265851	1265851	1	1				1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CASA-13-24207	315352006	FD	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CASA-13-24219	1202788865	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CASA-13-24220	315352002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202788867	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24207	315352006	FD	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24219	1202784743	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24220	315352002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202784744	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CASA-13-24207	315352006	FD	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CASA-13-24219	1202782758	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CASA-13-24220	315352002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202782760	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202782757	MB	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	SWWS46-13-24772	1202782759	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24281	1202788351	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24281	1202788352	MS	0	0	1	0
EPA:245.2	INORGANIC	CASA-13-24207	315352006	FD	1	0	0	0
EPA:245.2	INORGANIC	CASA-13-24220	315352002	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202788350	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202788349	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CASA-13-24207	315352006	FD	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CASA-13-24218	1202781991	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CASA-13-24220	315352002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202781993	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202781990	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CASA-13-24207	315352006	FD	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CASA-13-24219	1202786324	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CASA-13-24219	1202786330	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CASA-13-24220	315352002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202786332	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202786333	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202786320	MB	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202786321	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24207	315352006	FD	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	1202786154	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	1202786155	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	1202786156	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24220	315352002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202786157	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202786153	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24206	315352005	FD	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24210	1202786159	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24210	1202786161	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24212	315352001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202786165	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202786158	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24266	1202780694	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CASA-13-24207	315352006	FD	1	0	0	0

		1							
		2							
		1							
		1				1			

EPA:353.2	GENERAL CHEMISTRY	CASA-13-24220	315352002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202779484	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202779479	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	SWWS46-13-24772	1202782515	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24207	315352006	FD	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	1202786124	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	1202786125	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	1202786126	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24220	315352002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202780727	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202780723	MB	1	0	0	0
EPA:900	RAD	CAMO-13-24249	1202791496	DUP	2	0	0	0
EPA:900	RAD	CAMO-13-24249	1202791497	MS	0	0	2	0
EPA:900	RAD	CAMO-13-24249	1202791498	MSD	0	0	2	0
EPA:900	RAD	CASA-13-24206	315352005	FD	2	0	0	0
EPA:900	RAD	CASA-13-24212	315352001	REG	2	0	0	0
EPA:900	RAD	LCS	1202791499	LCS	0	0	2	0
EPA:900	RAD	MB	1202791495	MB	2	0	0	0
EPA:901.1	RAD	CASA-13-24206	315352005	FD	5	0	0	0
EPA:901.1	RAD	CASA-13-24212	1202782105	DUP	6	0	0	0
EPA:901.1	RAD	CASA-13-24212	315352001	REG	5	0	0	0
EPA:901.1	RAD	LCS	1202782106	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202782104	MB	6	0	0	0
EPA:905.0	RAD	CASA-13-24206	1202783219	DUP	1	0	0	0
EPA:905.0	RAD	CASA-13-24206	1202783220	MS	0	0	1	0
EPA:905.0	RAD	CASA-13-24206	315352005	FD	1	0	0	0
EPA:905.0	RAD	CASA-13-24212	315352001	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202783221	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202783218	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24271	1202782356	DUP	1	0	0	0
HASL-300:AM-241	RAD	CASA-13-24206	315352005	FD	1	0	0	0
HASL-300:AM-241	RAD	CASA-13-24212	315352001	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202782357	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202782355	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24271	1202782359	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CASA-13-24206	315352005	FD	2	0	0	0
HASL-300:ISOPU	RAD	CASA-13-24212	315352001	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202782360	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202782358	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24271	1202782362	DUP	3	0	0	0
HASL-300:ISOU	RAD	CASA-13-24206	315352005	FD	3	0	0	0
HASL-300:ISOU	RAD	CASA-13-24212	315352001	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202782363	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202782361	MB	3	0	0	0
SM:A2340B	INORGANIC	CASA-13-24207	315352006	FD	1	0	0	0
SM:A2340B	INORGANIC	CASA-13-24220	315352002	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAPA-13-24782	1202783824	DUP	22	0	0	0
SW-846:6010B	INORGANIC	CAPA-13-24782	1202783825	MS	0	0	22	0
SW-846:6010B	INORGANIC	CASA-13-24207	315352006	FD	17	0	0	0
SW-846:6010B	INORGANIC	CASA-13-24220	315352002	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202783823	LCS	0	0	22	0
SW-846:6010B	INORGANIC	MB	1202783822	MB	22	0	0	0
SW-846:6020	INORGANIC	CASA-13-24207	315352006	FD	11	0	0	0
SW-846:6020	INORGANIC	CASA-13-24218	1202783829	DUP	13	0	0	0
SW-846:6020	INORGANIC	CASA-13-24218	1202783830	MS	0	0	13	0
SW-846:6020	INORGANIC	CASA-13-24220	315352002	REG	11	0	0	0

SW-846:6020	INORGANIC	LCS	1202783828	LCS	0	0	13	0
SW-846:6020	INORGANIC	MB	1202783827	MB	13	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24268	1202785742	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24268	1202785743	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24207	315352006	FD	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24220	315352002	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202785741	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202785740	MB	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	WST50-12-23903	1202785744	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	WST50-12-23903	1202785745	MSD	0	0	1	0
SW-846:8082	PESTPCB	CAMO-13-24253	1202785590	MS	0	2	2	0
SW-846:8082	PESTPCB	CAMO-13-24253	1202785591	MSD	0	2	2	0
SW-846:8082	PESTPCB	CASA-13-24205	315352003	FB	8	2	0	0
SW-846:8082	PESTPCB	LCS	1202785592	LCS	0	2	2	0
SW-846:8082	PESTPCB	MB	1202785589	MB	8	2	0	0
SW-846:8260B	VOC	CASA-13-24205	315352004	FB	80	3	0	0
SW-846:8260B	VOC	CASA-13-24206	315352005	FD	80	3	0	0
SW-846:8260B	VOC	CASA-13-24208	315352007	FTB	80	3	0	0
SW-846:8260B	VOC	CASA-13-24212	315352001	REG	80	3	0	0
SW-846:8260B	VOC	LCS	1202782716	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202782717	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1202782713	MB	80	3	0	0
SW-846:8270C	SVOC	CASA-13-24205	315352004	FB	80	6	0	0
SW-846:8270C	SVOC	CASA-13-24206	315352005	FD	80	6	0	0
SW-846:8270C	SVOC	CASA-13-24212	315352001	REG	80	6	0	0
SW-846:8270C	SVOC	LCS	1202782901	LCS	0	6	76	0
SW-846:8270C	SVOC	MB	1202782898	MB	80	6	0	0
SW-846:8270C	SVOC	WST50-12-23903	1202782899	MS	0	6	76	0
SW-846:8270C	SVOC	WST50-12-23903	1202782900	MSD	0	6	76	0
SW-846:9060	GENERAL CHEMISTRY	CASA-13-24206	315352005	FD	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CASA-13-24211	1202785853	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CASA-13-24212	315352001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202785855	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202785852	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202782713	METHOD BLANK	SW-846:8260B	W	Naphthalene	0.81	J	ug/L	1
MB	1202788349	METHOD BLANK	EPA:245.2	W	Mercury	-0.081	J	ug/L	0.2

Any samples affected by the presence of contaminants in blanks?

Field Sample ID	Blank Field Sample ID	Blank Lab Sample ID	Blank Type	Analytical Method	Parameter Name	Units	Blank Result	Sample Result	Lab Qualifier	Detect Limit	Detected
CASA-13-24220	MB	1202788349	METHOD BLANK	EPA:245.2	Mercury	ug/L	-0.081	0.067	U	0.2	N
CASA-13-24207	MB	1202788349	METHOD BLANK	EPA:245.2	Mercury	ug/L	-0.081	0.067	U	0.2	N
CASA-13-24212	MB	1202782713	METHOD BLANK	SW-846:8260B	Naphthalene	ug/L	0.81	0.79	BJ	1	Y

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CASA-13-24218	1202786155	1202786156	EPA:350.1	Ammonia as Nitrogen	1265955	11/27/2012	W	93.1	110	110	90
CASA-13-24210	1202786161		EPA:351.2	Total Kjeldahl Nitrogen	1265957	12/7/2012	W	88.1		110	90

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

LCS Sample ID	LCSD Sample ID	Analytical Method	Parameter Name	Lab Lot ID	Analysis Date	Sample Matrix	LCS Recovery	LCSD Recovery	Upper Limit	Lower Limit	Lower Reject Limit
1202782901		SW-846:8270C	Dioxane[1,4-]	1264517	11/21/2012	W	34		69	41	10
1202782901		SW-846:8270C	Hexachlorocyclopentadiene	1264517	11/21/2012	W	34		79	38	10

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-36	2013-322	CASA-13-24205	FB	INIT	SVOC	SW-846:8270C	Dioxane[1,4-]	U	UJ	SV12a	N
R-36	2013-322	CASA-13-24205	FB	INIT	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	UJ	SV12a	N
R-36	2013-322	CASA-13-24206	FD	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-36	2013-322	CASA-13-24206	FD	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-36	2013-322	CASA-13-24206	FD	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N

Correction Factor (ND)	Correction Factor (J)	Use Factors
5		Y
5		Y
5		Y

Rejection Limit	RPD	RPD Limit
10	15.9	15
10		

Upper Reject Limit	RPD	RPD Limit

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
3.19	ug/L	3.19	ug/L			W	11/14/2012		1264519	VAL	Y
3.19	ug/L	3.19	ug/L			W	11/14/2012		1264519	VAL	Y
0.009	pCi/L	0.009	pCi/L	0.0256	0.00712	W	11/14/2012		1264269	VAL	Y
1.04	pCi/L	1.04	pCi/L	5.54	1.42	W	11/14/2012		1264174	VAL	Y
-3.89	pCi/L	-3.89	pCi/L	4.74	1.59	W	11/14/2012		1264174	VAL	Y

R-36	2013-322	CASA-13-24206	FD	INIT	SVOC	SW-846:8270C	Dioxane[1,4-]	U	UJ	SV12a	N
R-36	2013-322	CASA-13-24206	FD	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-36	2013-322	CASA-13-24206	FD	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-36	2013-322	CASA-13-24206	FD	INIT	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	UJ	SV12a	N
R-36	2013-322	CASA-13-24206	FD	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-36	2013-322	CASA-13-24206	FD	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-36	2013-322	CASA-13-24206	FD	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-36	2013-322	CASA-13-24206	FD	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-36	2013-322	CASA-13-24206	FD	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-36	2013-322	CASA-13-24206	FD	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-36	2013-322	CASA-13-24206	FD	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-36	2013-322	CASA-13-24212	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-36	2013-322	CASA-13-24212	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-36	2013-322	CASA-13-24212	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-36	2013-322	CASA-13-24212	REG	INIT	SVOC	SW-846:8270C	Dioxane[1,4-]	U	UJ	SV12a	N
R-36	2013-322	CASA-13-24212	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-36	2013-322	CASA-13-24212	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-36	2013-322	CASA-13-24212	REG	INIT	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	UJ	SV12a	N
R-36	2013-322	CASA-13-24212	REG	INIT	VOC	SW-846:8260B	Naphthalene	BJ	U	V4	N
R-36	2013-322	CASA-13-24212	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-36	2013-322	CASA-13-24212	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-36	2013-322	CASA-13-24212	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-36	2013-322	CASA-13-24212	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-36	2013-322	CASA-13-24212	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-36	2013-322	CASA-13-24212	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-36	2013-322	CASA-13-24212	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N

Reason Code	Description
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.
SV12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.
U_LAB	The analytical laboratory qualified the analyte as not detected.
V4	The sample result is less than or equal to 5 times (10 times for acetone, methylene chloride, and 2-butanone) the concentration of the related analyte in the method blank, which indicates the reported detection is considered indistinguishable from contamination in the blank.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CASA-13-24205	R-36	FB	SW-846:8082	0	8
CASA-13-24205	R-36	FB	SW-846:8260B	0	80
CASA-13-24205	R-36	FB	SW-846:8270C	0	80
CASA-13-24206	R-36	FD	EPA:351.2	0	1
CASA-13-24206	R-36	FD	EPA:900	0	2
CASA-13-24206	R-36	FD	EPA:901.1	0	5
CASA-13-24206	R-36	FD	EPA:905.0	0	1
CASA-13-24206	R-36	FD	HASL-300:AM-241	0	1
CASA-13-24206	R-36	FD	HASL-300:ISOPU	0	2
CASA-13-24206	R-36	FD	HASL-300:ISOU	0	3

3.19	ug/L	3.19	ug/L			W	11/14/2012		1264519	VAL	Y
0.302	pCi/L	0.302	pCi/L	2.09	0.484	W	11/14/2012		1268150	VAL	Y
1.97	pCi/L	1.97	pCi/L	2.32	0.767	W	11/14/2012		1268150	VAL	Y
3.19	ug/L	3.19	ug/L			W	11/14/2012		1264519	VAL	Y
0.626	pCi/L	0.626	pCi/L	10.5	2.86	W	11/14/2012		1264174	VAL	Y
0	pCi/L	0	pCi/L	0.026	0.00382	W	11/14/2012		1264270	VAL	Y
0	pCi/L	0	pCi/L	0.0431	0.0054	W	11/14/2012		1264270	VAL	Y
-2.12	pCi/L	-2.12	pCi/L	66.9	17.1	W	11/14/2012		1264174	VAL	Y
-3.16	pCi/L	-3.16	pCi/L	3.8	1.3	W	11/14/2012		1264174	VAL	Y
-0.0566	pCi/L	-0.0566	pCi/L	0.481	0.12	W	11/14/2012		1264650	VAL	Y
0.0102	pCi/L	0.0102	pCi/L	0.0397	0.00896	W	11/14/2012		1264271	VAL	Y
0.00241	pCi/L	0.00241	pCi/L	0.0275	0.0054	W	11/14/2012		1264269	VAL	Y
0.667	pCi/L	0.667	pCi/L	5.07	1.26	W	11/14/2012		1264174	VAL	Y
-0.571	pCi/L	-0.571	pCi/L	4.32	1.09	W	11/14/2012		1264174	VAL	Y
3.13	ug/L	3.13	ug/L			W	11/14/2012		1264519	VAL	Y
0.123	pCi/L	0.123	pCi/L	2.22	0.474	W	11/14/2012		1268150	VAL	Y
1.13	pCi/L	1.13	pCi/L	2.59	0.772	W	11/14/2012		1268150	VAL	Y
3.13	ug/L	3.13	ug/L			W	11/14/2012		1264519	VAL	Y
0.79	ug/L	0.79	ug/L			W	11/14/2012		1264441	VAL	Y
-0.694	pCi/L	-0.694	pCi/L	10.9	3.03	W	11/14/2012		1264174	VAL	Y
0.00277	pCi/L	0.00277	pCi/L	0.0266	0.0048	W	11/14/2012		1264270	VAL	Y
0.00277	pCi/L	0.00277	pCi/L	0.0442	0.00619	W	11/14/2012		1264270	VAL	Y
-17.2	pCi/L	-17.2	pCi/L	70.5	19.7	W	11/14/2012		1264174	VAL	Y
0.918	pCi/L	0.918	pCi/L	5.55	1.26	W	11/14/2012		1264174	VAL	Y
0.0473	pCi/L	0.0473	pCi/L	0.475	0.127	W	11/14/2012		1264650	VAL	Y
0.00669	pCi/L	0.00669	pCi/L	0.0392	0.00669	W	11/14/2012		1264271	VAL	Y

CASA-13-24206	R-36	FD	SW-846:8260B	0	80
CASA-13-24206	R-36	FD	SW-846:8270C	0	80
CASA-13-24206	R-36	FD	SW-846:9060	0	1
CASA-13-24207	R-36	FD	EPA:120.1	0	1
CASA-13-24207	R-36	FD	EPA:150.1	0	1
CASA-13-24207	R-36	FD	EPA:160.1	0	1
CASA-13-24207	R-36	FD	EPA:245.2	0	1
CASA-13-24207	R-36	FD	EPA:300.0	0	4
CASA-13-24207	R-36	FD	EPA:310.1	0	2
CASA-13-24207	R-36	FD	EPA:350.1	0	1
CASA-13-24207	R-36	FD	EPA:353.2	0	1
CASA-13-24207	R-36	FD	EPA:365.4	0	1
CASA-13-24207	R-36	FD	SM:A2340B	0	1
CASA-13-24207	R-36	FD	SW-846:6010B	0	17
CASA-13-24207	R-36	FD	SW-846:6020	0	11
CASA-13-24207	R-36	FD	SW-846:6850	0	1
CASA-13-24208	R-36	FTB	SW-846:8260B	0	80
CASA-13-24212	R-36	REG	EPA:351.2	0	1
CASA-13-24212	R-36	REG	EPA:900	0	2
CASA-13-24212	R-36	REG	EPA:901.1	0	5
CASA-13-24212	R-36	REG	EPA:905.0	0	1
CASA-13-24212	R-36	REG	HASL-300:AM-241	0	1
CASA-13-24212	R-36	REG	HASL-300:ISOPU	0	2
CASA-13-24212	R-36	REG	HASL-300:ISOU	0	3
CASA-13-24212	R-36	REG	SW-846:8260B	0	80
CASA-13-24212	R-36	REG	SW-846:8270C	0	80
CASA-13-24212	R-36	REG	SW-846:9060	0	1
CASA-13-24220	R-36	REG	EPA:120.1	0	1
CASA-13-24220	R-36	REG	EPA:150.1	0	1
CASA-13-24220	R-36	REG	EPA:160.1	0	1
CASA-13-24220	R-36	REG	EPA:245.2	0	1
CASA-13-24220	R-36	REG	EPA:300.0	0	4
CASA-13-24220	R-36	REG	EPA:310.1	0	2
CASA-13-24220	R-36	REG	EPA:350.1	0	1
CASA-13-24220	R-36	REG	EPA:353.2	0	1
CASA-13-24220	R-36	REG	EPA:365.4	0	1
CASA-13-24220	R-36	REG	SM:A2340B	0	1
CASA-13-24220	R-36	REG	SW-846:6010B	0	17
CASA-13-24220	R-36	REG	SW-846:6020	0	11
CASA-13-24220	R-36	REG	SW-846:6850	0	1

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

December 13, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 315352
SDG: 2013-322

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 16, 2012, and analyzed for GC Semivolatile PCB, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

for

Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-322
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 315352
SDG: 2013-322

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....10

Volatile Analysis.....12

Case Narrative.....13

Sample Data Summary.....18

Quality Control Summary.....31

Quality Control Data.....47

Semi-Volatile Analysis.....63

Case Narrative.....64

Sample Data Summary.....70

Quality Control Summary.....80

Quality Control Data.....95

Miscellaneous.....108

Perchlorates by LCMSMS Analysis.....110

Case Narrative.....111

Sample Data Summary.....117

Quality Control Summary.....120

Quality Control Data.....123

Miscellaneous.....129

PCB Analysis.....131
Case Narrative.....132
Sample Data Summary.....137
Quality Control Summary.....139
Quality Control Data.....145
Metals Analysis.....148
Case Narrative.....149
Sample Data Summary.....155
Quality Control Summary.....161
General Chem Analysis.....175
Case Narrative.....176
Sample Data Summary.....204
Quality Control Summary.....212
Miscellaneous.....217
Radiological Analysis.....221
Sample Data Summary.....233
Quality Control Data.....238

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 315352
SDG # : 2013-322

December 13, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 16, 2012 for analysis. Please see attached email for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers received for Gross A/B were preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). The containers for radiochemistry test were received with a temperature of 15/17c. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
315352001	CASA-13-24212
315352002	CASA-13-24220
315352003	CASA-13-24205
315352004	CASA-13-24205
315352005	CASA-13-24206
315352006	CASA-13-24207
315352007	CASA-13-24208

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC Semivolatile PCB, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

for
Valerie Davis
Project Manager

List of current GEL Certifications as of 13 December 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

315352

COC/Lab Request #: 2013-322

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Special Instructions:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8082-PCB	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CASA-13-24212	Nov 14 2012	13:48	W		2	3			1			1	1
CASA-13-24220	Nov 14 2012	13:48	W				1	1		1	1		
CASA-13-24205	Nov 14 2012	13:48	W	3	2	3							
CASA-13-24206	Nov 14 2012	13:48	W		2	3			1			1	1
CASA-13-24207	Nov 14 2012	13:48	W				1	1		1	1		
CASA-13-24208	Nov 14 2012	13:48	W		2								

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 11/15/12 3:00	Received by: P. Alcent 11-16-12 09:00
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/AR/COC/Work Order: 2013-322**
Received By: Patricia Dent	**Date Received:November 16, 2012**

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0CPM**
Classified Radioactive II or III by RSO?		X	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		X	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **2-4,15,17C**
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524646**
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			X	Sample ID's, containers affected and observed pH:**CASA-13-24212,24206 for Gross A/B** If Preservation added, Lot#**L03022**
6	VOA vials free of headspace (defined as < 6mm bubble)?	X			Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?			X	Sample ID's affected: **CASA-13-24206,24212 for SVOA the lab rec'd 2 containers coc indicates 3. CASA-13-24208 for 8260b the lab rec'd 1 container coc indicates 2. CASA-13-24205 for SVOA, PCB the lab rec'd 1 container each coc indicates 3.**
12	Are sample containers identifiable as GEL provided?			X	**CLIENTS**
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.	X			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9832 5403 2C 5462 9832 5399 3C 5462 9832 5414 4C 5462 9832 5377 15C 5462 9832 5388 17C**

Comments (Use Continuation Form if needed):

PM (PMA) review Initials_____ Date 11/19/12 Page 1 of 1

Subject: Sample receipt issues from 11/16/12
From: Pat Dent <Pat.Dent@gel.com>
Date: 11/17/2012 8:33 AM
To: "Keith R. Greene" <kgreene@lanl.gov>
CC: "team.davis" <team.davis@gel.com>, LANL@amrad.com

Good Morning all listed below are issues that occurred 11/16/12

Containers received for Gross A/B was preserved prior to analysis

RN#2013-322
Sample ID CASA-13-24208 the lab received 1 8260b container instead of 2 as indicated on coc.
CASA-13-24206,24212 the lab received 2 SVOA containers coc indicates 3.
CASA-13-24205 the lab received 1 SVOA,1 PCB containers each coc indicates 3.

Thanks!! Pat Dent

--
Patricia Dent
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Rd.
Charleston, S.C. 29407
Main: 843-556-8171 Ext 4264
Fax: 843-766-1178
Email: pad@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 15NOV12
ACTWGT: 51.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: WE991158W100

2c

FedEx Express

2 of 2
MPS# 0263 5462 9832 5403
Mstr# 5462 9832 5399 0201

FRI - 16 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RITZ 08/10

NPDES

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 15NOV12
ACTWGT: 49.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: WE991158W100

3c

FedEx Express

1 of 2
TRK# 0201 5462 9832 5399
MASTER

FRI - 16 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RITZ 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 15NOV12
ACTWGT: 28.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: WE6L11570000

4c

FedEx Express

TRK# 0201 5462 9832 5414

FRI - 16 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 15NOV12
ACTWGT: 53.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

15c

FedEx Express

1 of 2
TRK# 0201 5462 9832 5377
MASTER

FRI - 16 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 15NOV12
ACTWGT: 40.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

17C

58DC3/FE38/18BC

FedEx Express

J111311060601125

2 of 2

MPS# 0263 5462 9832 5388
Mstr# 5462 9832 5377

FRI - 16 NOV A1
PRIORITY OVERNIGHT

0201

XX CHSA

29407
SC-US CHS

Part # 156148-434 RITZ 08/10

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Volatile Analysis

Case Narrative

ChemStation Case Narrative
ARS International (ARSL)
SDG 2013-322

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 8260B DOE-AL
Analytical Batch Number:	1264441

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

Sample ID	Client ID
315352001	CASA-13-24212
315352004	CASA-13-24205
315352005	CASA-13-24206
315352007	CASA-13-24208
1202782713	Method Blank (MB)
1202782714	315352001(CASA-13-24212) Post Spike (PS)
1202782715	315352001(CASA-13-24212) Post Spike Duplicate (PSD)
1202782716	Laboratory Control Sample (LCS)
1202782717	Laboratory Control Sample (LCS)

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 18.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 19.1.2. False positive analytes are designated on the quantitation report with a ’d’ qualifier.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package.

The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement
Target analytes were detected in the blank 1202782713 (MB) below the reporting limit.

Surrogate Recoveries
Surrogate recoveries in all client and quality control samples were within the acceptance limits.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Sample 315352001 (CASA-13-24212) was designated for spike analysis.

Matrix Spike (PS) Recovery Statement
The spike recoveries were within the required acceptance limits.

Matrix Spike Duplicate (PSD) Recovery Statement
The spike duplicate recoveries were within the required acceptance limits.

Relative Percent Difference (RPD) Statement
The RPDs between the matrix spike pair met the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-analyses were not required for samples in this SDG.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) may be requested for this sample delivery group/work order. Please note that non-requested target analytes that are reported on the quantitation reports will be present on the Form I. These detected analytes are included in the calibrated method and as a result will be reported on the Sample Data Summary (Form I) or Certificate of Analysis (C of A). TIC data, if requested, are included on the Sample Data Summary (Form I) and are also included with the sample raw data.

Additional Comments
Additional comments were not required for this SDG.

Residual Chlorine
Residual Chlorine was not detected in any of the samples in this SDG.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOA1.I	Agilent 6890/5973 GC/MS w/ OI 4560/Archon Autosampler	HP6890/HP5973	RTX-624	Restek, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641−10)

Client SDG: 2013−322 GEL Work Order: 315352

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re−analyzed without re−extraction.
RE Indicates that sample is re−extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP−like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Erin Haubert **Name: Erin Haubert**

Date: 12 DEC 2012 **Title: Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352001**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24212**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 12:24**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 12:24**				
Data File:	**111812V1\1M710.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352001**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24212**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 12:24**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 12:24**				
Data File:	**111812V1\1M710.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	BJ	0.790	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352001**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24212**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 12:24**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 12:24**				
Data File:	**111812V1\1M710.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	53.8	50.0	ug/L	108	(78%-124%)
Bromofluorobenzene	48.2	50.0	ug/L	96.4	(80%-120%)
Toluene-d8	50.6	50.0	ug/L	101	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352004**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24205**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 12:54**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 12:54**				
Data File:	**111812V1\1M711.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352004**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24205**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 12:54**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 12:54**				
Data File:	**111812V1\1M711.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352004**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24205**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 12:54**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 12:54**				
Data File:	**111812V1\1M711.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	55.2	50.0	ug/L	110	(78%-124%)
Bromofluorobenzene	48.8	50.0	ug/L	97.6	(80%-120%)
Toluene-d8	51.2	50.0	ug/L	102	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352005**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24206**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 13:25**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 13:25**				
Data File:	**111812V1\1M712.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352005**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24206**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 13:25**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 13:25**				
Data File:	**111812V1\1M712.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352005**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24206**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 13:25**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 13:25**				
Data File:	**111812V1\1M712.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	55.0	50.0	ug/L	110	(78%-124%)
Bromofluorobenzene	48.7	50.0	ug/L	97.4	(80%-120%)
Toluene-d8	50.7	50.0	ug/L	101	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	4.496	5.29	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352007**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24208**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 13:56**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 13:56**				
Data File:	**111812V1\1M713.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352007**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24208**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 13:56**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 13:56**				
Data File:	**111812V1\1M713.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352007**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24208**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 13:56**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 13:56**				
Data File:	**111812V1\1M713.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	55.5	50.0	ug/L	111	(78%-124%)
Bromofluorobenzene	47.3	50.0	ug/L	94.7	(80%-120%)
Toluene-d8	50.4	50.0	ug/L	101	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2013-322

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1202782716	LCS for batch 1264441	106	103	94
1202782717	LCS for batch 1264441	108	99	98
1202782713	MB for batch 1264441	106	102	95
315352001	CASA-13-24212	108	101	96
315352004	CASA-13-24205	110	102	98
315352005	CASA-13-24206	110	101	97
315352007	CASA-13-24208	111	101	95
1202782714	CASA-13-24212PS	109	104	97
1202782715	CASA-13-24212PSD	109	103	96

Surrogate		Acceptance Limits
DCED4	= 1,2-Dichloroethane-d4	(78%-124%)
TOL	= Toluene-d8	(80%-120%)
BFB	= Bromofluorobenzene	(80%-120%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **CASA-13-24212PS**
Lab Sample ID: **1202782714**
Instrument: **VOA1.I**
Analyst: **GRB2**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/18/2012 18:32**
Prep Batch ID: **1264441**
Batch ID: **1264441**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	PS	Dichlorodifluoromethane	50.0	0.00	U	51.1	102	36-123
74-87-3	PS	Chloromethane	50.0	0.00	U	52.2	104	47-134
75-01-4	PS	Vinyl chloride	50.0	0.00	U	46.5	93	49-129
74-83-9	PS	Bromomethane	50.0	0.00	U	51.5	103	56-127
75-00-3	PS	Chloroethane	50.0	0.00	U	50.0	100	67-122
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	U	56.2	112	60-123
60-29-7	PS	Ethyl ether	50.0	0.00	U	51.5	103	69-121
67-64-1	PS	Acetone	250	0.00	U	118	47	30-143
75-05-8	PS	Acetonitrile	1250	0.00	U	1150	92	60-133
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	U	52.9	106	67-132
74-88-4	PS	Iodomethane	250	0.00	U	282	113	69-147
75-09-2	PS	Methylene chloride	50.0	0.00	U	51.6	103	56-135
75-15-0	PS	Carbon disulfide	250	0.00	U	263	105	65-153
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	U	54.7	109	73-126
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	U	52.0	104	69-128
108-05-4	PS	Vinyl acetate	250	0.00	U	228	91	50-143
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	U	51.0	102	75-124
78-93-3	PS	2-Butanone	250	0.00	U	170	68	30-140
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	U	52.5	105	52-147
594-20-7	PS	2,2-Dichloropropane	50.0	0.00	U	56.3	113	67-143
67-66-3	PS	Chloroform	50.0	0.00	U	52.4	105	75-125
74-97-5	PS	Bromochloromethane	50.0	0.00	U	53.2	106	80-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **CASA-13-24212PS**
Lab Sample ID: **1202782714**
Instrument: **VOA1.I**
Analyst: **GRB2**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/18/2012 18:32**
Prep Batch ID: **1264441**
Batch ID: **1264441**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	PS	1,1,1-Trichloroethane	50.0	0.00	U	55.9	112	69-140
563-58-6	PS	1,1-Dichloropropene	50.0	0.00	U	52.1	104	71-130
71-36-3	PS	n-Butyl alcohol	5000	0.00	U	5710	114	53-150
56-23-5	PS	Carbon tetrachloride	50.0	0.00	U	56.6	113	69-142
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	U	53.5	107	72-126
71-43-2	PS	Benzene	50.0	0.00	U	48.5	97	73-119
79-01-6	PS	Trichloroethylene	50.0	0.00	U	50.4	101	54-147
78-87-5	PS	1,2-Dichloropropane	50.0	0.00	U	48.3	97	78-123
75-27-4	PS	Bromodichloromethane	50.0	0.00	U	54.6	109	76-131
74-95-3	PS	Dibromomethane	50.0	0.00	U	53.3	107	79-120
108-10-1	PS	4-Methyl-2-pentanone	250	0.00	U	260	104	68-136
10061-01-5	PS	cis-1,3-Dichloropropylene	50.0	0.00	U	53.7	107	72-134
108-88-3	PS	Toluene	50.0	0.00	U	48.0	96	62-126
10061-02-6	PS	trans-1,3-Dichloropropylene	50.0	0.00	U	55.4	111	72-133
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	U	48.9	98	74-120
591-78-6	PS	2-Hexanone	250	0.00	U	202	81	31-132
142-28-9	PS	1,3-Dichloropropane	50.0	0.00	U	50.4	101	73-121
127-18-4	PS	Tetrachloroethylene	50.0	0.00	U	48.9	98	54-139
124-48-1	PS	Dibromochloromethane	50.0	0.00	U	56.9	114	74-128
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	U	53.0	106	80-120
108-90-7	PS	Chlorobenzene	50.0	0.00	U	49.6	99	73-119
100-41-4	PS	Ethylbenzene	50.0	0.00	U	50.2	100	66-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **CASA-13-24212PS**
Lab Sample ID: **1202782714**
Instrument: **VOA1.I**
Analyst: **GRB2**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/18/2012 18:32**
Prep Batch ID: **1264441**
Batch ID: **1264441**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	PS	m,p-Xylenes	100	0.00	U	102	102	56-134
95-47-6	PS	o-Xylene	50.0	0.00	U	53.3	107	68-126
100-42-5	PS	Styrene	50.0	0.00	U	54.6	109	57-138
75-25-2	PS	Bromoform	50.0	0.00	U	55.6	111	66-129
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	U	47.9	96	44-146
96-18-4	PS	1,2,3-Trichloropropane	50.0	0.00	U	51.4	103	68-129
108-86-1	PS	Bromobenzene	50.0	0.00	U	49.9	100	70-122
103-65-1	PS	n-Propylbenzene	50.0	0.00	U	49.0	98	61-131
95-49-8	PS	2-Chlorotoluene	50.0	0.00	U	49.9	100	66-126
98-82-8	PS	Isopropylbenzene	50.0	0.00	U	52.9	106	65-130
108-67-8	PS	1,3,5-Trimethylbenzene	50.0	0.00	U	51.9	104	58-134
106-43-4	PS	4-Chlorotoluene	50.0	0.00	U	49.4	99	63-125
98-06-6	PS	tert-Butylbenzene	50.0	0.00	U	52.2	104	66-129
95-63-6	PS	1,2,4-Trimethylbenzene	50.0	0.00	U	51.7	103	60-131
135-98-8	PS	sec-Butylbenzene	50.0	0.00	U	51.5	103	62-130
99-87-6	PS	4-Isopropyltoluene	50.0	0.00	U	52.4	105	62-132
541-73-1	PS	1,3-Dichlorobenzene	50.0	0.00	U	48.1	96	66-121
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	U	47.4	95	65-119
104-51-8	PS	n-Butylbenzene	50.0	0.00	U	49.1	98	55-134
96-12-8	PS	1,2-Dibromo-3-chloropropane	50.0	0.00	U	46.5	93	58-137
87-68-3	PS	Hexachlorobutadiene	50.0	0.00	U	48.3	97	49-139
91-20-3	PS	Naphthalene	50.0	0.790	BJ	48.2	95	46-145

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Sample Type: **Post Spike**
Client ID: **CASA-13-24212PS**
Matrix: **W**
Lab Sample ID: **1202782714**
Instrument: **VOA1.I**
Analysis Date: **11/18/2012 18:32**
Dilution: 1
Analyst: **GRB2**
Prep Batch ID: **1264441**
Purge Vol: **5 mL**
Batch ID: **1264441**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	PS	1,2,3-Trichlorobenzene	50.0	0.00	U	47.5	95	54-134
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	U	55.1	110	79-128
120-82-1	PS	1,2,4-Trichlorobenzene	50.0	0.00	U	47.3	95	55-128
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	U	49.9	100	68-121

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **CASA-13-24212PSD**
Lab Sample ID: **1202782715**
Instrument: **VOA1.I**
Analyst: **GRB2**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/18/2012 19:03**
Prep Batch ID: **1264441**
Batch ID: **1264441**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
75-71-8	PSD	Dichlorodifluoromethane	50.0	0.00	U	50.2	100	36-123	2	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	U	51.7	103	47-134	1	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	U	45.3	91	49-129	3	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	U	51.4	103	56-127	0	0-20
75-00-3	PSD	Chloroethane	50.0	0.00	U	50.2	100	67-122	1	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	U	54.8	110	60-123	2	0-20
60-29-7	PSD	Ethyl ether	50.0	0.00	U	52.4	105	69-121	2	0-20
67-64-1	PSD	Acetone	250	0.00	U	126	50	30-143	6	0-20
75-05-8	PSD	Acetonitrile	1250	0.00	U	1180	94	60-133	3	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	U	53.3	107	67-132	1	0-20
74-88-4	PSD	Iodomethane	250	0.00	U	283	113	69-147	1	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	U	51.7	103	56-135	0	0-20
75-15-0	PSD	Carbon disulfide	250	0.00	U	265	106	65-153	1	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	U	56.9	114	73-126	4	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	U	52.2	104	69-128	0	0-20
108-05-4	PSD	Vinyl acetate	250	0.00	U	231	92	50-143	1	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	U	50.6	101	75-124	1	0-20
78-93-3	PSD	2-Butanone	250	0.00	U	181	73	30-140	7	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	U	52.6	105	52-147	0	0-20
594-20-7	PSD	2,2-Dichloropropane	50.0	0.00	U	56.2	112	67-143	0	0-20
67-66-3	PSD	Chloroform	50.0	0.00	U	52.8	106	75-125	1	0-20
74-97-5	PSD	Bromochloromethane	50.0	0.00	U	54.1	108	80-120	2	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **CASA-13-24212PSD**
Lab Sample ID: **1202782715**
Instrument: **VOA1.I**
Analyst: **GRB2**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/18/2012 19:03**
Prep Batch ID: **1264441**
Batch ID: **1264441**
Dilution: **1**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
71-55-6	PSD	1,1,1-Trichloroethane	50.0	0.00	U	55.9	112	69-140	0	0-20
563-58-6	PSD	1,1-Dichloropropene	50.0	0.00	U	52.0	104	71-130	0	0-20
71-36-3	PSD	n-Butyl alcohol	5000	0.00	U	6100	122	53-150	7	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	U	56.3	113	69-142	1	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	U	54.3	109	72-126	2	0-20
71-43-2	PSD	Benzene	50.0	0.00	U	48.2	96	73-119	1	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	U	50.0	100	54-147	1	0-20
78-87-5	PSD	1,2-Dichloropropane	50.0	0.00	U	49.3	99	78-123	2	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	U	54.4	109	76-131	0	0-20
74-95-3	PSD	Dibromomethane	50.0	0.00	U	53.9	108	79-120	1	0-20
108-10-1	PSD	4-Methyl-2-pentanone	250	0.00	U	275	110	68-136	6	0-20
10061-01-5	PSD	cis-1,3-Dichloropropylene	50.0	0.00	U	54.7	109	72-134	2	0-20
108-88-3	PSD	Toluene	50.0	0.00	U	48.3	97	62-126	1	0-20
10061-02-6	PSD	trans-1,3-Dichloropropylene	50.0	0.00	U	56.2	112	72-133	1	0-20
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	U	50.0	100	74-120	2	0-20
591-78-6	PSD	2-Hexanone	250	0.00	U	213	85	31-132	5	0-20
142-28-9	PSD	1,3-Dichloropropane	50.0	0.00	U	50.7	101	73-121	1	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	U	48.8	98	54-139	0	0-20
124-48-1	PSD	Dibromochloromethane	50.0	0.00	U	57.6	115	74-128	1	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	U	54.5	109	80-120	3	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.00	U	50.0	100	73-119	1	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	U	49.9	100	66-125	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **CASA-13-24212PSD**
Lab Sample ID: **1202782715**
Instrument: **VOA1.I**
Analyst: **GRB2**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/18/2012 19:03**
Prep Batch ID: **1264441**
Batch ID: **1264441**
Dilution: **1**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	PSD	m,p-Xylenes	100	0.00	U	103	103	56-134	1	0-20
95-47-6	PSD	o-Xylene	50.0	0.00	U	53.1	106	68-126	0	0-20
100-42-5	PSD	Styrene	50.0	0.00	U	54.8	110	57-138	0	0-20
75-25-2	PSD	Bromoform	50.0	0.00	U	56.5	113	66-129	2	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	U	48.7	97	44-146	1	0-20
96-18-4	PSD	1,2,3-Trichloropropane	50.0	0.00	U	53.1	106	68-129	3	0-20
108-86-1	PSD	Bromobenzene	50.0	0.00	U	49.9	100	70-122	0	0-20
103-65-1	PSD	n-Propylbenzene	50.0	0.00	U	48.9	98	61-131	0	0-20
95-49-8	PSD	2-Chlorotoluene	50.0	0.00	U	49.5	99	66-126	1	0-20
98-82-8	PSD	Isopropylbenzene	50.0	0.00	U	52.8	106	65-130	0	0-20
108-67-8	PSD	1,3,5-Trimethylbenzene	50.0	0.00	U	51.9	104	58-134	0	0-20
106-43-4	PSD	4-Chlorotoluene	50.0	0.00	U	49.1	98	63-125	0	0-20
98-06-6	PSD	tert-Butylbenzene	50.0	0.00	U	52.3	105	66-129	0	0-20
95-63-6	PSD	1,2,4-Trimethylbenzene	50.0	0.00	U	51.9	104	60-131	0	0-20
135-98-8	PSD	sec-Butylbenzene	50.0	0.00	U	50.6	101	62-130	2	0-20
99-87-6	PSD	4-Isopropyltoluene	50.0	0.00	U	52.4	105	62-132	0	0-20
541-73-1	PSD	1,3-Dichlorobenzene	50.0	0.00	U	48.6	97	66-121	1	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	U	47.8	96	65-119	1	0-20
104-51-8	PSD	n-Butylbenzene	50.0	0.00	U	49.4	99	55-134	1	0-20
96-12-8	PSD	1,2-Dibromo-3-chloropropane	50.0	0.00	U	48.3	97	58-137	4	0-20
87-68-3	PSD	Hexachlorobutadiene	50.0	0.00	U	47.0	94	49-139	3	0-20
91-20-3	PSD	Naphthalene	50.0	0.790	BJ	48.9	96	46-145	2	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **CASA-13-24212PSD**
Lab Sample ID: **1202782715**
Instrument: **VOA1.I**
Analyst: **GRB2**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/18/2012 19:03**
Prep Batch ID: **1264441**
Batch ID: **1264441**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
87-61-6	PSD	1,2,3-Trichlorobenzene	50.0	0.00	U	47.9	96	54-134	1	0-20
630-20-6	PSD	1,1,1,2-Tetrachloroethane	50.0	0.00	U	55.2	110	79-128	0	0-20
120-82-1	PSD	1,2,4-Trichlorobenzene	50.0	0.00	U	48.0	96	55-128	1	0-20
95-50-1	PSD	1,2-Dichlorobenzene	50.0	0.00	U	50.5	101	68-121	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **LCS for batch 1264441**
Lab Sample ID: **1202782716**
Instrument: **VOA1.I**
Analyst: **GRB2**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/18/2012 08:48**
Prep Batch ID: **1264441**
Batch ID: **1264441**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	53.0	106	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	52.6	105	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	47.0	94	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	52.2	104	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	51.9	104	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	58.0	116	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	50.2	100	74-120
67-64-1	LCS	Acetone	250	0.0	331	132	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	1150	92	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	55.2	110	76-127
74-88-4	LCS	Iodomethane	250	0.0	280	112	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	49.9	100	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	273	109	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	53.9	108	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	52.4	105	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	266	106	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	50.2	100	79-120
78-93-3	LCS	2-Butanone	250	0.0	353	141	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	51.7	103	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	59.3	119	76-145
67-66-3	LCS	Chloroform	50.0	0.0	51.5	103	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	52.9	106	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **LCS for batch 1264441**
Lab Sample ID: **1202782716**
Instrument: **VOA1.I**
Analyst: **GRB2**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/18/2012 08:48**
Prep Batch ID: **1264441**
Batch ID: **1264441**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	56.8	114	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	53.8	108	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	5560	111	66-138
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	57.9	116	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	52.0	104	75-121
71-43-2	LCS	Benzene	50.0	0.0	47.9	96	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	50.7	101	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	47.3	95	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	52.5	105	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	51.5	103	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	300	120	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	54.6	109	80-127
108-88-3	LCS	Toluene	50.0	0.0	48.8	98	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	55.2	110	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	48.2	96	79-120
591-78-6	LCS	2-Hexanone	250	0.0	371	148	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	49.6	99	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	51.3	103	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	54.9	110	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	52.4	105	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	49.8	100	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	51.8	104	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **LCS for batch 1264441**
Lab Sample ID: **1202782716**
Instrument: **VOA1.I**
Analyst: **GRB2**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/18/2012 08:48**
Prep Batch ID: **1264441**
Batch ID: **1264441**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	105	105	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	53.9	108	80-120
100-42-5	LCS	Styrene	50.0	0.0	55.4	111	80-121
75-25-2	LCS	Bromoform	50.0	0.0	53.8	108	72-125
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	47.2	94	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	51.2	102	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	49.7	99	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	51.0	102	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	50.3	101	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	54.4	109	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	53.5	107	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	50.7	101	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	54.2	108	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	53.6	107	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	53.5	107	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	55.4	111	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	49.9	100	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	48.9	98	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	53.7	107	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	46.0	92	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	51.1	102	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	48.0	96	71-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **LCS for batch 1264441**
Lab Sample ID: **1202782716**
Instrument: **VOA1.I**
Analyst: **GRB2**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/18/2012 08:48**
Prep Batch ID: **1264441**
Batch ID: **1264441**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	49.1	98	73-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	54.3	109	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	51.1	102	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	50.3	101	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **LCS for batch 1264441**
Lab Sample ID: **1202782717**
Instrument: **VOA1.I**
Analyst: **GRB2**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/18/2012 10:20**
Prep Batch ID: **1264441**
Batch ID: **1264441**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS	Acrolein	250	0.0	258	103	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	286	114	65-157
107-05-1	LCS	Allyl chloride	250	0.0	253	101	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	265	106	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	55.4	111	45-159
107-12-0	LCS	Propionitrile	250	0.0	275	110	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	264	106	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2850	114	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	280	112	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	271	108	66-132

Method Blank Summary

SDG Number:	**2013-322**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1264441**	**Instrument ID:**	**VOA1.I**	**Data File:**	**111812V1\1M709BAR.D**
Lab Sample ID:	**1202782713**	**Prep Date:**	**11/18/2012 11:53**	**Analyzed:**	**11/18/12 11:53**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 1264441	1202782716	111812V1\1M703LAR.D	11/18/12	0848
02	LCS for batch 1264441	1202782717	111812V1\1M706SHAR.D	11/18/12	1020
03	CASA-13-24212	315352001	111812V1\1M710.D	11/18/12	1224
04	CASA-13-24205	315352004	111812V1\1M711.D	11/18/12	1254
05	CASA-13-24206	315352005	111812V1\1M712.D	11/18/12	1325
06	CASA-13-24208	315352007	111812V1\1M713.D	11/18/12	1356
07	CASA-13-24212PS	1202782714	111812V1\1M722.D	11/18/12	1832
08	CASA-13-24212PSD	1202782715	111812V1\1M723.D	11/18/12	1903

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782713**				
Client Sample:	**QC for batch 1264441**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264441**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 11:53**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 11:53**				
Data File:	**111812V1\1M709BAR.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782713**				
Client Sample:	**QC for batch 1264441**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264441**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 11:53**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 11:53**				
Data File:	**111812V1\1M709BAR.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	J	0.810	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782713**				
Client Sample:	**QC for batch 1264441**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264441**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 11:53**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 11:53**				
Data File:	**111812V1\1M709BAR.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	53.1	50.0	ug/L	106	(78%-124%)
Bromofluorobenzene	47.6	50.0	ug/L	95.3	(80%-120%)
Toluene-d8	50.8	50.0	ug/L	102	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**1202782714**	**Date Received:**	**11/16/2012 09:00**		
Client Sample:	**QC for batch 1264441**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CASA-13-24212PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 18:32**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 18:32**				
Data File:	**111812V1\1M722.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		51.1	ug/L	0.300	1.00
74-87-3	Chloromethane		52.2	ug/L	0.300	1.00
75-01-4	Vinyl chloride		46.5	ug/L	0.300	1.00
74-83-9	Bromomethane		51.5	ug/L	0.300	1.00
75-00-3	Chloroethane		50.0	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		56.2	ug/L	0.300	1.00
60-29-7	Ethyl ether		51.5	ug/L	0.300	1.00
67-64-1	Acetone		118	ug/L	3.00	10.0
75-05-8	Acetonitrile		1150	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		52.9	ug/L	0.300	1.00
74-88-4	Iodomethane		282	ug/L	1.50	5.00
75-09-2	Methylene chloride		51.6	ug/L	3.00	10.0
75-15-0	Carbon disulfide		263	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		54.7	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		52.0	ug/L	0.300	1.00
108-05-4	Vinyl acetate		228	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		51.0	ug/L	0.300	1.00
78-93-3	2-Butanone		170	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		52.5	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		56.3	ug/L	0.300	1.00
67-66-3	Chloroform		52.4	ug/L	0.300	1.00
74-97-5	Bromochloromethane		53.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		55.9	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		52.1	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5710	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		56.6	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		53.5	ug/L	0.300	1.00
71-43-2	Benzene		48.5	ug/L	0.300	1.00
79-01-6	Trichloroethylene		50.4	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.3	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		54.6	ug/L	0.300	1.00
74-95-3	Dibromomethane		53.3	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		260	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		53.7	ug/L	0.300	1.00
108-88-3	Toluene		48.0	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		55.4	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.9	ug/L	0.300	1.00
591-78-6	2-Hexanone		202	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**1202782714**	**Date Received:**	**11/16/2012 09:00**		
Client Sample:	**QC for batch 1264441**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CASA-13-24212PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 18:32**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 18:32**				
Data File:	**111812V1\1M722.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		50.4	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		48.9	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		56.9	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		53.0	ug/L	0.300	1.00
108-90-7	Chlorobenzene		49.6	ug/L	0.300	1.00
100-41-4	Ethylbenzene		50.2	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		102	ug/L	0.300	2.00
95-47-6	o-Xylene		53.3	ug/L	0.300	1.00
100-42-5	Styrene		54.6	ug/L	0.300	1.00
75-25-2	Bromoform		55.6	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		47.9	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		51.4	ug/L	0.300	1.00
108-86-1	Bromobenzene		49.9	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		49.0	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		49.9	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		52.9	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		51.9	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		49.4	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		52.2	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		51.7	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		51.5	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		52.4	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		48.1	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		47.4	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		49.1	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		46.5	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		48.3	ug/L	0.300	1.00
91-20-3	Naphthalene	B	48.2	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		47.5	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**1202782714**	**Date Received:**	**11/16/2012 09:00**		
Client Sample:	**QC for batch 1264441**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CASA-13-24212PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 18:32**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 18:32**				
Data File:	**111812V1\1M722.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		55.1	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		47.3	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		49.9	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	54.3	50.0	ug/L	109	(78%-124%)
Bromofluorobenzene	48.4	50.0	ug/L	96.8	(80%-120%)
Toluene-d8	51.9	50.0	ug/L	104	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**1202782715**	**Date Received:**	**11/16/2012 09:00**		
Client Sample:	**QC for batch 1264441**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CASA-13-24212PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 19:03**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 19:03**				
Data File:	**111812V1\1M723.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		50.2	ug/L	0.300	1.00
74-87-3	Chloromethane		51.7	ug/L	0.300	1.00
75-01-4	Vinyl chloride		45.3	ug/L	0.300	1.00
74-83-9	Bromomethane		51.4	ug/L	0.300	1.00
75-00-3	Chloroethane		50.2	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		54.8	ug/L	0.300	1.00
60-29-7	Ethyl ether		52.4	ug/L	0.300	1.00
67-64-1	Acetone		126	ug/L	3.00	10.0
75-05-8	Acetonitrile		1180	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		53.3	ug/L	0.300	1.00
74-88-4	Iodomethane		283	ug/L	1.50	5.00
75-09-2	Methylene chloride		51.7	ug/L	3.00	10.0
75-15-0	Carbon disulfide		265	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		56.9	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		52.2	ug/L	0.300	1.00
108-05-4	Vinyl acetate		231	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		50.6	ug/L	0.300	1.00
78-93-3	2-Butanone		181	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		52.6	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		56.2	ug/L	0.300	1.00
67-66-3	Chloroform		52.8	ug/L	0.300	1.00
74-97-5	Bromochloromethane		54.1	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		55.9	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		52.0	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		6100	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		56.3	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		54.3	ug/L	0.300	1.00
71-43-2	Benzene		48.2	ug/L	0.300	1.00
79-01-6	Trichloroethylene		50.0	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		49.3	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		54.4	ug/L	0.300	1.00
74-95-3	Dibromomethane		53.9	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		275	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		54.7	ug/L	0.300	1.00
108-88-3	Toluene		48.3	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		56.2	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		50.0	ug/L	0.300	1.00
591-78-6	2-Hexanone		213	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**1202782715**	**Date Received:**	**11/16/2012 09:00**		
Client Sample:	**QC for batch 1264441**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CASA-13-24212PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 19:03**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 19:03**				
Data File:	**111812V1\1M723.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		50.7	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		48.8	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		57.6	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		54.5	ug/L	0.300	1.00
108-90-7	Chlorobenzene		50.0	ug/L	0.300	1.00
100-41-4	Ethylbenzene		49.9	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		103	ug/L	0.300	2.00
95-47-6	o-Xylene		53.1	ug/L	0.300	1.00
100-42-5	Styrene		54.8	ug/L	0.300	1.00
75-25-2	Bromoform		56.5	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		48.7	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		53.1	ug/L	0.300	1.00
108-86-1	Bromobenzene		49.9	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		48.9	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		49.5	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		52.8	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		51.9	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		49.1	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		52.3	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		51.9	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		50.6	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		52.4	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		48.6	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		47.8	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		49.4	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		48.3	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		47.0	ug/L	0.300	1.00
91-20-3	Naphthalene	B	48.9	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		47.9	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**1202782715**	**Date Received:**	**11/16/2012 09:00**		
Client Sample:	**QC for batch 1264441**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CASA-13-24212PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 19:03**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 19:03**				
Data File:	**111812V1\1M723.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		55.2	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		48.0	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		50.5	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	54.6	50.0	ug/L	109	(78%-124%)
Bromofluorobenzene	48.1	50.0	ug/L	96.1	(80%-120%)
Toluene-d8	51.5	50.0	ug/L	103	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782716**				
Client Sample:	**QC for batch 1264441**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264441**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 08:48**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 08:48**				
Data File:	**111812V1\1M703LAR.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		53.0	ug/L	0.300	1.00
74-87-3	Chloromethane		52.6	ug/L	0.300	1.00
75-01-4	Vinyl chloride		47.0	ug/L	0.300	1.00
74-83-9	Bromomethane		52.2	ug/L	0.300	1.00
75-00-3	Chloroethane		51.9	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		58.0	ug/L	0.300	1.00
60-29-7	Ethyl ether		50.2	ug/L	0.300	1.00
67-64-1	Acetone		331	ug/L	3.00	10.0
75-05-8	Acetonitrile		1150	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		55.2	ug/L	0.300	1.00
74-88-4	Iodomethane		280	ug/L	1.50	5.00
75-09-2	Methylene chloride		49.9	ug/L	3.00	10.0
75-15-0	Carbon disulfide		273	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		53.9	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		52.4	ug/L	0.300	1.00
108-05-4	Vinyl acetate		266	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		50.2	ug/L	0.300	1.00
78-93-3	2-Butanone		353	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		51.7	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		59.3	ug/L	0.300	1.00
67-66-3	Chloroform		51.5	ug/L	0.300	1.00
74-97-5	Bromochloromethane		52.9	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		56.8	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		53.8	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5560	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		57.9	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		52.0	ug/L	0.300	1.00
71-43-2	Benzene		47.9	ug/L	0.300	1.00
79-01-6	Trichloroethylene		50.7	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		47.3	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		52.5	ug/L	0.300	1.00
74-95-3	Dibromomethane		51.5	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		300	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		54.6	ug/L	0.300	1.00
108-88-3	Toluene		48.8	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		55.2	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.2	ug/L	0.300	1.00
591-78-6	2-Hexanone		371	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782716**				
Client Sample:	**QC for batch 1264441**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264441**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 08:48**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 08:48**				
Data File:	**111812V1\1M703LAR.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		49.6	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		51.3	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		54.9	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		52.4	ug/L	0.300	1.00
108-90-7	Chlorobenzene		49.8	ug/L	0.300	1.00
100-41-4	Ethylbenzene		51.8	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		105	ug/L	0.300	2.00
95-47-6	o-Xylene		53.9	ug/L	0.300	1.00
100-42-5	Styrene		55.4	ug/L	0.300	1.00
75-25-2	Bromoform		53.8	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		47.2	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		51.2	ug/L	0.300	1.00
108-86-1	Bromobenzene		49.7	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		51.0	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		50.3	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		54.4	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		53.5	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		50.7	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		54.2	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		53.6	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		53.5	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		55.4	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		49.9	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		48.9	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		53.7	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		46.0	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		51.1	ug/L	0.300	1.00
91-20-3	Naphthalene	B	48.0	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		49.1	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782716**				
Client Sample:	**QC for batch 1264441**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264441**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 08:48**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 08:48**				
Data File:	**111812V1\1M703LAR.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		54.3	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		51.1	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		50.3	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	53.0	50.0	ug/L	106	(78%-124%)
Bromofluorobenzene	47.1	50.0	ug/L	94.1	(80%-120%)
Toluene-d8	51.6	50.0	ug/L	103	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782717**				
Client Sample:	**QC for batch 1264441**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264441**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 10:20**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 10:20**				
Data File:	**111812V1\1M706SHAR.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782717**				
Client Sample:	**QC for batch 1264441**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264441**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 10:20**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 10:20**				
Data File:	**111812V1\1M706SHAR.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein		258	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		286	ug/L	1.50	5.00
107-05-1	Allyl chloride		253	ug/L	1.50	5.00
107-13-1	Acrylonitrile		265	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		55.4	ug/L	0.300	1.00
107-12-0	Propionitrile		275	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		264	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2850	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		280	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782717**				
Client Sample:	**QC for batch 1264441**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264441**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264441**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/18/2012 10:20**	**Analyst:**	**GRB2**	**Purge Vol:**	**5 mL**
Prep Date:	**11/18/2012 10:20**				
Data File:	**111812V1\1M706SHAR.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		271	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	53.9	50.0	ug/L	108	(78%-124%)
Bromofluorobenzene	49.1	50.0	ug/L	98.2	(80%-120%)
Toluene-d8	49.3	50.0	ug/L	98.6	(80%-120%)

Semi-Volatile Analysis

Case Narrative

Semi-Volatile Case Narrative
ARS International (ARSL)
SDG 2013-322

Method/Analysis Information

Procedure:	**Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method:	SW846 8270C
Prep Method:	SW846 3510C
Analytical Batch Number:	1264519
Prep Batch Number:	1264517

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8270C:

Sample ID	Client ID
315352001	CASA-13-24212
315352004	CASA-13-24205
315352005	CASA-13-24206
1202782898	Method Blank (MB)
1202782899	315285002(WST50-12-23903) Matrix Spike (MS)
1202782900	315285002(WST50-12-23903) Matrix Spike Duplicate (MSD)
1202782901	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 30.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 18.2.

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

CCV Requirements
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG in this batch met the acceptance criteria.

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria for this SDG in this batch.

Laboratory Control Sample (LCS) Recovery
The LCS(1202782901) recovered 1,4-Dioxane at 34% (limits: 41%-69%) and Hexachlorocyclopentadiene at 34% (limits are 38%-79%). The LCS(1202782901) spike failures represented less than 5% of the requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported.

QC Sample Designation
Sample 315285002 (WST50-12-23903) was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are used to monitor precision and accuracy of the spiked analytes along with any affect the matrix of the primary associated sample may have on the recovery of the target analytes. Low or high recovery of an analyte may indicate negative or positive bias to the data due to the sample matrix. The MS and MSD data in this report are qualified as out of holding based on industry standard documentation practices. The data associated with this report is considered usable by the lab for monitoring precision and accuracy of the spiked analytes as described in the EPA methodology.

Matrix Spike (MS) Recovery Statement
The MS(1202782899) recovered spike analytes outside of the acceptance limits. Please see the QC Summary report for specific values. Since the MSD displayed similar spike recoveries to the MS, the failures were attributed to sample matrix interference and the data results have been reported.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD(1202782900) recovered spike analytes outside of the acceptance limits. Please see the QC Summary report for specific values. Since the MSD displayed similar spike recoveries to the MS, the failures were attributed to sample matrix interference and the data results have been reported.

MS/MSD Relative Percent Difference (RPD) Statement
The MS(1202782899)/MSD(1202782900) RPD value for Pyridine was 35% (SPC limit: 30%). Since Pyridine was individually within the acceptance limits for the MS and MSD, the non-conformance had no adverse impact on the data and the results have been reported.

Internal Standard (ISTD) Acceptance
The internal standard responses used to quantitate the requested target analytes were within the required

acceptance criteria for the SDG associated samples in this batch.

Technical Information:

Holding Time Specifications
All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

Sample Dilutions
The samples in this SDG in this batch did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG in this analytical batch unless confirmations or dilutions were required.

Miscellaneous Information:

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1144143.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

TIC Comment
Tentatively identified compounds (TIC) may be requested for samples in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

Additional Comments
Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

System Configuration

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
MSD3.I	Agilent 7890A/5975C GC/MS w/ 7683 Autosampler	HP7890A/HP5975C	DB-5MS	25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-322 GEL Work Order: 315352

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

h Preparation or preservation holding time was exceeded

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Barbara Bailey **Name: Barbara Bailey**

Date: 11 DEC 2012 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352001**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24212**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 16:00**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**960 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2116.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.4	ug/L	3.13	10.4
110-86-1	Pyridine	U	10.4	ug/L	3.13	10.4
62-53-3	Aniline	U	10.4	ug/L	3.13	10.4
108-95-2	Phenol	U	10.4	ug/L	3.13	10.4
111-44-4	bis(2-Chloroethyl) ether	U	10.4	ug/L	3.13	10.4
95-57-8	2-Chlorophenol	U	10.4	ug/L	3.13	10.4
541-73-1	1,3-Dichlorobenzene	U	10.4	ug/L	3.13	10.4
106-46-7	1,4-Dichlorobenzene	U	10.4	ug/L	3.13	10.4
95-50-1	1,2-Dichlorobenzene	U	10.4	ug/L	3.13	10.4
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.4	ug/L	3.13	10.4
100-51-6	Benzyl alcohol	U	10.4	ug/L	3.13	10.4
95-48-7	o-Cresol	U	10.4	ug/L	3.13	10.4
65794-96-9	m,p-Cresols	U	10.4	ug/L	3.13	10.4
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.4	ug/L	3.13	10.4
67-72-1	Hexachloroethane	U	10.4	ug/L	3.13	10.4
98-95-3	Nitrobenzene	U	10.4	ug/L	3.13	10.4
78-59-1	Isophorone	U	10.4	ug/L	3.13	10.4
88-75-5	2-Nitrophenol	U	10.4	ug/L	3.13	10.4
105-67-9	2,4-Dimethylphenol	U	10.4	ug/L	3.13	10.4
111-91-1	bis(2-Chloroethoxy)methane	U	10.4	ug/L	3.13	10.4
120-83-2	2,4-Dichlorophenol	U	10.4	ug/L	3.13	10.4
65-85-0	Benzoic acid	J	9.30	ug/L	6.25	20.8
106-47-8	4-Chloroaniline	U	10.4	ug/L	3.44	10.4
87-68-3	Hexachlorobutadiene	U	10.4	ug/L	3.13	10.4
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.4	ug/L	3.13	10.4
91-57-6	2-Methylnaphthalene	U	1.04	ug/L	0.313	1.04
91-20-3	Naphthalene	U	1.04	ug/L	0.313	1.04
90-12-0	1-Methylnaphthalene	U	1.04	ug/L	0.313	1.04
77-47-4	Hexachlorocyclopentadiene	U	10.4	ug/L	3.13	10.4
88-06-2	2,4,6-Trichlorophenol	U	10.4	ug/L	3.13	10.4
95-95-4	2,4,5-Trichlorophenol	U	10.4	ug/L	3.13	10.4
91-58-7	2-Chloronaphthalene	U	1.04	ug/L	0.313	1.04
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.4	ug/L	3.13	10.4
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.4	ug/L	3.13	10.4
131-11-3	Dimethylphthalate	U	10.4	ug/L	3.13	10.4
606-20-2	2,6-Dinitrotoluene	U	10.4	ug/L	3.13	10.4

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352001**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24212**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 16:00**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**960 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2116.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.4	ug/L	3.13	10.4
208-96-8	Acenaphthylene	U	1.04	ug/L	0.313	1.04
83-32-9	Acenaphthene	U	1.04	ug/L	0.313	1.04
51-28-5	2,4-Dinitrophenol	U	20.8	ug/L	5.21	20.8
132-64-9	Dibenzofuran	U	10.4	ug/L	3.13	10.4
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.4	ug/L	3.13	10.4
84-66-2	Diethylphthalate	U	10.4	ug/L	3.13	10.4
100-02-7	4-Nitrophenol	U	10.4	ug/L	3.13	10.4
86-73-7	Fluorene	U	1.04	ug/L	0.313	1.04
7005-72-3	4-Chlorophenylphenylether	U	10.4	ug/L	3.13	10.4
100-01-6	4-Nitroaniline	U	10.4	ug/L	3.13	10.4
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.4	ug/L	3.13	10.4
122-39-4	Diphenylamine	U	10.4	ug/L	3.13	10.4
122-66-7	Azobenzene	U	10.4	ug/L	3.13	10.4
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.4	ug/L	3.13	10.4
118-74-1	Hexachlorobenzene	U	10.4	ug/L	3.13	10.4
87-86-5	Pentachlorophenol	U	10.4	ug/L	3.13	10.4
88-85-7	Dinoseb	U	10.4	ug/L	3.13	10.4
85-01-8	Phenanthrene	U	1.04	ug/L	0.313	1.04
120-12-7	Anthracene	U	1.04	ug/L	0.313	1.04
84-74-2	Di-n-butylphthalate	U	10.4	ug/L	3.13	10.4
206-44-0	Fluoranthene	U	1.04	ug/L	0.313	1.04
129-00-0	Pyrene	U	1.04	ug/L	0.313	1.04
85-68-7	Butylbenzylphthalate	U	10.4	ug/L	3.13	10.4
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.4	ug/L	3.13	10.4
56-55-3	Benzo(a)anthracene	U	1.04	ug/L	0.313	1.04
218-01-9	Chrysene	U	1.04	ug/L	0.313	1.04
117-84-0	Di-n-octylphthalate	U	10.4	ug/L	3.13	10.4
205-99-2	Benzo(b)fluoranthene	U	1.04	ug/L	0.313	1.04
207-08-9	Benzo(k)fluoranthene	U	1.04	ug/L	0.313	1.04
50-32-8	Benzo(a)pyrene	U	1.04	ug/L	0.458	1.04
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.04	ug/L	0.313	1.04
53-70-3	Dibenzo(a,h)anthracene	U	1.04	ug/L	0.313	1.04
191-24-2	Benzo(ghi)perylene	U	1.04	ug/L	0.313	1.04
123-91-1	1,4-Dioxane	U	10.4	ug/L	3.13	10.4
55-18-5	N-Nitrosodiethylamine	U	10.4	ug/L	3.13	10.4
930-55-2	N-Nitrosopyrrolidine	U	10.4	ug/L	3.13	10.4

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352001**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24212**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 16:00**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**960 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2116.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.4	ug/L	3.13	10.4
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.4	ug/L	3.13	10.4
608-93-5	Pentachlorobenzene	U	10.4	ug/L	3.13	10.4
1912-24-9	Atrazine	U	10.4	ug/L	3.13	10.4
92-87-5	Benzidine	U	10.4	ug/L	3.13	10.4
91-94-1	3,3'-Dichlorobenzidine	U	10.4	ug/L	3.13	10.4
120-82-1	1,2,4-Trichlorobenzene	U	10.4	ug/L	3.13	10.4

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	60.1	104	ug/L	57.7	(23%-130%)
2-Fluorobiphenyl	28.1	52.1	ug/L	53.9	(30%-104%)
2-Fluorophenol	38.2	104	ug/L	36.6	(14%-77%)
Nitrobenzene-d5	30.4	52.1	ug/L	58.4	(34%-125%)
Phenol-d5	23.1	104	ug/L	22.2	(10%-78%)
p-Terphenyl-d14	29.8	52.1	ug/L	57.3	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.903	37.8	ug/L	0	J
000594-36-5	Butane, 2-chloro-2-methyl-	1.938	5.23	ug/L	86	NJ
	unknown	1.992	12.9	ug/L	0	J
002597-49-1	Cyclobutane, ethenyl-	2.02	15.9	ug/L	94	NJ
197390-29-7	Cyclopentene, 1,2,3,3,4-pentamethy	3.722	5.09	ug/L	87	NJ
000080-05-7	Phenol, 4,4'-(1-methylethylidene)b	10.817	5.27	ug/L	98	NJ
1000308-91-9	Phthalic acid, decyl undecyl ester	16.625	4.69	ug/L	86	NJ

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352004**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24205**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 16:25**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**940 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2117.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.6	ug/L	3.19	10.6
110-86-1	Pyridine	U	10.6	ug/L	3.19	10.6
62-53-3	Aniline	U	10.6	ug/L	3.19	10.6
108-95-2	Phenol	U	10.6	ug/L	3.19	10.6
111-44-4	bis(2-Chloroethyl) ether	U	10.6	ug/L	3.19	10.6
95-57-8	2-Chlorophenol	U	10.6	ug/L	3.19	10.6
541-73-1	1,3-Dichlorobenzene	U	10.6	ug/L	3.19	10.6
106-46-7	1,4-Dichlorobenzene	U	10.6	ug/L	3.19	10.6
95-50-1	1,2-Dichlorobenzene	U	10.6	ug/L	3.19	10.6
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.6	ug/L	3.19	10.6
100-51-6	Benzyl alcohol	U	10.6	ug/L	3.19	10.6
95-48-7	o-Cresol	U	10.6	ug/L	3.19	10.6
65794-96-9	m,p-Cresols	U	10.6	ug/L	3.19	10.6
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.6	ug/L	3.19	10.6
67-72-1	Hexachloroethane	U	10.6	ug/L	3.19	10.6
98-95-3	Nitrobenzene	U	10.6	ug/L	3.19	10.6
78-59-1	Isophorone	U	10.6	ug/L	3.19	10.6
88-75-5	2-Nitrophenol	U	10.6	ug/L	3.19	10.6
105-67-9	2,4-Dimethylphenol	U	10.6	ug/L	3.19	10.6
111-91-1	bis(2-Chloroethoxy)methane	U	10.6	ug/L	3.19	10.6
120-83-2	2,4-Dichlorophenol	U	10.6	ug/L	3.19	10.6
65-85-0	Benzoic acid	U	21.3	ug/L	6.38	21.3
106-47-8	4-Chloroaniline	U	10.6	ug/L	3.51	10.6
87-68-3	Hexachlorobutadiene	U	10.6	ug/L	3.19	10.6
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.6	ug/L	3.19	10.6
91-57-6	2-Methylnaphthalene	U	1.06	ug/L	0.319	1.06
91-20-3	Naphthalene	U	1.06	ug/L	0.319	1.06
90-12-0	1-Methylnaphthalene	U	1.06	ug/L	0.319	1.06
77-47-4	Hexachlorocyclopentadiene	U	10.6	ug/L	3.19	10.6
88-06-2	2,4,6-Trichlorophenol	U	10.6	ug/L	3.19	10.6
95-95-4	2,4,5-Trichlorophenol	U	10.6	ug/L	3.19	10.6
91-58-7	2-Chloronaphthalene	U	1.06	ug/L	0.319	1.06
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.6	ug/L	3.19	10.6
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.6	ug/L	3.19	10.6
131-11-3	Dimethylphthalate	U	10.6	ug/L	3.19	10.6
606-20-2	2,6-Dinitrotoluene	U	10.6	ug/L	3.19	10.6

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352004**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24205**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 16:25**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**940 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2117.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.6	ug/L	3.19	10.6
208-96-8	Acenaphthylene	U	1.06	ug/L	0.319	1.06
83-32-9	Acenaphthene	U	1.06	ug/L	0.319	1.06
51-28-5	2,4-Dinitrophenol	U	21.3	ug/L	5.32	21.3
132-64-9	Dibenzofuran	U	10.6	ug/L	3.19	10.6
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.6	ug/L	3.19	10.6
84-66-2	Diethylphthalate	U	10.6	ug/L	3.19	10.6
100-02-7	4-Nitrophenol	U	10.6	ug/L	3.19	10.6
86-73-7	Fluorene	U	1.06	ug/L	0.319	1.06
7005-72-3	4-Chlorophenylphenylether	U	10.6	ug/L	3.19	10.6
100-01-6	4-Nitroaniline	U	10.6	ug/L	3.19	10.6
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.6	ug/L	3.19	10.6
122-39-4	Diphenylamine	U	10.6	ug/L	3.19	10.6
122-66-7	Azobenzene	U	10.6	ug/L	3.19	10.6
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.6	ug/L	3.19	10.6
118-74-1	Hexachlorobenzene	U	10.6	ug/L	3.19	10.6
87-86-5	Pentachlorophenol	U	10.6	ug/L	3.19	10.6
88-85-7	Dinoseb	U	10.6	ug/L	3.19	10.6
85-01-8	Phenanthrene	U	1.06	ug/L	0.319	1.06
120-12-7	Anthracene	U	1.06	ug/L	0.319	1.06
84-74-2	Di-n-butylphthalate	U	10.6	ug/L	3.19	10.6
206-44-0	Fluoranthene	U	1.06	ug/L	0.319	1.06
129-00-0	Pyrene	U	1.06	ug/L	0.319	1.06
85-68-7	Butylbenzylphthalate	U	10.6	ug/L	3.19	10.6
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.6	ug/L	3.19	10.6
56-55-3	Benzo(a)anthracene	U	1.06	ug/L	0.319	1.06
218-01-9	Chrysene	U	1.06	ug/L	0.319	1.06
117-84-0	Di-n-octylphthalate	U	10.6	ug/L	3.19	10.6
205-99-2	Benzo(b)fluoranthene	U	1.06	ug/L	0.319	1.06
207-08-9	Benzo(k)fluoranthene	U	1.06	ug/L	0.319	1.06
50-32-8	Benzo(a)pyrene	U	1.06	ug/L	0.468	1.06
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.06	ug/L	0.319	1.06
53-70-3	Dibenzo(a,h)anthracene	U	1.06	ug/L	0.319	1.06
191-24-2	Benzo(ghi)perylene	U	1.06	ug/L	0.319	1.06
123-91-1	1,4-Dioxane	U	10.6	ug/L	3.19	10.6
55-18-5	N-Nitrosodiethylamine	U	10.6	ug/L	3.19	10.6
930-55-2	N-Nitrosopyrrolidine	U	10.6	ug/L	3.19	10.6

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352004**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24205**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 16:25**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**940 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2117.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.6	ug/L	3.19	10.6
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.6	ug/L	3.19	10.6
608-93-5	Pentachlorobenzene	U	10.6	ug/L	3.19	10.6
1912-24-9	Atrazine	U	10.6	ug/L	3.19	10.6
92-87-5	Benzidine	U	10.6	ug/L	3.19	10.6
91-94-1	3,3'-Dichlorobenzidine	U	10.6	ug/L	3.19	10.6
120-82-1	1,2,4-Trichlorobenzene	U	10.6	ug/L	3.19	10.6

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	65.0	106	ug/L	61.1	(23%-130%)
2-Fluorobiphenyl	31.9	53.2	ug/L	59.9	(30%-104%)
2-Fluorophenol	42.9	106	ug/L	40.3	(14%-77%)
Nitrobenzene-d5	34.9	53.2	ug/L	65.5	(34%-125%)
Phenol-d5	25.9	106	ug/L	24.4	(10%-78%)
p-Terphenyl-d14	32.9	53.2	ug/L	61.8	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.901	43.2	ug/L	0	J
	unknown	1.929	6.55	ug/L	0	J
	unknown	1.986	15.4	ug/L	0	J
000110-83-8	Cyclohexene	2.011	18.7	ug/L	94	NJ
197390-29-7	Cyclopentene, 1,2,3,3,4-pentamethy	3.719	5.84	ug/L	87	NJ

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352005**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24206**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 16:49**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**940 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2118.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.6	ug/L	3.19	10.6
110-86-1	Pyridine	U	10.6	ug/L	3.19	10.6
62-53-3	Aniline	U	10.6	ug/L	3.19	10.6
108-95-2	Phenol	U	10.6	ug/L	3.19	10.6
111-44-4	bis(2-Chloroethyl) ether	U	10.6	ug/L	3.19	10.6
95-57-8	2-Chlorophenol	U	10.6	ug/L	3.19	10.6
541-73-1	1,3-Dichlorobenzene	U	10.6	ug/L	3.19	10.6
106-46-7	1,4-Dichlorobenzene	U	10.6	ug/L	3.19	10.6
95-50-1	1,2-Dichlorobenzene	U	10.6	ug/L	3.19	10.6
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.6	ug/L	3.19	10.6
100-51-6	Benzyl alcohol	U	10.6	ug/L	3.19	10.6
95-48-7	o-Cresol	U	10.6	ug/L	3.19	10.6
65794-96-9	m,p-Cresols	U	10.6	ug/L	3.19	10.6
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.6	ug/L	3.19	10.6
67-72-1	Hexachloroethane	U	10.6	ug/L	3.19	10.6
98-95-3	Nitrobenzene	U	10.6	ug/L	3.19	10.6
78-59-1	Isophorone	U	10.6	ug/L	3.19	10.6
88-75-5	2-Nitrophenol	U	10.6	ug/L	3.19	10.6
105-67-9	2,4-Dimethylphenol	U	10.6	ug/L	3.19	10.6
111-91-1	bis(2-Chloroethoxy)methane	U	10.6	ug/L	3.19	10.6
120-83-2	2,4-Dichlorophenol	U	10.6	ug/L	3.19	10.6
65-85-0	Benzoic acid	U	21.3	ug/L	6.38	21.3
106-47-8	4-Chloroaniline	U	10.6	ug/L	3.51	10.6
87-68-3	Hexachlorobutadiene	U	10.6	ug/L	3.19	10.6
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.6	ug/L	3.19	10.6
91-57-6	2-Methylnaphthalene	U	1.06	ug/L	0.319	1.06
91-20-3	Naphthalene	U	1.06	ug/L	0.319	1.06
90-12-0	1-Methylnaphthalene	U	1.06	ug/L	0.319	1.06
77-47-4	Hexachlorocyclopentadiene	U	10.6	ug/L	3.19	10.6
88-06-2	2,4,6-Trichlorophenol	U	10.6	ug/L	3.19	10.6
95-95-4	2,4,5-Trichlorophenol	U	10.6	ug/L	3.19	10.6
91-58-7	2-Chloronaphthalene	U	1.06	ug/L	0.319	1.06
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.6	ug/L	3.19	10.6
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.6	ug/L	3.19	10.6
131-11-3	Dimethylphthalate	U	10.6	ug/L	3.19	10.6
606-20-2	2,6-Dinitrotoluene	U	10.6	ug/L	3.19	10.6

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352005**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24206**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 16:49**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**940 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2118.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.6	ug/L	3.19	10.6
208-96-8	Acenaphthylene	U	1.06	ug/L	0.319	1.06
83-32-9	Acenaphthene	U	1.06	ug/L	0.319	1.06
51-28-5	2,4-Dinitrophenol	U	21.3	ug/L	5.32	21.3
132-64-9	Dibenzofuran	U	10.6	ug/L	3.19	10.6
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.6	ug/L	3.19	10.6
84-66-2	Diethylphthalate	U	10.6	ug/L	3.19	10.6
100-02-7	4-Nitrophenol	U	10.6	ug/L	3.19	10.6
86-73-7	Fluorene	U	1.06	ug/L	0.319	1.06
7005-72-3	4-Chlorophenylphenylether	U	10.6	ug/L	3.19	10.6
100-01-6	4-Nitroaniline	U	10.6	ug/L	3.19	10.6
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.6	ug/L	3.19	10.6
122-39-4	Diphenylamine	U	10.6	ug/L	3.19	10.6
122-66-7	Azobenzene	U	10.6	ug/L	3.19	10.6
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.6	ug/L	3.19	10.6
118-74-1	Hexachlorobenzene	U	10.6	ug/L	3.19	10.6
87-86-5	Pentachlorophenol	U	10.6	ug/L	3.19	10.6
88-85-7	Dinoseb	U	10.6	ug/L	3.19	10.6
85-01-8	Phenanthrene	U	1.06	ug/L	0.319	1.06
120-12-7	Anthracene	U	1.06	ug/L	0.319	1.06
84-74-2	Di-n-butylphthalate	U	10.6	ug/L	3.19	10.6
206-44-0	Fluoranthene	U	1.06	ug/L	0.319	1.06
129-00-0	Pyrene	U	1.06	ug/L	0.319	1.06
85-68-7	Butylbenzylphthalate	U	10.6	ug/L	3.19	10.6
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.6	ug/L	3.19	10.6
56-55-3	Benzo(a)anthracene	U	1.06	ug/L	0.319	1.06
218-01-9	Chrysene	U	1.06	ug/L	0.319	1.06
117-84-0	Di-n-octylphthalate	U	10.6	ug/L	3.19	10.6
205-99-2	Benzo(b)fluoranthene	U	1.06	ug/L	0.319	1.06
207-08-9	Benzo(k)fluoranthene	U	1.06	ug/L	0.319	1.06
50-32-8	Benzo(a)pyrene	U	1.06	ug/L	0.468	1.06
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.06	ug/L	0.319	1.06
53-70-3	Dibenzo(a,h)anthracene	U	1.06	ug/L	0.319	1.06
191-24-2	Benzo(ghi)perylene	U	1.06	ug/L	0.319	1.06
123-91-1	1,4-Dioxane	U	10.6	ug/L	3.19	10.6
55-18-5	N-Nitrosodiethylamine	U	10.6	ug/L	3.19	10.6
930-55-2	N-Nitrosopyrrolidine	U	10.6	ug/L	3.19	10.6

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352005**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24206**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 16:49**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**940 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2118.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.6	ug/L	3.19	10.6
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.6	ug/L	3.19	10.6
608-93-5	Pentachlorobenzene	U	10.6	ug/L	3.19	10.6
1912-24-9	Atrazine	U	10.6	ug/L	3.19	10.6
92-87-5	Benzidine	U	10.6	ug/L	3.19	10.6
91-94-1	3,3'-Dichlorobenzidine	U	10.6	ug/L	3.19	10.6
120-82-1	1,2,4-Trichlorobenzene	U	10.6	ug/L	3.19	10.6

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	59.4	106	ug/L	55.8	(23%-130%)
2-Fluorobiphenyl	26.8	53.2	ug/L	50.4	(30%-104%)
2-Fluorophenol	35.4	106	ug/L	33.3	(14%-77%)
Nitrobenzene-d5	29.5	53.2	ug/L	55.5	(34%-125%)
Phenol-d5	21.6	106	ug/L	20.3	(10%-78%)
p-Terphenyl-d14	29.5	53.2	ug/L	55.4	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.903	36.7	ug/L	0	J
	unknown	1.935	4.97	ug/L	0	J
	unknown	1.989	12.9	ug/L	0	J
000110-83-8	Cyclohexene	2.017	16.1	ug/L	94	NJ
000080-05-7	Phenol, 4,4'-(1-methylethylidene)b	10.817	5.21	ug/L	97	NJ
	unknown	16.622	5.15	ug/L	0	J

Quality Control Summary

Semi-Volatile

Surrogate Recovery Report

SDG Number: 2013-322

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1202782898	MB for batch 1264517	35	21	60	57	62	58
1202782901	LCS for batch 1264517	34	20	57	54	63	54
1202782899	WST50-12-23903MS	43	32	57	54	58	55
1202782900	WST50-12-23903MSD	48	36	59	55	62	59
315352001	CASA-13-24212	37	22	58	54	58	57
315352004	CASA-13-24205	40	24	66	60	61	62
315352005	CASA-13-24206	33	20	55	50	56	55

Surrogate			Acceptance Limits
2FP	=	2-Fluorophenol	(14%-77%)
PHL	=	Phenol-d5	(10%-78%)
NBZ	=	Nitrobenzene-d5	(34%-125%)
FBP	=	2-Fluorobiphenyl	(30%-104%)
TBP	=	2,4,6-Tribromophenol	(23%-130%)
TPH	=	p-Terphenyl-d14	(33%-136%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322** **Sample Type:** **Matrix Spike**

Client ID: **WST50-12-23903MS** **Matrix:** **W**

Lab Sample ID: **1202782899**

Instrument: **MSD3.I** **Analysis Date:** **11/21/2012 15:10** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1264517**

Inj. Vol: **1 uL** **Batch ID:** **1264519**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	MS	N-Methyl-N-nitrosomethylam	116	0.00	Uh	50.8	44	27-85
110-86-1	MS	Pyridine	116	0.00	Uh	40.2	35	21-93
62-53-3	MS	Aniline	116	0.00	Uh	0.00	0 *	28-108
108-95-2	MS	Phenol	116	0.00	Uh	41.5	36	15-100
111-44-4	MS	bis(2-Chloroethyl) ether	116	0.00	Uh	67.8	58	27-114
95-57-8	MS	2-Chlorophenol	116	0.00	Uh	68.8	59	32-103
541-73-1	MS	1,3-Dichlorobenzene	116	0.00	Uh	56.2	48	23-84
106-46-7	MS	1,4-Dichlorobenzene	116	0.00	Uh	55.6	48	23-88
95-50-1	MS	1,2-Dichlorobenzene	116	0.00	Uh	57.7	50	24-86
39638-32-9	MS	bis(2-Chloroisopropyl)ether	116	0.00	Uh	73.9	64	19-122
100-51-6	MS	Benzyl alcohol	116	0.00	Uh	55.9	48	34-98
95-48-7	MS	o-Cresol	116	0.00	Uh	36.3	31	29-96
65794-96-9	MS	m,p-Cresols	116	0.00	Uh	35.9	31	26-111
621-64-7	MS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	116	0.00	Uh	68.4	59	32-115
67-72-1	MS	Hexachloroethane	116	0.00	Uh	52.3	45	25-82
98-95-3	MS	Nitrobenzene	116	0.00	Uh	75.1	65	35-124
78-59-1	MS	Isophorone	116	0.00	Uh	78.1	67	37-140
88-75-5	MS	2-Nitrophenol	116	0.00	Uh	84.0	72	33-115
105-67-9	MS	2,4-Dimethylphenol	116	0.00	Uh	0.00	0 *	31-106
111-91-1	MS	bis(2-Chloroethoxy)methane	116	0.00	Uh	68.3	59	35-112
120-83-2	MS	2,4-Dichlorophenol	116	0.00	Uh	73.3	63	36-110
65-85-0	MS	Benzoic acid	233	0.00	Uh	116	50	12-108

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322** **Sample Type:** **Matrix Spike**

Client ID: **WST50-12-23903MS** **Matrix:** **W**

Lab Sample ID: **1202782899**

Instrument: **MSD3.I** **Analysis Date:** **11/21/2012 15:10** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1264517**

Inj. Vol: **1 uL** **Batch ID:** **1264519**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS	4-Chloroaniline	116	0.00	Uh	20.1	17 *	33-120
87-68-3	MS	Hexachlorobutadiene	116	0.00	Uh	66.1	57	19-96
59-50-7	MS	Parachlorometa cresol *4-Chloro-3-methylphenol*	116	0.00	Uh	57.3	49	36-116
91-57-6	MS	2-Methylnaphthalene	116	0.00	Uh	62.0	53	27-103
91-20-3	MS	Naphthalene	116	0.00	Uh	60.0	52	28-99
90-12-0	MS	1-Methylnaphthalene	116	0.00	Uh	66.2	57	29-107
77-47-4	MS	Hexachlorocyclopentadiene	116	0.00	Uh	40.0	34	25-75
88-06-2	MS	2,4,6-Trichlorophenol	116	0.00	Uh	70.7	61	36-111
95-95-4	MS	2,4,5-Trichlorophenol	116	0.00	Uh	74.4	64	34-115
91-58-7	MS	2-Chloronaphthalene	116	0.00	Uh	61.6	53	33-96
88-74-4	MS	2-Nitroaniline *o-Nitroaniline*	116	0.00	Uh	0.00	0 *	31-120
99-09-2	MS	3-Nitroaniline *m-Nitroaniline*	116	0.00	Uh	0.00	0 *	32-123
131-11-3	MS	Dimethylphthalate	116	0.00	Uh	80.0	69	43-115
606-20-2	MS	2,6-Dinitrotoluene	116	0.00	Uh	84.4	73	42-121
121-14-2	MS	2,4-Dinitrotoluene	116	0.00	Uh	86.5	74	37-125
208-96-8	MS	Acenaphthylene	116	0.00	Uh	55.2	48	34-103
83-32-9	MS	Acenaphthene	116	0.00	Uh	60.8	52	31-104
51-28-5	MS	2,4-Dinitrophenol	116	0.00	Uh	76.8	66	25-108
132-64-9	MS	Dibenzofuran	116	0.00	Uh	76.0	65	38-106
58-90-2	MS	2,3,4,6-Tetrachlorophenol	116	0.00	Uh	83.2	72	33-123
84-66-2	MS	Diethylphthalate	116	0.00	Uh	78.1	67	43-116
100-02-7	MS	4-Nitrophenol	116	0.00	Uh	52.0	45	26-72

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322** **Sample Type:** **Matrix Spike**

Client ID: **WST50-12-23903MS** **Matrix:** **W**

Lab Sample ID: **1202782899**

Instrument: **MSD3.I** **Analysis Date:** **11/21/2012 15:10** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1264517**

Inj. Vol: **1 uL** **Batch ID:** **1264519**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	116	0.00	Uh	71.9	62	33-110
7005-72-3	MS	4-Chlorophenylphenylether	116	0.00	Uh	76.5	66	30-112
100-01-6	MS	4-Nitroaniline *p-Nitroaniline*	116	0.00	Uh	0.00	0 *	28-131
534-52-1	MS	2-Methyl-4,6-dinitrophenol	116	0.00	Uh	88.0	76	31-113
122-39-4	MS	Diphenylamine	116	0.00	Uh	61.5	53	36-110
122-66-7	MS	Azobenzene *1,2-Diphenylhydrazine*	116	0.00	Uh	61.6	53	33-110
101-55-3	MS	4-Bromophenylphenylether	116	0.00	Uh	77.3	66	33-111
118-74-1	MS	Hexachlorobenzene	116	0.00	Uh	75.7	65	36-113
87-86-5	MS	Pentachlorophenol	116	0.00	Uh	63.3	54	25-110
85-01-8	MS	Phenanthrene	116	0.00	Uh	73.0	63	36-111
120-12-7	MS	Anthracene	116	0.00	Uh	64.0	55	36-107
84-74-2	MS	Di-n-butylphthalate	116	0.00	Uh	75.0	65	38-116
206-44-0	MS	Fluoranthene	116	0.00	Uh	77.4	67	35-116
129-00-0	MS	Pyrene	116	0.00	Uh	72.3	62	28-126
85-68-7	MS	Butylbenzylphthalate	116	0.00	Uh	69.8	60	32-120
117-81-7	MS	bis(2-Ethylhexyl)phthalate	116	0.00	Uh	69.3	60	30-121
56-55-3	MS	Benzo(a)anthracene	116	0.00	Uh	76.7	66	38-110
218-01-9	MS	Chrysene	116	0.00	Uh	75.6	65	35-115
117-84-0	MS	Di-n-octylphthalate	116	0.00	Uh	66.9	58	30-115
205-99-2	MS	Benzo(b)fluoranthene	116	0.00	Uh	77.5	67	37-115
207-08-9	MS	Benzo(k)fluoranthene	116	0.00	Uh	78.2	67	36-118
50-32-8	MS	Benzo(a)pyrene	116	0.00	Uh	67.3	58	36-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **WST50-12-23903MS**
Lab Sample ID: **1202782899**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/21/2012 15:10**
Prep Batch ID: **1264517**
Batch ID: **1264519**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	MS	Indeno(1,2,3-cd)pyrene	116	0.00	Uh	82.3	71	28-121
53-70-3	MS	Dibenzo(a,h)anthracene	116	0.00	Uh	85.7	74	26-124
191-24-2	MS	Benzo(ghi)perylene	116	0.00	Uh	74.1	64	25-122
123-91-1	MS	1,4-Dioxane	116	0.00	Uh	52.2	45	26-90
930-55-2	MS	N-Nitrosopyrrolidine	116	0.00	Uh	72.1	62	40-113
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	116	0.00	Uh	61.3	53	32-94
1912-24-9	MS	Atrazine	116	0.00	Uh	57.1	49	36-119
92-87-5	MS	Benzidine	233	0.00	Uh	0.00	0 *	10-125
91-94-1	MS	3,3'-Dichlorobenzidine	116	0.00	Uh	0.00	0 *	27-109
120-82-1	MS	1,2,4-Trichlorobenzene	116	0.00	Uh	61.0	53	23-90

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **WST50-12-23903MSD** **Matrix:** **W**

Lab Sample ID: **1202782900**

Instrument: **MSD3.I** **Analysis Date:** **11/21/2012 15:35** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1264517**

Inj. Vol: **1 uL** **Batch ID:** **1264519**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
62-75-9	MSD	N-Methyl-N-nitrosomethylam	116	0.00	Uh	54.4	47	27-85	7	0-30
110-86-1	MSD	Pyridine	116	0.00	Uh	57.0	49	21-93	35 *	0-30
62-53-3	MSD	Aniline	116	0.00	Uh	0.00	0 *	28-108	0	0-30
108-95-2	MSD	Phenol	116	0.00	Uh	47.5	41	15-100	14	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	116	0.00	Uh	68.7	59	27-114	1	0-30
95-57-8	MSD	2-Chlorophenol	116	0.00	Uh	72.9	63	32-103	6	0-30
541-73-1	MSD	1,3-Dichlorobenzene	116	0.00	Uh	58.6	50	23-84	4	0-30
106-46-7	MSD	1,4-Dichlorobenzene	116	0.00	Uh	58.3	50	23-88	5	0-30
95-50-1	MSD	1,2-Dichlorobenzene	116	0.00	Uh	59.8	51	24-86	4	0-30
39638-32-9	MSD	bis(2-Chloroisopropyl)ether	116	0.00	Uh	76.2	66	19-122	3	0-30
100-51-6	MSD	Benzyl alcohol	116	0.00	Uh	59.8	51	34-98	7	0-30
95-48-7	MSD	o-Cresol	116	0.00	Uh	43.5	37	29-96	18	0-30
65794-96-9	MSD	m,p-Cresols	116	0.00	Uh	47.7	41	26-111	28	0-30
621-64-7	MSD	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	116	0.00	Uh	70.0	60	32-115	2	0-30
67-72-1	MSD	Hexachloroethane	116	0.00	Uh	54.0	46	25-82	3	0-30
98-95-3	MSD	Nitrobenzene	116	0.00	Uh	76.3	66	35-124	2	0-30
78-59-1	MSD	Isophorone	116	0.00	Uh	80.1	69	37-140	3	0-30
88-75-5	MSD	2-Nitrophenol	116	0.00	Uh	84.3	73	33-115	0	0-30
105-67-9	MSD	2,4-Dimethylphenol	116	0.00	Uh	0.00	0 *	31-106	0	0-30
111-91-1	MSD	bis(2-Chloroethoxy)methane	116	0.00	Uh	69.4	60	35-112	2	0-30
120-83-2	MSD	2,4-Dichlorophenol	116	0.00	Uh	78.5	67	36-110	7	0-30
65-85-0	MSD	Benzoic acid	233	0.00	Uh	126	54	12-108	8	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **WST50-12-23903MSD** **Matrix:** **W**

Lab Sample ID: **1202782900**

Instrument: **MSD3.I** **Analysis Date:** **11/21/2012 15:35** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1264517**

Inj. Vol: **1 uL** **Batch ID:** **1264519**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
106-47-8	MSD	4-Chloroaniline	116	0.00	Uh	20.7	18 *	33-120	3	0-30
87-68-3	MSD	Hexachlorobutadiene	116	0.00	Uh	66.7	57	19-96	1	0-30
59-50-7	MSD	Parachlorometa cresol *4-Chloro-3-methylphenol*	116	0.00	Uh	66.6	57	36-116	15	0-30
91-57-6	MSD	2-Methylnaphthalene	116	0.00	Uh	64.0	55	27-103	3	0-30
91-20-3	MSD	Naphthalene	116	0.00	Uh	61.0	53	28-99	2	0-30
90-12-0	MSD	1-Methylnaphthalene	116	0.00	Uh	68.3	59	29-107	3	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	116	0.00	Uh	39.8	34	25-75	0	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	116	0.00	Uh	75.7	65	36-111	7	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	116	0.00	Uh	79.1	68	34-115	6	0-30
91-58-7	MSD	2-Chloronaphthalene	116	0.00	Uh	63.3	54	33-96	3	0-30
88-74-4	MSD	2-Nitroaniline *o-Nitroaniline*	116	0.00	Uh	0.00	0 *	31-120	0	0-30
99-09-2	MSD	3-Nitroaniline *m-Nitroaniline*	116	0.00	Uh	0.00	0 *	32-123	0	0-30
131-11-3	MSD	Dimethylphthalate	116	0.00	Uh	82.1	71	43-115	3	0-30
606-20-2	MSD	2,6-Dinitrotoluene	116	0.00	Uh	85.9	74	42-121	2	0-30
121-14-2	MSD	2,4-Dinitrotoluene	116	0.00	Uh	87.8	76	37-125	1	0-30
208-96-8	MSD	Acenaphthylene	116	0.00	Uh	57.3	49	34-103	4	0-30
83-32-9	MSD	Acenaphthene	116	0.00	Uh	61.9	53	31-104	2	0-30
51-28-5	MSD	2,4-Dinitrophenol	116	0.00	Uh	86.4	74	25-108	12	0-30
132-64-9	MSD	Dibenzofuran	116	0.00	Uh	77.2	66	38-106	2	0-30
58-90-2	MSD	2,3,4,6-Tetrachlorophenol	116	0.00	Uh	87.7	75	33-123	5	0-30
84-66-2	MSD	Diethylphthalate	116	0.00	Uh	79.9	69	43-116	2	0-30
100-02-7	MSD	4-Nitrophenol	116	0.00	Uh	53.4	46	26-72	3	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **WST50-12-23903MSD** **Matrix:** **W**

Lab Sample ID: **1202782900**

Instrument: **MSD3.I** **Analysis Date:** **11/21/2012 15:35** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1264517**

Inj. Vol: **1 uL** **Batch ID:** **1264519**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
86-73-7	MSD	Fluorene	116	0.00	Uh	72.3	62	33-110	1	0-30
7005-72-3	MSD	4-Chlorophenylphenylether	116	0.00	Uh	76.7	66	30-112	0	0-30
100-01-6	MSD	4-Nitroaniline *p-Nitroaniline*	116	0.00	Uh	0.00	0 *	28-131	0	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	116	0.00	Uh	92.9	80	31-113	5	0-30
122-39-4	MSD	Diphenylamine	116	0.00	Uh	64.1	55	36-110	4	0-30
122-66-7	MSD	Azobenzene *1,2-Diphenylhydrazine*	116	0.00	Uh	62.6	54	33-110	2	0-30
101-55-3	MSD	4-Bromophenylphenylether	116	0.00	Uh	78.1	67	33-111	1	0-30
118-74-1	MSD	Hexachlorobenzene	116	0.00	Uh	75.8	65	36-113	0	0-30
87-86-5	MSD	Pentachlorophenol	116	0.00	Uh	68.9	59	25-110	8	0-30
85-01-8	MSD	Phenanthrene	116	0.00	Uh	73.8	63	36-111	1	0-30
120-12-7	MSD	Anthracene	116	0.00	Uh	64.6	56	36-107	1	0-30
84-74-2	MSD	Di-n-butylphthalate	116	0.00	Uh	74.9	64	38-116	0	0-30
206-44-0	MSD	Fluoranthene	116	0.00	Uh	75.4	65	35-116	3	0-30
129-00-0	MSD	Pyrene	116	0.00	Uh	78.1	67	28-126	8	0-30
85-68-7	MSD	Butylbenzylphthalate	116	0.00	Uh	72.4	62	32-120	4	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	116	0.00	Uh	69.0	59	30-121	0	0-30
56-55-3	MSD	Benzo(a)anthracene	116	0.00	Uh	78.5	68	38-110	2	0-30
218-01-9	MSD	Chrysene	116	0.00	Uh	76.8	66	35-115	2	0-30
117-84-0	MSD	Di-n-octylphthalate	116	0.00	Uh	64.1	55	30-115	4	0-30
205-99-2	MSD	Benzo(b)fluoranthene	116	0.00	Uh	78.6	68	37-115	1	0-30
207-08-9	MSD	Benzo(k)fluoranthene	116	0.00	Uh	80.2	69	36-118	2	0-30
50-32-8	MSD	Benzo(a)pyrene	116	0.00	Uh	68.7	59	36-109	2	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **WST50-12-23903MSD**
Lab Sample ID: **1202782900**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/21/2012 15:35**
Prep Batch ID: **1264517**
Batch ID: **1264519**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
193-39-5	MSD	Indeno(1,2,3-cd)pyrene	116	0.00	Uh	83.9	72	28-121	2	0-30
53-70-3	MSD	Dibenzo(a,h)anthracene	116	0.00	Uh	82.6	71	26-124	4	0-30
191-24-2	MSD	Benzo(ghi)perylene	116	0.00	Uh	77.9	67	25-122	5	0-30
123-91-1	MSD	1,4-Dioxane	116	0.00	Uh	55.2	47	26-90	5	0-30
930-55-2	MSD	N-Nitrosopyrrolidine	116	0.00	Uh	74.2	64	40-113	3	0-30
95-94-3	MSD	1,2,4,5-Tetrachlorobenzene	116	0.00	Uh	63.2	54	32-94	3	0-30
1912-24-9	MSD	Atrazine	116	0.00	Uh	58.6	50	36-119	3	0-30
92-87-5	MSD	Benzidine	233	0.00	Uh	0.00	0 *	10-125	0	0-30
91-94-1	MSD	3,3'-Dichlorobenzidine	116	0.00	Uh	0.00	0 *	27-109	0	0-30
120-82-1	MSD	1,2,4-Trichlorobenzene	116	0.00	Uh	61.8	53	23-90	1	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **LCS for batch 1264517**
Lab Sample ID: **1202782901**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/21/2012 12:13**
Prep Batch ID: **1264517**
Batch ID: **1264519**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	LCS	N-Methyl-N-nitrosomethylam	50.0	0.0	16.8	34	29-86
110-86-1	LCS	Pyridine	50.0	0.0	19.3	39	25-96
62-53-3	LCS	Aniline	50.0	0.0	29.0	58	38-105
108-95-2	LCS	Phenol	50.0	0.0	11.2	22	13-137
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	28.0	56	37-110
95-57-8	LCS	2-Chlorophenol	50.0	0.0	29.0	58	41-98
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	24.2	48	33-86
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	24.0	48	33-87
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	24.4	49	34-86
39638-32-9	LCS	bis(2-Chloroisopropyl)ether	50.0	0.0	30.0	60	30-118
100-51-6	LCS	Benzyl alcohol	50.0	0.0	22.2	44	39-88
95-48-7	LCS	o-Cresol	50.0	0.0	24.6	49	37-89
65794-96-9	LCS	m,p-Cresols	50.0	0.0	27.9	56	33-99
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	28.1	56	40-112
67-72-1	LCS	Hexachloroethane	50.0	0.0	22.2	44	31-87
98-95-3	LCS	Nitrobenzene	50.0	0.0	31.2	62	42-118
78-59-1	LCS	Isophorone	50.0	0.0	33.5	67	50-132
88-75-5	LCS	2-Nitrophenol	50.0	0.0	33.8	68	45-109
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	23.7	47	44-98
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	29.0	58	45-109
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	33.2	66	46-106
65-85-0	LCS	Benzoic acid	100	0.0	29.2	29	4-134

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **LCS for batch 1264517**
Lab Sample ID: **1202782901**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/21/2012 12:13**
Prep Batch ID: **1264517**
Batch ID: **1264519**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	LCS	4-Chloroaniline	50.0	0.0	31.8	64	50-122
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	28.4	57	29-94
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	30.5	61	47-110
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	25.6	51	37-100
91-20-3	LCS	Naphthalene	50.0	0.0	25.1	50	35-97
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	27.0	54	38-105
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	16.9	34 *	38-79
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	32.5	65	43-108
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	32.9	66	43-110
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	25.4	51	40-96
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	27.5	55	45-116
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	29.7	59	46-123
131-11-3	LCS	Dimethylphthalate	50.0	0.0	33.5	67	53-111
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	34.9	70	52-117
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	35.4	71	46-124
208-96-8	LCS	Acenaphthylene	50.0	0.0	26.3	53	42-105
83-32-9	LCS	Acenaphthene	50.0	0.0	24.7	49	42-103
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	33.6	67	33-105
132-64-9	LCS	Dibenzofuran	50.0	0.0	31.1	62	46-106
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	34.9	70	46-119
84-66-2	LCS	Diethylphthalate	50.0	0.0	32.4	65	52-115
100-02-7	LCS	4-Nitrophenol	50.0	0.0	6.89	14	12-130

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **LCS for batch 1264517**
Lab Sample ID: **1202782901**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/21/2012 12:13**
Prep Batch ID: **1264517**
Batch ID: **1264519**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	LCS	Fluorene	50.0	0.0	29.2	58	44-110
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	30.9	62	41-113
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	31.0	62	39-132
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	37.0	74	39-111
122-39-4	LCS	Diphenylamine	50.0	0.0	29.6	59	47-111
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	26.4	53	41-111
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	32.5	65	42-113
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	31.9	64	44-115
87-86-5	LCS	Pentachlorophenol	50.0	0.0	23.9	48	36-99
85-01-8	LCS	Phenanthrene	50.0	0.0	30.7	61	47-111
120-12-7	LCS	Anthracene	50.0	0.0	30.0	60	46-109
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	31.2	62	49-115
206-44-0	LCS	Fluoranthene	50.0	0.0	31.9	64	45-118
129-00-0	LCS	Pyrene	50.0	0.0	31.9	64	39-126
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	29.5	59	41-121
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	27.8	56	38-124
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	32.7	65	49-110
218-01-9	LCS	Chrysene	50.0	0.0	32.0	64	45-117
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	25.7	51	34-121
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	31.2	62	47-116
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	32.4	65	47-119
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	31.7	63	48-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **LCS for batch 1264517**
Lab Sample ID: **1202782901**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/21/2012 12:13**
Prep Batch ID: **1264517**
Batch ID: **1264519**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	LCS	Indeno(1,2,3-cd)pyrene	50.0	0.0	41.4	83	38-124
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	53.9	108	38-124
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	38.3	77	36-124
123-91-1	LCS	1,4-Dioxane	50.0	0.0	17.0	34 *	41-69
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	28.8	58	42-105
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	25.4	51	40-93
1912-24-9	LCS	Atrazine	50.0	0.0	24.7	49	47-115
92-87-5	LCS	Benzidine	100	0.0	25.4	25	19-124
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	29.3	59	36-111
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	26.3	53	32-92

Method Blank Summary

SDG Number:	**2013-322**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1264517**	**Instrument ID:**	**MSD3.I**	**Data File:**	**S112112.B\s3k2106.D**
Lab Sample ID:	**1202782898**	**Prep Date:**	**11/20/2012 08:30**	**Analyzed:**	**11/21/12 11:49**
Column:	**DB-5ms**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1264517	1202782901	S112112.B\s3k2107.D	11/21/12	1213
02 WST50-12-23903MS	1202782899	S112112.B\s3k2114.D	11/21/12	1510
03 WST50-12-23903MSD	1202782900	S112112.B\s3k2115.D	11/21/12	1535
04 CASA-13-24212	315352001	S112112.B\s3k2116.D	11/21/12	1600
05 CASA-13-24205	315352004	S112112.B\s3k2117.D	11/21/12	1625
06 CASA-13-24206	315352005	S112112.B\s3k2118.D	11/21/12	1649

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782898**				
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264517**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 11:49**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2106.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
62-53-3	Aniline	U	10.0	ug/L	3.00	10.0
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
78-59-1	Isophorone	U	10.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
65-85-0	Benzoic acid	U	20.0	ug/L	6.00	20.0
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene	U	10.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	10.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782898**				
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264517**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 11:49**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2106.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline	U	10.0	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene	U	10.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.0	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782898**				
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264517**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 11:49**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2106.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	62.4	100	ug/L	62.4	(23%-130%)
2-Fluorobiphenyl	28.6	50.0	ug/L	57.2	(30%-104%)
2-Fluorophenol	35.4	100	ug/L	35.4	(14%-77%)
Nitrobenzene-d5	30.0	50.0	ug/L	60.0	(34%-125%)
Phenol-d5	21.4	100	ug/L	21.4	(10%-78%)
p-Terphenyl-d14	28.8	50.0	ug/L	57.5	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.901	36.7	ug/L	0	J
	unknown	1.932	5.61	ug/L	0	J
	unknown	1.986	12.7	ug/L	0	J
000110-83-8	Cyclohexene	2.014	15.6	ug/L	94	NJ
197390-29-7	Cyclopentene, 1,2,3,3,4-pentamethy	3.722	4.92	ug/L	90	NJ

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782899**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 15:10**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**430 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2114.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	h	50.8	ug/L	6.98	23.3
110-86-1	Pyridine	h	40.2	ug/L	6.98	23.3
62-53-3	Aniline	Uh	23.3	ug/L	6.98	23.3
108-95-2	Phenol	h	41.5	ug/L	6.98	23.3
111-44-4	bis(2-Chloroethyl) ether	h	67.8	ug/L	6.98	23.3
95-57-8	2-Chlorophenol	h	68.8	ug/L	6.98	23.3
541-73-1	1,3-Dichlorobenzene	h	56.2	ug/L	6.98	23.3
106-46-7	1,4-Dichlorobenzene	h	55.6	ug/L	6.98	23.3
95-50-1	1,2-Dichlorobenzene	h	57.7	ug/L	6.98	23.3
39638-32-9	bis(2-Chloroisopropyl)ether	h	73.9	ug/L	6.98	23.3
100-51-6	Benzyl alcohol	h	55.9	ug/L	6.98	23.3
95-48-7	o-Cresol	h	36.3	ug/L	6.98	23.3
65794-96-9	m,p-Cresols	h	35.9	ug/L	6.98	23.3
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	h	68.4	ug/L	6.98	23.3
67-72-1	Hexachloroethane	h	52.3	ug/L	6.98	23.3
98-95-3	Nitrobenzene	h	75.1	ug/L	6.98	23.3
78-59-1	Isophorone	h	78.1	ug/L	6.98	23.3
88-75-5	2-Nitrophenol	h	84.0	ug/L	6.98	23.3
105-67-9	2,4-Dimethylphenol	Uh	23.3	ug/L	6.98	23.3
111-91-1	bis(2-Chloroethoxy)methane	h	68.3	ug/L	6.98	23.3
120-83-2	2,4-Dichlorophenol	h	73.3	ug/L	6.98	23.3
65-85-0	Benzoic acid	h	116	ug/L	14.0	46.5
106-47-8	4-Chloroaniline	Jh	20.1	ug/L	7.67	23.3
87-68-3	Hexachlorobutadiene	h	66.1	ug/L	6.98	23.3
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	h	57.3	ug/L	6.98	23.3
91-57-6	2-Methylnaphthalene	h	62.0	ug/L	0.698	2.33
91-20-3	Naphthalene	h	60.0	ug/L	0.698	2.33
90-12-0	1-Methylnaphthalene	h	66.2	ug/L	0.698	2.33
77-47-4	Hexachlorocyclopentadiene	h	40.0	ug/L	6.98	23.3
88-06-2	2,4,6-Trichlorophenol	h	70.7	ug/L	6.98	23.3
95-95-4	2,4,5-Trichlorophenol	h	74.4	ug/L	6.98	23.3
91-58-7	2-Chloronaphthalene	h	61.6	ug/L	0.698	2.33
88-74-4	2-Nitroaniline *o-Nitroaniline*	Uh	23.3	ug/L	6.98	23.3
99-09-2	3-Nitroaniline *m-Nitroaniline*	Uh	23.3	ug/L	6.98	23.3
131-11-3	Dimethylphthalate	h	80.0	ug/L	6.98	23.3
606-20-2	2,6-Dinitrotoluene	h	84.4	ug/L	6.98	23.3

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782899**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 15:10**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**430 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2114.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	h	86.5	ug/L	6.98	23.3
208-96-8	Acenaphthylene	h	55.2	ug/L	0.698	2.33
83-32-9	Acenaphthene	h	60.8	ug/L	0.698	2.33
51-28-5	2,4-Dinitrophenol	h	76.8	ug/L	11.6	46.5
132-64-9	Dibenzofuran	h	76.0	ug/L	6.98	23.3
58-90-2	2,3,4,6-Tetrachlorophenol	h	83.2	ug/L	6.98	23.3
84-66-2	Diethylphthalate	h	78.1	ug/L	6.98	23.3
100-02-7	4-Nitrophenol	h	52.0	ug/L	6.98	23.3
86-73-7	Fluorene	h	71.9	ug/L	0.698	2.33
7005-72-3	4-Chlorophenylphenylether	h	76.5	ug/L	6.98	23.3
100-01-6	4-Nitroaniline	Uh	23.3	ug/L	6.98	23.3
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	h	88.0	ug/L	6.98	23.3
122-39-4	Diphenylamine	h	61.5	ug/L	6.98	23.3
122-66-7	Azobenzene	h	61.6	ug/L	6.98	23.3
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	h	77.3	ug/L	6.98	23.3
118-74-1	Hexachlorobenzene	h	75.7	ug/L	6.98	23.3
87-86-5	Pentachlorophenol	h	63.3	ug/L	6.98	23.3
88-85-7	Dinoseb	Uh	23.3	ug/L	6.98	23.3
85-01-8	Phenanthrene	h	73.0	ug/L	0.698	2.33
120-12-7	Anthracene	h	64.0	ug/L	0.698	2.33
84-74-2	Di-n-butylphthalate	h	75.0	ug/L	6.98	23.3
206-44-0	Fluoranthene	h	77.4	ug/L	0.698	2.33
129-00-0	Pyrene	h	72.3	ug/L	0.698	2.33
85-68-7	Butylbenzylphthalate	h	69.8	ug/L	6.98	23.3
117-81-7	bis(2-Ethylhexyl)phthalate	h	69.3	ug/L	6.98	23.3
56-55-3	Benzo(a)anthracene	h	76.7	ug/L	0.698	2.33
218-01-9	Chrysene	h	75.6	ug/L	0.698	2.33
117-84-0	Di-n-octylphthalate	h	66.9	ug/L	6.98	23.3
205-99-2	Benzo(b)fluoranthene	h	77.5	ug/L	0.698	2.33
207-08-9	Benzo(k)fluoranthene	h	78.2	ug/L	0.698	2.33
50-32-8	Benzo(a)pyrene	h	67.3	ug/L	1.02	2.33
193-39-5	Indeno(1,2,3-cd)pyrene	h	82.3	ug/L	0.698	2.33
53-70-3	Dibenzo(a,h)anthracene	h	85.7	ug/L	0.698	2.33
191-24-2	Benzo(ghi)perylene	h	74.1	ug/L	0.698	2.33
123-91-1	1,4-Dioxane	h	52.2	ug/L	6.98	23.3
55-18-5	N-Nitrosodiethylamine	Uh	23.3	ug/L	6.98	23.3
930-55-2	N-Nitrosopyrrolidine	h	72.1	ug/L	6.98	23.3

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782899**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 15:10**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**430 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2114.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	Uh	23.3	ug/L	6.98	23.3
95-94-3	1,2,4,5-Tetrachlorobenzene	h	61.3	ug/L	6.98	23.3
608-93-5	Pentachlorobenzene	Uh	23.3	ug/L	6.98	23.3
1912-24-9	Atrazine	h	57.1	ug/L	6.98	23.3
92-87-5	Benzidine	Uh	23.3	ug/L	6.98	23.3
91-94-1	3,3'-Dichlorobenzidine	Uh	23.3	ug/L	6.98	23.3
120-82-1	1,2,4-Trichlorobenzene	h	61.0	ug/L	6.98	23.3

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	135	233	ug/L	57.9	(23%-130%)
2-Fluorobiphenyl	63.2	116	ug/L	54.3	(30%-104%)
2-Fluorophenol	99.6	233	ug/L	42.8	(14%-77%)
Nitrobenzene-d5	65.7	116	ug/L	56.5	(34%-125%)
Phenol-d5	73.4	233	ug/L	31.6	(10%-78%)
p-Terphenyl-d14	63.7	116	ug/L	54.8	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782900**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 15:35**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**430 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2115.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	h	54.4	ug/L	6.98	23.3
110-86-1	Pyridine	h	57.0	ug/L	6.98	23.3
62-53-3	Aniline	Uh	23.3	ug/L	6.98	23.3
108-95-2	Phenol	h	47.5	ug/L	6.98	23.3
111-44-4	bis(2-Chloroethyl) ether	h	68.7	ug/L	6.98	23.3
95-57-8	2-Chlorophenol	h	72.9	ug/L	6.98	23.3
541-73-1	1,3-Dichlorobenzene	h	58.6	ug/L	6.98	23.3
106-46-7	1,4-Dichlorobenzene	h	58.3	ug/L	6.98	23.3
95-50-1	1,2-Dichlorobenzene	h	59.8	ug/L	6.98	23.3
39638-32-9	bis(2-Chloroisopropyl)ether	h	76.2	ug/L	6.98	23.3
100-51-6	Benzyl alcohol	h	59.8	ug/L	6.98	23.3
95-48-7	o-Cresol	h	43.5	ug/L	6.98	23.3
65794-96-9	m,p-Cresols	h	47.7	ug/L	6.98	23.3
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	h	70.0	ug/L	6.98	23.3
67-72-1	Hexachloroethane	h	54.0	ug/L	6.98	23.3
98-95-3	Nitrobenzene	h	76.3	ug/L	6.98	23.3
78-59-1	Isophorone	h	80.1	ug/L	6.98	23.3
88-75-5	2-Nitrophenol	h	84.3	ug/L	6.98	23.3
105-67-9	2,4-Dimethylphenol	Uh	23.3	ug/L	6.98	23.3
111-91-1	bis(2-Chloroethoxy)methane	h	69.4	ug/L	6.98	23.3
120-83-2	2,4-Dichlorophenol	h	78.5	ug/L	6.98	23.3
65-85-0	Benzoic acid	h	126	ug/L	14.0	46.5
106-47-8	4-Chloroaniline	Jh	20.7	ug/L	7.67	23.3
87-68-3	Hexachlorobutadiene	h	66.7	ug/L	6.98	23.3
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	h	66.6	ug/L	6.98	23.3
91-57-6	2-Methylnaphthalene	h	64.0	ug/L	0.698	2.33
91-20-3	Naphthalene	h	61.0	ug/L	0.698	2.33
90-12-0	1-Methylnaphthalene	h	68.3	ug/L	0.698	2.33
77-47-4	Hexachlorocyclopentadiene	h	39.8	ug/L	6.98	23.3
88-06-2	2,4,6-Trichlorophenol	h	75.7	ug/L	6.98	23.3
95-95-4	2,4,5-Trichlorophenol	h	79.1	ug/L	6.98	23.3
91-58-7	2-Chloronaphthalene	h	63.3	ug/L	0.698	2.33
88-74-4	2-Nitroaniline *o-Nitroaniline*	Uh	23.3	ug/L	6.98	23.3
99-09-2	3-Nitroaniline *m-Nitroaniline*	Uh	23.3	ug/L	6.98	23.3
131-11-3	Dimethylphthalate	h	82.1	ug/L	6.98	23.3
606-20-2	2,6-Dinitrotoluene	h	85.9	ug/L	6.98	23.3

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782900**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 15:35**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**430 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2115.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	h	87.8	ug/L	6.98	23.3
208-96-8	Acenaphthylene	h	57.3	ug/L	0.698	2.33
83-32-9	Acenaphthene	h	61.9	ug/L	0.698	2.33
51-28-5	2,4-Dinitrophenol	h	86.4	ug/L	11.6	46.5
132-64-9	Dibenzofuran	h	77.2	ug/L	6.98	23.3
58-90-2	2,3,4,6-Tetrachlorophenol	h	87.7	ug/L	6.98	23.3
84-66-2	Diethylphthalate	h	79.9	ug/L	6.98	23.3
100-02-7	4-Nitrophenol	h	53.4	ug/L	6.98	23.3
86-73-7	Fluorene	h	72.3	ug/L	0.698	2.33
7005-72-3	4-Chlorophenylphenylether	h	76.7	ug/L	6.98	23.3
100-01-6	4-Nitroaniline *p-Nitroaniline*	Uh	23.3	ug/L	6.98	23.3
534-52-1	2-Methyl-4,6-dinitrophenol	h	92.9	ug/L	6.98	23.3
122-39-4	Diphenylamine	h	64.1	ug/L	6.98	23.3
122-66-7	Azobenzene *1,2-Diphenylhydrazine*	h	62.6	ug/L	6.98	23.3
101-55-3	4-Bromophenylphenylether	h	78.1	ug/L	6.98	23.3
118-74-1	Hexachlorobenzene	h	75.8	ug/L	6.98	23.3
87-86-5	Pentachlorophenol	h	68.9	ug/L	6.98	23.3
88-85-7	Dinoseb	Uh	23.3	ug/L	6.98	23.3
85-01-8	Phenanthrene	h	73.8	ug/L	0.698	2.33
120-12-7	Anthracene	h	64.6	ug/L	0.698	2.33
84-74-2	Di-n-butylphthalate	h	74.9	ug/L	6.98	23.3
206-44-0	Fluoranthene	h	75.4	ug/L	0.698	2.33
129-00-0	Pyrene	h	78.1	ug/L	0.698	2.33
85-68-7	Butylbenzylphthalate	h	72.4	ug/L	6.98	23.3
117-81-7	bis(2-Ethylhexyl)phthalate	h	69.0	ug/L	6.98	23.3
56-55-3	Benzo(a)anthracene	h	78.5	ug/L	0.698	2.33
218-01-9	Chrysene	h	76.8	ug/L	0.698	2.33
117-84-0	Di-n-octylphthalate	h	64.1	ug/L	6.98	23.3
205-99-2	Benzo(b)fluoranthene	h	78.6	ug/L	0.698	2.33
207-08-9	Benzo(k)fluoranthene	h	80.2	ug/L	0.698	2.33
50-32-8	Benzo(a)pyrene	h	68.7	ug/L	1.02	2.33
193-39-5	Indeno(1,2,3-cd)pyrene	h	83.9	ug/L	0.698	2.33
53-70-3	Dibenzo(a,h)anthracene	h	82.6	ug/L	0.698	2.33
191-24-2	Benzo(ghi)perylene	h	77.9	ug/L	0.698	2.33
123-91-1	1,4-Dioxane	h	55.2	ug/L	6.98	23.3
55-18-5	N-Nitrosodiethylamine	Uh	23.3	ug/L	6.98	23.3
930-55-2	N-Nitrosopyrrolidine	h	74.2	ug/L	6.98	23.3

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782900**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 15:35**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**430 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2115.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	Uh	23.3	ug/L	6.98	23.3
95-94-3	1,2,4,5-Tetrachlorobenzene	h	63.2	ug/L	6.98	23.3
608-93-5	Pentachlorobenzene	Uh	23.3	ug/L	6.98	23.3
1912-24-9	Atrazine	h	58.6	ug/L	6.98	23.3
92-87-5	Benzidine	Uh	23.3	ug/L	6.98	23.3
91-94-1	3,3'-Dichlorobenzidine	Uh	23.3	ug/L	6.98	23.3
120-82-1	1,2,4-Trichlorobenzene	h	61.8	ug/L	6.98	23.3

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	144	233	ug/L	61.8	(23%-130%)
2-Fluorobiphenyl	64.5	116	ug/L	55.5	(30%-104%)
2-Fluorophenol	111	233	ug/L	47.6	(14%-77%)
Nitrobenzene-d5	68.1	116	ug/L	58.6	(34%-125%)
Phenol-d5	83.7	233	ug/L	36.0	(10%-78%)
p-Terphenyl-d14	69.0	116	ug/L	59.3	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782901**				
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264517**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 12:13**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2107.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		16.8	ug/L	3.00	10.0
110-86-1	Pyridine		19.3	ug/L	3.00	10.0
62-53-3	Aniline		29.0	ug/L	3.00	10.0
108-95-2	Phenol		11.2	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		28.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol		29.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		24.2	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		24.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		24.4	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether		30.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol		22.2	ug/L	3.00	10.0
95-48-7	o-Cresol		24.6	ug/L	3.00	10.0
65794-96-9	m,p-Cresols		27.9	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		28.1	ug/L	3.00	10.0
67-72-1	Hexachloroethane		22.2	ug/L	3.00	10.0
98-95-3	Nitrobenzene		31.2	ug/L	3.00	10.0
78-59-1	Isophorone		33.5	ug/L	3.00	10.0
88-75-5	2-Nitrophenol		33.8	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		23.7	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		29.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		33.2	ug/L	3.00	10.0
65-85-0	Benzoic acid		29.2	ug/L	6.00	20.0
106-47-8	4-Chloroaniline		31.8	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene		28.4	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		30.5	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		25.6	ug/L	0.300	1.00
91-20-3	Naphthalene		25.1	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene		27.0	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene		16.9	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		32.5	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		32.9	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		25.4	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*		27.5	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		29.7	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		33.5	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		34.9	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782901**				
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264517**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 12:13**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2107.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		35.4	ug/L	3.00	10.0
208-96-8	Acenaphthylene		26.3	ug/L	0.300	1.00
83-32-9	Acenaphthene		24.7	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol		33.6	ug/L	5.00	20.0
132-64-9	Dibenzofuran		31.1	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol		34.9	ug/L	3.00	10.0
84-66-2	Diethylphthalate		32.4	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	J	6.89	ug/L	3.00	10.0
86-73-7	Fluorene		29.2	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether		30.9	ug/L	3.00	10.0
100-01-6	4-Nitroaniline		31.0	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		37.0	ug/L	3.00	10.0
122-39-4	Diphenylamine		29.6	ug/L	3.00	10.0
122-66-7	Azobenzene		26.4	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		32.5	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene		31.9	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		23.9	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene		30.7	ug/L	0.300	1.00
120-12-7	Anthracene		30.0	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		31.2	ug/L	3.00	10.0
206-44-0	Fluoranthene		31.9	ug/L	0.300	1.00
129-00-0	Pyrene		31.9	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate		29.5	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		27.8	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene		32.7	ug/L	0.300	1.00
218-01-9	Chrysene		32.0	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate		25.7	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene		31.2	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		32.4	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		31.7	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene		41.4	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene		53.9	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		38.3	ug/L	0.300	1.00
123-91-1	1,4-Dioxane		17.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		28.8	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782901**				
Client Sample:	**QC for batch 1264517**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264517**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1264519**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/21/2012 12:13**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/20/2012 08:30**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S112112.B\s3k2107.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene		25.4	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine		24.7	ug/L	3.00	10.0
92-87-5	Benzidine		25.4	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		29.3	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		26.3	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	62.8	100	ug/L	62.8	(23%-130%)
2-Fluorobiphenyl	27.1	50.0	ug/L	54.1	(30%-104%)
2-Fluorophenol	34.3	100	ug/L	34.3	(14%-77%)
Nitrobenzene-d5	28.3	50.0	ug/L	56.6	(34%-125%)
Phenol-d5	20.4	100	ug/L	20.4	(10%-78%)
p-Terphenyl-d14	26.9	50.0	ug/L	53.8	(33%-136%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
28-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 8270C	Liquid	ESHL, LANL
Batch ID:	**Sample Numbers:**		
1264519	See Below		

Potentially affected work order(s)(SDG): 315285(2013-311),315352(2013-322),315450(2013-334)

Application Issues:

Failed Recovery for MS/PS

Failed RPD for MS/MSD, or PS/PSD

Sample received out of holding

Failed Recovery for LCS/LCSD

Failed Yield for Surrogates

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Sample 315285002 was collected on 07-NOV-2012 and received by the laboratory on 15-NOV-2012.	1. Upon receipt, the extraction holding time had expired. The sample was extracted and analyzed. The data have been reported and qualified accordingly
2. The LCS(1202782901) recovered 1,4-Dioxane at 34% (limits: 41%-69%) and Hexachlorocyclopentadiene at 34% (limits are 38%-79%).	2. The LCS(1202782901) spike failures represented less than 5% of the requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported.
3. Sample 315450002 recovered 2,4,6-Tribromophenol at 2.53% (limits are 23%-130%).	3. Sample 315450002 was re-extracted out of holding in batch 1266073. Since the re-extraction was within the acceptance limits for all surrogates and the QC samples met the acceptance criteria, both sets of data results have been reported.
4. The MS(1202782899) and MSD(1202782900) recovered spike analytes outside of the acceptance limits. Please see the QC Summary report for specific values.	4. Since the MSD displayed similar spike recoveries to the MS, the failures were attributed to sample matrix interference and the data results have been reported.
5. The MS(1202782899)/MSD(1202782900) RPD value for Pyridine was 35% (SPC limit: 30%).	5. Since Pyridine was individually within the acceptance limits for the MS and MSD, the non-conformance had no adverse impact on the data and the results have been reported.

Originator's Name:

Jennifer Dunagan Jones 28-NOV-12

Data Validator/Group Leader:

Barbara Bailey 29-NOV-12

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC/MSMS
ARS International (ARSL)
SDG 2013-322

Method/Analysis Information

Procedure:	**Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method:	SW846 6850 Modified
Prep Method:	SW846 6850 Modified
Analytical Batch Number:	1265809
Prep Batch Number:	1265808

Sample Analysis

Sample ID	Client ID
315352002	CASA-13-24220
315352006	CASA-13-24207
1202785746	Interference Check Sample (ICS)
1202785740	Method Blank (MB)
1202785741	Laboratory Control Sample (LCS)
1202785742	315450004(CAMO-13-24268) Matrix Spike (MS)
1202785743	315450004(CAMO-13-24268) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 9.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

ICV Requirements
All associated initial calibration verification standards (ICV) met the acceptance criteria.

CCB Requirements
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

CCV Requirements
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

Low Level Standard (CRI) Requirements
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Interference Check Sample (ICS)
The interference check sample (ICS) met all recovery acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Client sample 315450004 (CAMO-13-24268) from SDG 2013-334 was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
A low recovery for Perchlorate-101 was observed in MS (1202785742). The acceptance range is 75-125%. This may be the result of the background concentration or matrix effect present in the parent sample, 315450004 (CAMO-13-24268), and the need to dilute all at a 1:10 dilution prior to analysis.

Matrix Spike Duplicate (MSD) Recovery Statement
A negative recovery for Perchlorate-101 was observed in MSD (1202785743). The acceptance range is 75-125%. This may be the result of the background concentration or matrix effect present in the parent sample, 315450004 (CAMO-13-24268), and the need to dilute all at a 1:10 dilution prior to analysis.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits.

Retention Time Standard Area Acceptance
The retention time standard areas were within the required acceptance criteria for all samples and QC.

Retention Time
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Samples 315352002 (CASA-13-24220) and 315352006 (CASA-13-24207) and QC samples 1202785742 (CAMO-13-24268MS) and 1202785743 (CAMO-13-24268MSD) were diluted to bring the over range concentrations within the calibration range.

Parmname	**315352**	
	002	**006**
All	2X	2X

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG except for dilutions.

Miscellaneous Information

Data Exception (DER) Documentation
Data Exception Report 1146217 was generated for this SDG.

A low recovery for Perchlorate-101 was observed in MS (1202785742). The acceptance range is 75-125%. This may be the result of the background concentration or matrix effect present in the parent sample, 315450004 (CAMO-13-24268), and the need to dilute all at a 1:10 dilution prior to analysis.

A negative recovery for Perchlorate-101 was observed in MSD (1202785743). The acceptance range is 75-125%. This may be the result of the background concentration or matrix effect present in the parent sample, 315450004 (CAMO-13-24268), and the need to dilute all at a 1:10 dilution prior to analysis.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

Additional Comments
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples.

Please see the isotope ratio criteria in the Miscellaneous Section.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-322 GEL Work Order: 315352

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 06 DEC 2012 **Title: Group Leader**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24220

Date Received: 16-NOV-12

GEL Job No (SDG): 2013-322

GEL Sample ID: 315352002

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.1	.4	1.63	ug/L		2	28-NOV-12 18:59	per1128034a
	Perchlorate Isotope Ratio			3.16			2	28-NOV-12 18:59	per1128034a
14797-73-0	Perchlorate-101	.1	.4	1.65	ug/L		2	28-NOV-12 18:59	per1128034a
	Perchlorate-O(18)			1.02	ug/L		2	28-NOV-12 18:59	per1128034a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24207

Date Received: 16-NOV-12

GEL Job No (SDG): 2013-322

GEL Sample ID: 315352006

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.1	.4	1.59	ug/L		2	28-NOV-12 19:45	per1128038a
	Perchlorate Isotope Ratio			3.18			2	28-NOV-12 19:45	per1128038a
14797-73-0	Perchlorate-101	.1	.4	1.60	ug/L		2	28-NOV-12 19:45	per1128038a
	Perchlorate-O(18)			1.01	ug/L		2	28-NOV-12 19:45	per1128038a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2013-322

Extract Batch Code: 1265808

Date Filtered: 27-NOV-12

Matrix: WATER

Sample ID: 1202785741

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.195	ug/L	97.3		85 - 115
Perchlorate Isotope Ratio		3.2				-
Perchlorate-101	0.200	.195	ug/L	97.3		85 - 115
Perchlorate-O(18)		.492	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2013-322

Extract Batch Code: 1265808

Date Extracted: 27-NOV-12

GEL MS/PS ID: 1202785742

Client ID: CAMO-13-24268

GEL MSD/PSD ID: 1202785743

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Recovery Limit
Perchlorate	0.200	6.13	ug/L	6.31	90.5		6.37	121		.968		30	75 - 125
Perchlorate Isotope Ratio	0	3.05		3.14			3.2			2.03			-
Perchlorate-101	0.200	6.29	ug/L	6.30	4.99	*	6.23	-28.4	*	1.07		30	75 - 125
Perchlorate-O(18)	0	4.99	ug/L	5.05			5.06			.136			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 27-NOV-12

GEL Job No (SDG): 2013-322

GEL Sample ID: 1202785740

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	28-NOV-12 14:44	per1128012a
	Perchlorate Isotope Ratio						1	28-NOV-12 14:44	per1128012a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	28-NOV-12 14:44	per1128012a
	Perchlorate-O(18)			0.500	ug/L		1	28-NOV-12 14:44	per1128012a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 27-NOV-12

GEL Job No (SDG): 2013-322

GEL Sample ID: 1202785741

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.195	ug/L	J	1	28-NOV-12 14:56	per1128013a
	Perchlorate Isotope Ratio			3.2			1	28-NOV-12 14:56	per1128013a
14797-73-0	Perchlorate-101	.05	.2	0.195	ug/L	J	1	28-NOV-12 14:56	per1128013a
	Perchlorate-O(18)			0.492	ug/L		1	28-NOV-12 14:56	per1128013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2013-322

GEL Sample ID: 1202785746

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.198	ug/L	J	1	28-NOV-12 15:08	per1128014a
	Perchlorate Isotope Ratio			3.07			1	28-NOV-12 15:08	per1128014a
14797-73-0	Perchlorate-101	.05	.2	0.206	ug/L		1	28-NOV-12 15:08	per1128014a
	Perchlorate-O(18)			0.522	ug/L		1	28-NOV-12 15:08	per1128014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24268MS

Date Received: 17-NOV-12

GEL Job No (SDG): 2013-322

GEL Sample ID: 1202785742

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	6.31	ug/L		10	30-NOV-12 14:22	per1130013a
	Perchlorate Isotope Ratio			3.14			10	30-NOV-12 14:22	per1130013a
14797-73-0	Perchlorate-101	.5	2	6.30	ug/L		10	30-NOV-12 14:22	per1130013a
	Perchlorate-O(18)			5.05	ug/L		10	30-NOV-12 14:22	per1130013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24268MSD

Date Received: 17-NOV-12

GEL Job No (SDG): 2013-322

GEL Sample ID: 1202785743

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	6.37	ug/L		10	30-NOV-12 14:33	per1130014a
	Perchlorate Isotope Ratio			3.2			10	30-NOV-12 14:33	per1130014a
14797-73-0	Perchlorate-101	.5	2	6.23	ug/L		10	30-NOV-12 14:33	per1130014a
	Perchlorate-O(18)			5.06	ug/L		10	30-NOV-12 14:33	per1130014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
05-DEC-12	Federal	Others	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LC-MS/MS	SW846-6850 Modified	Liquid	ARSL001
Batch ID:	**Sample Numbers:**		
1265809	See below		

Potentially affected work order(s)(SDG): 315267(2013-312),315285(2013-311),315351(2013-321),315352(2013-322),315450(2013-334)

Application Issues:

Failed Recovery for MS/PS

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Spike recoveries outside the acceptance range of 75-125% were observed for MS (1202785744) and MSD (1202785745). Please see the Form 3 in the data package for a complete list of recoveries. 2. Low recovery for Perchlorate-101 was observed in MS (1202785742). The acceptance range is 75-125%. 3. A negative recovery for Perchlorate-101 was observed in MSD (1202785743). The acceptance range is 75-125%.	1. The outliers observed in the matrix spikes may be the result of the background concentration present in the parent sample, 315285003, and the need to dilute all at a 1:250 dilution prior to analysis. 2. & 3. The outliers observed in the matrix spikes may be the result of the background concentration present in the parent sample, 315450004, and the need to dilute all at a 1:10 dilution prior to analysis.

Originator's Name:

Charles Wilson 05-DEC-12

Data Validator/Group Leader:

Michael Penny 05-DEC-12

PCB Analysis

Case Narrative

PCB Case Narrative
ARS International (ARSL)
SDG 2013-322

Method/Analysis Information

Procedure:	**Analysis of Polychlorinated Biphenyls by ECD**
Analytical Method:	SW846 3535A/8082
Prep Method:	SW846 3535A
Analytical Batch Number:	1265739
Prep Batch Number:	1265738

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3535A/8082:

Sample ID	Client ID
315352003	CASA-13-24205
1202785589	Method Blank (MB)
1202785590	314987001(CAMO-13-24253) Matrix Spike (MS)
1202785591	314987001(CAMO-13-24253) Matrix Spike Duplicate (MSD)
1202785592	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-040 REV# 19.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 23.0.

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standards (ICV or CCV) met the acceptance criteria. All analytes were within the established retention time windows for this method.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
An ARSL sample of similar matrix in SDG 2013-297 was selected for the matrix spike and matrix spike duplicate analysis for this batch of the samples.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the MS and MSD met the acceptance limits.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns. All sample extracts were cleaned using alumina. The QC samples MB and LCS, along with a sample in another SDG, were cleaned with copper to remove sulfur.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions were not required in this SDG.

Miscellaneous Information

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception report (DER) is generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
Certain standards and samples may have required manual integration to correctly position the baseline as set in the calibration standard injections. If manual integration was performed, copies of all manual integration peak profiles are included in the raw data section of this PCB fraction.

Additional Comments
The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

The higher results from either column have been chosen and reported in the data package for the client samples, MB and LCS. The data reported for the MS and MSD are from the same analytical column as the parent sample.

Due to software issue, the surrogate recovery range was not indicated or possibly indicated incorrectly in Quantitation Report. Please see Surrogate Recovery Report for correct surrogate acceptance limits.

Due to rounding differences in the calculation between the forms, the data reported in Sample Summary (form 1) and Spike Recovery Report (form 3) may differ slightly from the data reported in Identification Summary (form 10).

Aroclors quantitated on the raw data report by ChemStation data system do not necessarily represent positive Aroclor identification. In order for positive identification to be made, the Aroclor must match in pattern and retention time; as well as quantitate relatively close between the primary and confirmation columns, as specified in SW846 method 8000. When these conditions are not met, the Aroclor is reported as a non-detect on the data report.

System Configuration

The Semi-Volatiles-PCB analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
ECD8A.I_1	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP I	30m x 0.25mm, 0.25um (Rtx-CLPesticide I)
ECD8A.I_2	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP II	30m x 0.25mm, 0.20um (Rtx-CLPesticide II)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-322 GEL Work Order: 315352

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Jimin Cao **Name: Jimin Cao**

Date: 30 NOV 2012 **Title: Data Validator**

Sample Data Summary

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**	**Date Collected:**	**11/14/2012 13:48**	**Matrix:**	**W**
Lab Sample ID:	**315352003**	**Date Received:**	**11/16/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24205**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1265739**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 11:46**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/26/2012 01:45**	**Aliquot:**	**960 mL**	**Final Volume:**	**1 mL**
Data File:	**112712.B\e8k2726.D**	**Column:**	**1 RTX-CLPEST1**		
	112712.B\e8k2726.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.104	ug/L	0.0347	0.104	1
11104-28-2	Aroclor-1221	U	0.104	ug/L	0.0347	0.104	1
11141-16-5	Aroclor-1232	U	0.104	ug/L	0.0347	0.104	1
53469-21-9	Aroclor-1242	U	0.104	ug/L	0.0347	0.104	1
12672-29-6	Aroclor-1248	U	0.104	ug/L	0.0347	0.104	1
11097-69-1	Aroclor-1254	U	0.104	ug/L	0.0347	0.104	1
11096-82-5	Aroclor-1260	U	0.104	ug/L	0.0347	0.104	1
37324-23-5	Aroclor-1262	U	0.104	ug/L	0.0347	0.104	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.148	0.208	ug/L	71.2	(42%-120%)
Decachlorobiphenyl	0.166	0.208	ug/L	79.7	(41%-120%)

Quality Control Summary

PCB

Surrogate Recovery Report

SDG Number: 2013-322

Matrix Type: LIQUID

Sample ID	Client ID	4CMX 1 %REC #	4CMX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #
1202785590	CAMO-13-24253MS	65	65	76	74
1202785591	CAMO-13-24253MSD	66	66	80	79
315352003	CASA-13-24205	71	70	80	78
1202785589	MB for batch 1265738	76	76	90	91
1202785592	LCS for batch 1265738	77	77	89	92

Surrogate		Acceptance Limits
4CMX	= 4cmx	(42%-120%)
DCB	= Decachlorobiphenyl	(41%-120%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **CAMO-13-24253MS**
Lab Sample ID: **1202785590**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/27/2012 10:44**
Prep Batch ID: **1265738**
Batch ID: **1265739**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	MS	Aroclor-1016	2.00	0.00	U	1.39	70	34-123
11096-82-5	MS	Aroclor-1260	2.00	0.00	U	1.57	79	30-127

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **CAMO-13-24253MSD**
Lab Sample ID: **1202785591**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/27/2012 10:56**
Prep Batch ID: **1265738**
Batch ID: **1265739**
Dilution: 1

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
12674-11-2	MSD Aroclor-1016	2.00	0.00	U	1.41	70	34-123	1	0-30
11096-82-5	MSD Aroclor-1260	2.00	0.00	U	1.62	81	30-127	3	0-30

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-322**
Client ID: **LCS for batch 1265738**
Lab Sample ID: **1202785592**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/27/2012 13:13**
Prep Batch ID: **1265738**
Batch ID: **1265739**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	LCS	Aroclor-1016	1.00	0.0	0.800	80	47-115
11096-82-5	LCS	Aroclor-1260	1.00	0.0	0.890	89	42-115

Method Blank Summary

SDG Number:	**2013-322**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1265738**	**Instrument ID:**	**ECD8A.I_1** **ECD8A.I_2**	**Data File:**	**112712.B\e8k2732.D** **112712.B\e8k2732.D**
Lab Sample ID:	**1202785589**				
Column:	**RTX-CLPEST1** **RTX-CLPEST2**	**Prep Date:**	**11/26/2012 01:45**	**Analyzed:**	**11/27/12 13:01**

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 CAMO-13-24253MS	**1202785590**	**112712.B\e8k2721.D** **112712.B\e8k2721.D**	**11/27/12**	**1044**
02 CAMO-13-24253MSD	**1202785591**	**112712.B\e8k2722.D** **112712.B\e8k2722.D**	**11/27/12**	**1056**
03 CASA-13-24205	**315352003**	**112712.B\e8k2726.D** **112712.B\e8k2726.D**	**11/27/12**	**1146**
04 LCS for batch 1265738	**1202785592**	**112712.B\e8k2733.D** **112712.B\e8k2733.D**	**11/27/12**	**1313**

Quality Control Data

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**			**Matrix:**	**WATER**
Lab Sample ID:	**1202785589**				
Client Sample:	**QC for batch 1265738**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1265738**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1265739**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 13:01**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/26/2012 01:45**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**112712.B\e8k2732.D**	**Column:**	**1 RTX-CLPEST1**		
	112712.B\e8k2732.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.100	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260	U	0.100	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.152	0.200	ug/L	76.1	(42%-120%)
Decachlorobiphenyl	0.182	0.200	ug/L	91.1	(41%-120%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-322**			**Matrix:**	**WATER**
Lab Sample ID:	**1202785592**				
Client Sample:	**QC for batch 1265738**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1265738**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1265739**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 13:13**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/26/2012 01:45**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**112712.B\e8k2733.D**	**Column:**	**1 RTX-CLPEST1**		
	112712.B\e8k2733.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		0.800	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260		0.890	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.155	0.200	ug/L	77.4	(42%-120%)
Decachlorobiphenyl	0.183	0.200	ug/L	91.6	(41%-120%)

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-322

Sample Analysis

Sample ID	Client ID
315352002	CASA-13-24220
315352006	CASA-13-24207
1202783822	Method Blank (MB) **ICP**
1202783823	Laboratory Control Sample (LCS)
1202783826	315453014(CAPA-13-24782L) Serial Dilution (SD)
1202783824	315453014(CAPA-13-24782D) Sample Duplicate (DUP)
1202783825	315453014(CAPA-13-24782S) Matrix Spike (MS)
1202783827	Method Blank (MB) **ICP-MS**
1202783828	Laboratory Control Sample (LCS)
1202783831	315267002(CASA-13-24218L) Serial Dilution (SD)
1202783829	315267002(CASA-13-24218D) Sample Duplicate (DUP)
1202783830	315267002(CASA-13-24218S) Matrix Spike (MS)
1202788349	Method Blank (MB) **CVAA**
1202788350	Laboratory Control Sample (LCS)
1202788353	315353002(CAMO-13-24281L) Serial Dilution (SD)
1202788351	315353002(CAMO-13-24281D) Sample Duplicate (DUP)
1202788352	315353002(CAMO-13-24281S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1264954, 1264956, 1266834 and 1270221
Prep Batch :	1264953, 1264955 and 1266827
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 8
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B

Prep Method : SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 315453014 (CAPA-13-24782)-ICP, 315267002 (CASA-13-24218)-ICP-MS and 315353002 (CAMO-13-24281)-CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified

holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instruments. Dilutions were required for this SDG in order to minimize tin suppression due to matrix interferences.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness

by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 12/13/12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-322 GEL Work Order: 315352

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by 12/13/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-322 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 315352002 **BASIS:** As Received **DATE COLLECTED** 14-NOV-12

CLIENT ID: CASA-13-24220 **LEVEL:** Low **DATE RECEIVED** 16-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/30/12 08:56	113012W1-4	1266834

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-322 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 315352002 **BASIS:** As Received **DATE COLLECTED** 14-NOV-12

CLIENT ID: CASA-13-24220 **LEVEL:** Low **DATE RECEIVED** 16-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	12/05/12 14:35	120512A-1	1264954
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	SKJ	12/05/12 05:26	121204-3	1264956
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	SKJ	12/05/12 05:26	121204-3	1264956
7440-39-3	Barium	33.9	ug/L		1	5	5	1	P	HSC	12/05/12 14:35	120512A-1	1264954
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	12/05/12 14:35	120512A-1	1264954
7440-42-8	Boron	22.2	ug/L	J	15	50	50	1	P	HSC	12/05/12 14:35	120512A-1	1264954
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	SKJ	12/05/12 05:26	121204-3	1264956
7440-70-2	Calcium	17900	ug/L		50	200	200	1	P	HSC	12/05/12 14:35	120512A-1	1264954
7440-47-3	Chromium	5.63	ug/L	J	2	10	10	1	MS	SKJ	12/05/12 05:26	121204-3	1264956
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	12/05/12 14:35	120512A-1	1264954
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	12/05/12 14:35	120512A-1	1264954
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	12/05/12 14:35	120512A-1	1264954
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	SKJ	12/05/12 05:26	121204-3	1264956
7439-95-4	Magnesium	4400	ug/L		110	300	300	1	P	HSC	12/05/12 14:35	120512A-1	1264954
7439-96-5	Manganese	2.36	ug/L	J	2	10	10	1	P	HSC	12/05/12 14:35	120512A-1	1264954
7439-98-7	Molybdenum	1.78	ug/L		0.165	0.5	0.5	1	MS	SKJ	12/05/12 05:26	121204-3	1264956
7440-02-0	Nickel	1.62	ug/L	J	0.5	2	2	1	MS	SKJ	12/05/12 05:26	121204-3	1264956
7440-09-7	Potassium	1960	ug/L		50	150	150	1	P	HSC	12/05/12 14:35	120512A-1	1264954
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	SKJ	12/05/12 05:26	121204-3	1264956
7631-86-9	Silica	71800	ug/L		53	213	213	1	P	HSC	12/05/12 14:35	120512A-1	1264954
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	SKJ	12/05/12 05:26	121204-3	1264956
7440-23-5	Sodium	15000	ug/L		100	300	300	1	P	HSC	12/05/12 14:35	120512A-1	1264954
7440-24-6	Strontium	70.9	ug/L		1	5	5	1	P	HSC	12/05/12 14:35	120512A-1	1264954
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	SKJ	12/05/12 05:26	121204-3	1264956
7440-31-5	Tin	50	ug/L	U	12.5	50	50	5	P	HSC	12/06/12 13:29	120612A-2	1264954
7440-61-1	Uranium	0.298	ug/L		0.067	0.2	0.2	1	MS	SKJ	12/05/12 05:26	121204-3	1264956
7440-62-2	Vanadium	15.1	ug/L		1	5	5	1	P	HSC	12/05/12 14:35	120512A-1	1264954
7440-66-6	Zinc	53.5	ug/L		3.3	10	10	1	P	HSC	12/05/12 14:35	120512A-1	1264954

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-322 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 315352002 **BASIS:** As Received **DATE COLLECTED** 14-NOV-12

CLIENT ID: CASA-13-24220 **LEVEL:** Low **DATE RECEIVED** 16-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	62.9	mg/L		0.453	1.24	1.24	1		JJ2	12/13/12 08:32		1270221

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1264954	1264953	SW846 3005A	50	mL	50	mL	11/26/12	MTM1
1264956	1264955	SW846 3005A	50	mL	50	mL	11/26/12	MTM1
1266834	1266827	EPA 245.1/245.2 Prep	20	mL	20	mL	11/29/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-322 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 315352006 **BASIS:** As Received **DATE COLLECTED** 14-NOV-12

CLIENT ID: CASA-13-24207 **LEVEL:** Low **DATE RECEIVED** 16-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/30/12 08:58	113012W1-4	1266834

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-322 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 315352006 **BASIS:** As Received **DATE COLLECTED** 14-NOV-12

CLIENT ID: CASA-13-24207 **LEVEL:** Low **DATE RECEIVED** 16-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	12/05/12 14:38	120512A-1	1264954
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	SKJ	12/05/12 05:32	121204-3	1264956
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	SKJ	12/05/12 05:32	121204-3	1264956
7440-39-3	Barium	33.1	ug/L		1	5	5	1	P	HSC	12/05/12 14:38	120512A-1	1264954
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	12/05/12 14:38	120512A-1	1264954
7440-42-8	Boron	21.7	ug/L	J	15	50	50	1	P	HSC	12/05/12 14:38	120512A-1	1264954
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	SKJ	12/05/12 05:32	121204-3	1264956
7440-70-2	Calcium	17700	ug/L		50	200	200	1	P	HSC	12/05/12 14:38	120512A-1	1264954
7440-47-3	Chromium	5.78	ug/L	J	2	10	10	1	MS	SKJ	12/05/12 05:32	121204-3	1264956
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	12/05/12 14:38	120512A-1	1264954
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	12/05/12 14:38	120512A-1	1264954
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	12/05/12 14:38	120512A-1	1264954
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	SKJ	12/05/12 05:32	121204-3	1264956
7439-95-4	Magnesium	4350	ug/L		110	300	300	1	P	HSC	12/05/12 14:38	120512A-1	1264954
7439-96-5	Manganese	2.07	ug/L	J	2	10	10	1	P	HSC	12/05/12 14:38	120512A-1	1264954
7439-98-7	Molybdenum	1.78	ug/L		0.165	0.5	0.5	1	MS	SKJ	12/05/12 05:32	121204-3	1264956
7440-02-0	Nickel	1.59	ug/L	J	0.5	2	2	1	MS	SKJ	12/05/12 05:32	121204-3	1264956
7440-09-7	Potassium	1980	ug/L		50	150	150	1	P	HSC	12/05/12 14:38	120512A-1	1264954
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	SKJ	12/05/12 05:32	121204-3	1264956
7631-86-9	Silica	70500	ug/L		53	213	213	1	P	HSC	12/05/12 14:38	120512A-1	1264954
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	SKJ	12/05/12 05:32	121204-3	1264956
7440-23-5	Sodium	14900	ug/L		100	300	300	1	P	HSC	12/05/12 14:38	120512A-1	1264954
7440-24-6	Strontium	70.2	ug/L		1	5	5	1	P	HSC	12/05/12 14:38	120512A-1	1264954
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	SKJ	12/05/12 05:32	121204-3	1264956
7440-31-5	Tin	50	ug/L	U	12.5	50	50	5	P	HSC	12/06/12 13:32	120612A-2	1264954
7440-61-1	Uranium	0.301	ug/L		0.067	0.2	0.2	1	MS	SKJ	12/05/12 05:32	121204-3	1264956
7440-62-2	Vanadium	14.3	ug/L		1	5	5	1	P	HSC	12/05/12 14:38	120512A-1	1264954
7440-66-6	Zinc	50.8	ug/L		3.3	10	10	1	P	HSC	12/05/12 14:38	120512A-1	1264954

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-322 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 315352006 **BASIS:** As Received **DATE COLLECTED** 14-NOV-12

CLIENT ID: CASA-13-24207 **LEVEL:** Low **DATE RECEIVED** 16-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	62.1	mg/L		0.453	1.24	1.24	1		JJ2	12/13/12 08:32		1270221

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1264954	1264953	SW846 3005A	50	mL	50	mL	11/26/12	MTM1
1264956	1264955	SW846 3005A	50	mL	50	mL	11/26/12	MTM1
1266834	1266827	EPA 245.1/245.2 Prep	20	mL	20	mL	11/29/12	AXS5

***Analytical Methods:**

MS	**SW846 3005/6020 DOE-AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−322

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202783822								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	50	ug/L	+/−150	U	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202783827								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202788349								
	Mercury	−0.081	ug/L	+/−0.2	J	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−322 **Client ID** CAPA−13−24782S

Contract: LANL00110 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315453014 **Spike ID:** 1202783825

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5430		68	U	5000	108		P
Barium	ug/L	75−125	526		1	U	500	105		P
Beryllium	ug/L	75−125	528		1	U	500	106		P
Boron	ug/L	75−125	521		15	U	500	104		P
Calcium	ug/L	75−125	5310		53.2	J	5000	105		P
Cobalt	ug/L	75−125	521		1	U	500	104		P
Copper	ug/L	75−125	529		3	U	500	106		P
Iron	ug/L	75−125	5440		30	U	5000	108		P
Magnesium	ug/L	75−125	5500		110	U	5000	110		P
Manganese	ug/L	75−125	531		2.59	J	500	106		P
Potassium	ug/L	75−125	5380		50	U	5000	108		P
Silica	ug/L	75−125	11100		98.8	J	10700	103		P
Sodium	ug/L	75−125	6000		140	J	5000	117		P
Strontium	ug/L	75−125	540		1	U	500	108		P
Tin	ug/L	75−125	521		2.5	U	500	104		P
Vanadium	ug/L	75−125	531		1	U	500	106		P
Zinc	ug/L	75−125	504		3.3	U	500	101		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−322 **Client ID** CASA−13−24218S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315267002 **Spike ID:** 1202783830

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	200		1	U	200	99.6		MS
Arsenic	ug/L	75−125	76.1		1.7	U	80	95		MS
Cadmium	ug/L	75−125	10.2		0.11	U	10	102		MS
Chromium	ug/L	75−125	50.9		6.25	J	50	89.4		MS
Lead	ug/L	75−125	40.7		0.5	U	40	102		MS
Molybdenum	ug/L	75−125	50.7		1.36		50	98.6		MS
Nickel	ug/L	75−125	60.1		14.9		50	90.4		MS
Selenium	ug/L	75−125	19.6		1.5	U	20	97.4		MS
Silver	ug/L	75−125	51.2		0.2	U	50	102		MS
Thallium	ug/L	75−125	94.4		0.45	U	100	94.4		MS
Uranium	ug/L	75−125	51.3		0.693		50	101		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−322 **Client ID:** CAMO−13−24281S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315353002 **Spike ID:** 1202788352

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.11		0.067	U	2	106		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−322 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAPA−13−24782D

Matrix: LIQUID **Level:** Low

Sample ID: 315453014 **Duplicate ID:** 1202783824 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L		1	U	1	U			P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	15	U			P
Calcium	ug/L	+/−200	53.2	J	54.3	J	2.11		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L		3	U	3	U			P
Iron	ug/L		30	U	30	U			P
Magnesium	ug/L		110	U	110	U			P
Manganese	ug/L	+/−10	2.59	J	2.87	J	10.2		P
Potassium	ug/L		50	U	50	U			P
Silica	ug/L	+/−213	98.8	J	149	J	40.3		P
Sodium	ug/L	+/−300	140	J	191	J	31.1		P
Strontium	ug/L		1	U	1	U			P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L		1	U	1	U			P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−322 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CASA−13−24218D

Matrix: LIQUID **Level:** Low

Sample ID: 315267002 **Duplicate ID:** 1202783829 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	6.25	J	5.64	J	10.2		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.36		1.28		6.21		MS
Nickel	ug/L	+/−20%	14.9		13.8		7.97		MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.693		0.637		8.42		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−322 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24281D

Matrix: LIQUID **Level:** Low

Sample ID: 315353002 **Duplicate ID:** 1202788351 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−322

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783823								
	Aluminum	ug/L	5000	5180		104	80−120	P
	Barium	ug/L	500	508		102	80−120	P
	Beryllium	ug/L	500	514		103	80−120	P
	Boron	ug/L	500	505		101	80−120	P
	Calcium	ug/L	5000	5100		102	80−120	P
	Cobalt	ug/L	500	499		99.8	80−120	P
	Copper	ug/L	500	516		103	80−120	P
	Iron	ug/L	5000	5250		105	80−120	P
	Magnesium	ug/L	5000	5280		106	80−120	P
	Manganese	ug/L	500	515		103	80−120	P
	Potassium	ug/L	5000	5150		103	80−120	P
	Silica	ug/L	10700	10600		98.8	80−120	P
	Sodium	ug/L	5000	5540		111	80−120	P
	Strontium	ug/L	500	519		104	80−120	P
	Tin	ug/L	500	502		100	80−120	P
	Vanadium	ug/L	500	517		103	80−120	P
	Zinc	ug/L	500	491		98.3	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−322

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783828								
	Antimony	ug/L	50	50.2		100	80−120	MS
	Arsenic	ug/L	50	48.4		96.9	80−120	MS
	Cadmium	ug/L	50	50.6		101	80−120	MS
	Chromium	ug/L	50	50.3		101	80−120	MS
	Lead	ug/L	50	52.5		105	80−120	MS
	Molybdenum	ug/L	50	48.5		97	80−120	MS
	Nickel	ug/L	50	52.4		105	80−120	MS
	Selenium	ug/L	50	49.3		98.6	80−120	MS
	Silver	ug/L	50	52.4		105	80−120	MS
	Thallium	ug/L	50	50.6		101	80−120	MS
	Uranium	ug/L	50	51.5		103	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−322

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202788350								
	Mercury	ug/L	2	2.09		104	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−322 **Client ID** CAPA−13−24782L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315453014 **Serial Dilution ID:** 1202783826

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	1	U	5	U				P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	53.2	J	250	U	100			P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	110	U	550	U				P
Manganese	2.59	J	10	U	100			P
Potassium	50	U	250	U				P
Silica	98.8	J	265	U	100			P
Sodium	140	J	500	U	100			P
Strontium	1	U	5	U				P
Tin	2.5	U	12.5	U				P
Vanadium	1	U	5	U				P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−322 **Client ID** CASA−13−24218L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315267002 **Serial Dilution ID:** 1202783831

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	6.25	J	10	U	100			MS
Lead	.5	U	12.6					MS
Molybdenum	1.36		2.34	J	71.4			MS
Nickel	14.9		15		.779			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.693		.64	J	7.65			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−322 **Client ID** CAMO−13−24281L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315353002 **Serial Dilution ID:** 1202788353

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-322

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1265851 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
315352001	CASA-13-24212
315352005	CASA-13-24206
1202785852	Method Blank (MB)
1202785853	315351001(CASA-13-24211) Sample Duplicate (DUP)
1202785854	315351001(CASA-13-24211) Post Spike (PS)
1202785855	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315351001 (CASA-13-24211).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1267060	**Method:**	EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
315352002	CASA-13-24220
315352006	CASA-13-24207
1202788865	315351002(CASA-13-24219) Sample Duplicate (DUP)
1202788867	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315351002 (CASA-13-24219).

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1265360 **Method:** EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
315352002	CASA-13-24220
315352006	CASA-13-24207
1202784743	315351002(CASA-13-24219) Sample Duplicate (DUP)
1202784744	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315351002 (CASA-13-24219).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following samples from this sample group were received by the lab outside of the method specified holding time: 315352002 (CASA-13-24220) and 315352006 (CASA-13-24207).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1143472 315352002 (CASA-13-24220) and 315352006 (CASA-13-24207).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1264118	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
315352002	CASA-13-24220
315352006	CASA-13-24207
1202781990	Method Blank (MB)
1202781991	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202781992	315267002(CASA-13-24218) Post Spike (PS)
1202781993	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202781991 (CASA-13-24218), 1202781992 (CASA-13-24218), 315352002 (CASA-13-24220) and 315352006 (CASA-13-24207).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1265956	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1265955	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
315352002	CASA-13-24220
315352006	CASA-13-24207
1202786153	Method Blank (MB)
1202786154	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202786155	315267002(CASA-13-24218) Matrix Spike (MS)
1202786156	315267002(CASA-13-24218) Matrix Spike Duplicate (MSD)
1202786157	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The relative percent difference (RPD) between the Spike and Spike Duplicate was outside of the required acceptance limits. However, both the Spike and Spike Duplicate recoveries were within the required acceptance limits; therefore, the data is deemed acceptable. 1202786156 (CASA-13-24218).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

The following DER was generated for this SDG: 1143774 1202786156 (CASA-13-24218).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1265958	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1265957	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
315352001	CASA-13-24212
315352005	CASA-13-24206
1202786158	Method Blank (MB)
1202786159	315267001(CASA-13-24210) Sample Duplicate (DUP)
1202786161	315267001(CASA-13-24210) Matrix Spike (MS)
1202786165	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 13.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267001 (CASA-13-24210).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202786161 (CASA-13-24210).

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202786159 (CASA-13-24210).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1147238 1202786161 (CASA-13-24210).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1263016	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
315352002	CASA-13-24220
315352006	CASA-13-24207
1202779479	Method Blank (MB)
1202779484	Laboratory Control Sample (LCS)
1202780694	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202780695	315159002(CAMO-13-24266) Post Spike (PS)
1202782515	315361001(SWWS46-13-24772) Sample Duplicate (DUP)
1202782516	315361001(SWWS46-13-24772) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 315159002 (CAMO-13-24266) and 315361001 (SWWS46-13-24772).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202780694 (CAMO-13-24266), 1202780695 (CAMO-13-24266), 1202782515 (SWWS46-13-24772), 1202782516 (SWWS46-13-24772), 315352002 (CASA-13-24220) and 315352006 (CASA-13-24207).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1263579	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1263578	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
315352002	CASA-13-24220
315352006	CASA-13-24207
1202780723	Method Blank (MB)
1202780727	Laboratory Control Sample (LCS)
1202786124	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202786125	315267002(CASA-13-24218) Matrix Spike (MS)
1202786126	315267002(CASA-13-24218) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following sample was re-analyzed due to instrument failure: 1202780727 (LCS).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Solids, Total Dissolved**		
Analytical Batch:	1264462	**Method:**	EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
315352002	CASA-13-24220
315352006	CASA-13-24207
1202782757	Method Blank (MB)
1202782758	315351002(CASA-13-24219) Sample Duplicate (DUP)
1202782759	315361001(SWWS46-13-24772) Sample Duplicate (DUP)
1202782760	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 315351002 (CASA-13-24219) and 315361001 (SWWS46-13-24772).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Alkalinity**

Analytical Batch: 1265998 **Method:** EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
315352002	CASA-13-24220
315352006	CASA-13-24207
1202786324	315351002(CASA-13-24219) Sample Duplicate (DUP)
1202786330	315351002(CASA-13-24219) Matrix Spike (MS)
1202786333	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315351002 (CASA-13-24219).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____13Dec12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-322 GEL Work Order: 315352

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

H Analytical holding time was exceeded

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

h Preparation or preservation holding time was exceeded

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 13, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-322

Client Sample ID:	CASA-13-24212	Project:	ESHL00210
Sample ID:	315352001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	14-NOV-12 13:48		
Receive Date:	16-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.547	0.330	1.00	mg/L	1	TSM	11/29/12	1624	1265851	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	J	0.0863	0.033	0.100	mg/L	1	KLP1	12/07/12	1507	1265958	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	12/06/12	1500	1265957

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 13, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-322

Client Sample ID:	CASA-13-24220	Project:	ESHL00210
Sample ID:	315352002	Client ID:	ARSL001
Matrix:	W		
Collect Date:	14-NOV-12 13:48		
Receive Date:	16-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		192	1.00	1.00	umhos/cm	1	LXA1	11/30/12	1422	1267060	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 11.5C	H	7.52	0.010	0.100	SU	1	LYG1	11/21/12	0851	1265360	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	J	0.105	0.067	0.200	mg/L	1	MAR1	11/30/12	1801	1264118	3
Chloride		5.78	0.067	0.200	mg/L	1					
Fluoride		0.533	0.033	0.100	mg/L	1					
Sulfate		6.94	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	U	ND	0.017	0.050	mg/L	1	KLP1	11/27/12	1103	1265956	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		2.26	0.085	0.250	mg/L	5	KLP1	11/19/12	1152	1263016	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	J	0.0213	0.017	0.050	mg/L	1	KLP1	11/27/12	1702	1263579	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		143	3.40	14.3	mg/L		LYG1	11/19/12	0819	1264462	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		68.5	0.725	1.00	mg/L		LXA1	11/27/12	1258	1265998	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/26/12	1700	1265955
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/26/12	1700	1263578

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 13, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-322
Project:	LANL-WQH Water Samples		

Client Sample ID:	CASA-13-24220	Project:	ESHL00210
Sample ID:	315352002	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 13, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-322

Client Sample ID:	CASA-13-24206	Project:	ESHL00210
Sample ID:	315352005	Client ID:	ARSL001
Matrix:	W		
Collect Date:	14-NOV-12 13:48		
Receive Date:	16-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.584	0.330	1.00	mg/L	1	TSM	11/29/12	1658	1265851	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	J	0.0339	0.033	0.100	mg/L	1	KLP1	12/07/12	1511	1265958	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	12/06/12	1500	1265957

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 13, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-322

Client Sample ID:	CASA-13-24207	Project:	ESHL00210
Sample ID:	315352006	Client ID:	ARSL001
Matrix:	W		
Collect Date:	14-NOV-12 13:48		
Receive Date:	16-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		192	1.00	1.00	umhos/cm	1	LXA1	11/30/12	1422	1267060	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 12.0C	H	7.49	0.010	0.100	SU	1	LYG1	11/21/12	0853	1265360	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	J	0.0977	0.067	0.200	mg/L	1	MAR1	11/30/12	1830	1264118	3
Chloride		5.79	0.067	0.200	mg/L	1					
Fluoride		0.545	0.033	0.100	mg/L	1					
Sulfate		7.00	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	J	0.0371	0.017	0.050	mg/L	1	KLP1	11/27/12	1103	1265956	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		2.30	0.085	0.250	mg/L	5	KLP1	11/19/12	1153	1263016	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	U	ND	0.017	0.050	mg/L	1	KLP1	11/27/12	1703	1263579	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		126	3.40	14.3	mg/L		LYG1	11/19/12	0819	1264462	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		70.0	0.725	1.00	mg/L		LXA1	11/27/12	1434	1265998	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/26/12	1700	1265955
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/26/12	1700	1263578

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 13, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-322
Project:	LANL-WQH Water Samples		

Client Sample ID:	CASA-13-24207	Project:	ESHL00210
Sample ID:	315352006	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: December 13, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **315352**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis											
Batch 1265851											
QC1202785853 315351001 DUP											
Total Organic Carbon Average		U	ND	J	0.356	mg/L	N/A			TSM	11/29/12 15:56
QC1202785855 LCS											
Total Organic Carbon Average	10.0				10.0	mg/L		100	(85%-115%)		11/29/12 15:14
QC1202785852 MB											
Total Organic Carbon Average				U	ND	mg/L					11/29/12 15:05
QC1202785854 315351001 PS											
Total Organic Carbon Average	10.0	U	ND		10.7	mg/L		104	(65%-120%)		11/29/12 16:16
Conductivity Analysis											
Batch 1267060											
QC1202788865 315351002 DUP											
Conductivity			171		170	umhos/cm	0.294		(0%-10%)	LXA1	11/30/12 14:21
QC1202788867 LCS											
Conductivity	1410				1420	umhos/cm		100	(95%-105%)		11/30/12 14:14
Electrode Analysis											
Batch 1265360											
QC1202784743 315351002 DUP											
pH		H	7.85	H	7.85	SU	0.00		(0%-10%)	LYG1	11/21/12 08:50
QC1202784744 LCS											
pH	7.00				7.04	SU		101	(99%-101%)		11/21/12 08:40
Ion Chromatography											
Batch 1264118											
QC1202781991 315267002 DUP											
Bromide		U	ND	U	ND	mg/L	N/A			MAR1	11/30/12 16:34
Chloride			6.27		6.30	mg/L	0.352		(0%-20%)		
Fluoride			0.332		0.333	mg/L	0.271 ^		(+/-0.100)		
Sulfate			5.52		5.55	mg/L	0.524		(0%-20%)		
QC1202781993 LCS											
Bromide	2.50				2.62	mg/L		105	(90%-110%)		11/30/12 15:36
Chloride	10.0				9.24	mg/L		92.4	(90%-110%)		
Fluoride	5.00				4.89	mg/L		97.9	(90%-110%)		
Sulfate	20.0				19.3	mg/L		96.4	(90%-110%)		
QC1202781990 MB											
Bromide				U	ND	mg/L					11/30/12 15:07
Chloride				U	ND	mg/L					
Fluoride				U	ND	mg/L					
Sulfate				U	ND	mg/L					
QC1202781992 315267002 PS											
Bromide	2.50	U	ND		2.59	mg/L		101	(90%-110%)		11/30/12 17:03
Chloride	10.0		6.27		16.2	mg/L		99.7	(90%-110%)		

QC Summary

Workorder: 315352

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1264118											
Fluoride	5.00		0.332		5.12	mg/L		95.8	(90%-110%)		
Sulfate	20.0		5.52		25.0	mg/L		97.3	(90%-110%)	MAR1	11/30/12 17:03
Nutrient Analysis											
Batch 1263016											
QC1202780694 315159002 DUP											
Nitrogen, Nitrate/Nitrite			1.50		1.57	mg/L	4.89		(0%-20%)	KLP1	11/19/12 11:37
QC1202782515 315361001 DUP											
Nitrogen, Nitrate/Nitrite			2.18		2.18	mg/L	0.00		(0%-20%)		11/19/12 12:04
QC1202779484 LCS											
Nitrogen, Nitrate/Nitrite	1.00				1.04	mg/L		104	(90%-110%)		11/19/12 11:28
QC1202779479 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					11/19/12 11:27
QC1202780695 315159002 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.299		1.28	mg/L		98.1	(90%-110%)		11/19/12 11:38
QC1202782516 315361001 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.435		1.47	mg/L		104	(90%-110%)		11/19/12 12:05
Batch 1263579											
QC1202786124 315267002 DUP											
Phosphorus, Total as P		U	ND	U	ND	mg/L	N/A			KLP1	11/27/12 16:55
QC1202780727 LCS											
Phosphorus, Total as P	1.00				0.924	mg/L		92.4	(76%-120%)		11/27/12 16:50
QC1202780723 MB											
Phosphorus, Total as P				U	ND	mg/L					11/27/12 16:37
QC1202786125 315267002 MS											
Phosphorus, Total as P	1.00	U	ND		0.850	mg/L		85	(62%-139%)		11/27/12 16:56
QC1202786126 315267002 MSD											
Phosphorus, Total as P	1.00	U	ND		0.915	mg/L	7.37	91.5	(0%-20%)		11/27/12 16:57
Batch 1265956											
QC1202786154 315267002 DUP											
Nitrogen, Ammonia		J	0.0497	J	0.0418	mg/L	17.3 ^		(+/-0.050)	KLP1	11/27/12 10:59
QC1202786157 LCS											
Nitrogen, Ammonia	1.00				1.05	mg/L		105	(90%-110%)		11/27/12 10:58
QC1202786153 MB											
Nitrogen, Ammonia				U	ND	mg/L					11/27/12 10:57
QC1202786155 315267002 MS											
Nitrogen, Ammonia	1.00	J	0.0497		0.981	mg/L		93.1	(90%-110%)		11/27/12 11:00
QC1202786156 315267002 MSD											
Nitrogen, Ammonia	1.00	J	0.0497		1.15	mg/L	15.9*	110	(0%-15%)		11/27/12 11:01
Batch 1265958											
QC1202786159 315267001 DUP											
Nitrogen, Total Kjeldahl		U	ND	U	ND	mg/L	N/A			KLP1	12/07/12 15:02
QC1202786165 LCS											
Nitrogen, Total Kjeldahl	1.00				0.987	mg/L		98.7	(90%-110%)		12/07/12 15:00
QC1202786158 MB											
Nitrogen, Total Kjeldahl				U	ND	mg/L					12/07/12 14:59
QC1202786161 315267001 MS											
Nitrogen, Total Kjeldahl	1.00	U	ND		0.881	mg/L		88.1*	(90%-110%)		12/07/12 15:03

QC Summary

Workorder: 315352

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Solids Analysis											
Batch 1264462											
QC1202782758 315351002 DUP											
Total Dissolved Solids			149		151	mg/L	1.90		(0%-10%)	LYG1	11/19/12 08:19
QC1202782759 315361001 DUP											
Total Dissolved Solids			231		239	mg/L	3.04		(0%-10%)		11/19/12 08:19
QC1202782760 LCS											
Total Dissolved Solids	300				291	mg/L		97.1	(95%-105%)		11/19/12 08:19
QC1202782757 MB											
Total Dissolved Solids				U	ND	mg/L					11/19/12 08:19
Titration Analysis											
Batch 1265998											
QC1202786324 315351002 DUP											
Alkalinity, Total as CaCO3			73.1		72.6	mg/L	0.707		(0%-20%)	LXA1	11/27/12 12:51
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A				
QC1202786333 LCS											
Alkalinity, Total as CaCO3	50.0				51.0	mg/L		102	(90%-110%)		11/27/12 10:38
QC1202786330 315351002 MS											
Alkalinity, Total as CaCO3	50.0		73.1		123	mg/L		99.9	(80%-120%)		11/27/12 12:56

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E Organics--Concentration of the target analyte exceeds the instrument calibration range
- F Estimated Value
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded
- J Value is estimated
- JNX Non Calibrated Compound
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- M M if above MDC and less than LLD

QC Summary

Workorder: **315352**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
26-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1265360	See below.		

Potentially affected work order(s)(SDG): 315351(2013-321),315352(2013-322),315353(2013-323),315450(2013-334),315545(2013-353)

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 315351 002 315352 002,006 315353 002 315450 004,007 315545 002,004	1. Samples were received out of holding.

Originator's Name:

Lisa Gregory 26-NOV-12

Data Validator/Group Leader:

Julia Hamilton 13-DEC-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
27-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1	Liquid	ESHL, ORNL
Batch ID:	**Sample Numbers:**		
1265956	See below.		

Potentially affected work order(s)(SDG): **315267(2013-312),315351(2013-321),315352(2013-322),315353(2013-323),315450(2013-334),315545(2013-353),315650**

Application Issues:

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Failed RPD for MS/MSD: QC 1202786156MSD	1. The relative percent difference (RPD) between the Spike and Spike Duplicate was outside of the required acceptance limits. However, both the Spike and Spike Duplicate recoveries were within the required acceptance limits; therefore, the data is deemed acceptable.

Originator's Name:
Kristen Parson 27-NOV-12

Data Validator/Group Leader:
Julia Hamilton 27-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
07-DEC-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1265958	See below.		

Potentially affected work order(s)(SDG): **315267(2013-312),315311,315351(2013-321),315352(2013-322),315353(2013-323),315450(2013-334),315545(2013-353),315780**

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS: QC 1202786161MS	1. The spike recovery falls outside of the established acceptance limits due to matrix interference:

Originator's Name:

Kristen Parson 07-DEC-12

Data Validator/Group Leader:

Julia Hamilton 10-DEC-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-322
Work Order 315352

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1264269

Sample ID	**Client ID**
315352001	CASA-13-24212
315352005	CASA-13-24206
1202782355	Method Blank (MB)
1202782356	315545003(CAMO-13-24271) Sample Duplicate (DUP)
1202782357	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202782355 (MB) and 1202782357 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315545003 (CAMO-13-24271). The QC was from ARSL work order 315545.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1264270

Sample ID	Client ID
315352001	CASA-13-24212
315352005	CASA-13-24206
1202782358	Method Blank (MB)
1202782359	315545003(CAMO-13-24271) Sample Duplicate (DUP)
1202782360	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202782358 (MB) and 1202782360 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315545003 (CAMO-13-24271). The QC was from ARSL work order 315545.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1264271

Sample ID	Client ID
315352001	CASA-13-24212
315352005	CASA-13-24206
1202782361	Method Blank (MB)
1202782362	315545003(CAMO-13-24271) Sample Duplicate (DUP)
1202782363	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202782361 (MB) and 1202782363 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315545003 (CAMO-13-24271). The QC was from ARSL work order 315545.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1264174

Sample ID	Client ID
315352001	CASA-13-24212
315352005	CASA-13-24206
1202782104	Method Blank (MB)
1202782105	315352001(CASA-13-24212) Sample Duplicate (DUP)
1202782106	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in June 2012, July 2012, August 2012 and October 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 315352001 (CASA-13-24212). The QC was from ARSL work order 315352.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1264650

Sample ID	Client ID
315352001	CASA-13-24212
315352005	CASA-13-24206
1202783218	Method Blank (MB)
1202783219	315352005(CASA-13-24206) Sample Duplicate (DUP)
1202783220	315352005(CASA-13-24206) Matrix Spike (MS)
1202783221	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202783218 (MB) and 1202783221 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315352005 (CASA-13-24206). The QC was from ARSL work order 315352.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Samples 1202783219 (CASA-13-24206) and 315352005 (CASA-13-24206) were recounted due to high relative percent difference/relative error ratio. The recounts are reported. Sample 315352001 (CASA-13-24212) was recounted due to a suspected false positive. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202783220 (CASA-13-24206), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1268150

Sample ID	Client ID
315352001	CASA-13-24212
315352005	CASA-13-24206
1202791495	Method Blank (MB)
1202791496	315159001(CAMO-13-24249) Sample Duplicate (DUP)
1202791497	315159001(CAMO-13-24249) Matrix Spike (MS)
1202791498	315159001(CAMO-13-24249) Matrix Spike Duplicate (MSD)
1202791499	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in December 2012. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202791495 (MB) and 1202791499 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315159001 (CAMO-13-24249). The QC was from ARSL work order 315159.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Samples were reprepped due to high relative percent difference/relative error ratio. The re-analysis is being reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike and matrix spike duplicate, 1202791497 (CAMO-13-24249) and 1202791498 (CAMO-13-24249), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-322 GEL Work Order: 315352

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Theresa L. Austin **Name: Theresa Austin**

Date: 11 DEC 2012 **Title: Group Leader**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CASA-13-24212
Sample ID: 315352001
Matrix: W
Collect Date: 14-NOV-12
Receive Date: 16-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.00241	+/-0.0054	0.0275	+/-0.0054	0.050	pCi/L		HAKB	11/26/12	1259	1264269	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.00277	+/-0.0048	0.0266	+/-0.0048	0.050	pCi/L		HAKB	11/23/12	1247	1264270	2
Plutonium-239/240	U	0.00277	+/-0.00619	0.0442	+/-0.0062	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.195	+/-0.0277	0.0628	+/-0.0307	1.00	pCi/L		HAKB	11/23/12	1246	1264271	3
Uranium-235/236	U	0.00669	+/-0.00669	0.0392	+/-0.00671	1.00	pCi/L						
Uranium-238		0.0975	+/-0.0171	0.0426	+/-0.0182	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	0.667	+/-1.26	5.07	+/-1.26	8.00	pCi/L		KXG3	11/19/12	0930	1264174	4
Cobalt-60	U	-0.571	+/-1.09	4.32	+/-1.09	8.00	pCi/L						
Neptunium-237	U	-0.694	+/-3.03	10.9	+/-3.03	10.0	pCi/L						
Potassium-40	U	-17.2	+/-19.7	70.5	+/-19.7	10.0	pCi/L						
Sodium-22	U	0.918	+/-1.26	5.55	+/-1.26	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.0473	+/-0.127	0.475	+/-0.127	0.500	pCi/L		VXC2	12/02/12	1343	1264650	5
WSP-GrossA/B "As Received"													
Beta	U	1.13	+/-0.772	2.59	+/-0.778	3.00	pCi/L		DYT1	12/05/12	1620	1268150	6
Alpha	U	0.123	+/-0.474	2.22	+/-0.475	3.00	pCi/L		DYT1	12/06/12	1304	1268150	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1264269	90.6	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1264270	79.2	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1264271	82.4	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1264650	93.5	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CASA-13-24212
Sample ID: 315352001

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CASA-13-24206
Sample ID: 315352005
Matrix: W
Collect Date: 14-NOV-12
Receive Date: 16-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.009	+/-0.00712	0.0256	+/-0.00713	0.050	pCi/L		HAKB	11/26/12	1259	1264269	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.00	+/-0.00382	0.026	+/-0.00382	0.050	pCi/L		HAKB	11/23/12	1247	1264270	2
Plutonium-239/240	U	0.00	+/-0.0054	0.0431	+/-0.00541	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.241	+/-0.0291	0.0635	+/-0.0333	1.00	pCi/L		HAKB	11/23/12	1246	1264271	3
Uranium-235/236	U	0.0102	+/-0.00896	0.0397	+/-0.00898	1.00	pCi/L						
Uranium-238		0.0986	+/-0.0178	0.0431	+/-0.0189	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	1.04	+/-1.42	5.54	+/-1.42	8.00	pCi/L		KXG3	11/19/12	0931	1264174	4
Cobalt-60	U	-3.89	+/-1.59	4.74	+/-1.59	8.00	pCi/L						
Neptunium-237	U	0.626	+/-2.86	10.5	+/-2.86	10.0	pCi/L						
Potassium-40	U	-2.12	+/-17.1	66.9	+/-17.1	10.0	pCi/L						
Sodium-22	U	-3.16	+/-1.30	3.80	+/-1.30	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	-0.0566	+/-0.120	0.481	+/-0.120	0.500	pCi/L		VXC2	12/02/12	1343	1264650	5
WSP-GrossA/B "As Received"													
Beta	U	1.97	+/-0.767	2.32	+/-0.785	3.00	pCi/L		DYT1	12/05/12	1618	1268150	6
Alpha	U	0.302	+/-0.484	2.09	+/-0.485	3.00	pCi/L		DYT1	12/06/12	1304	1268150	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1264269	103	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1264270	77.8	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1264271	81.5	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1264650	92.1	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CASA-13-24206
Sample ID: 315352005

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: December 11, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **315352**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1264269										
QC1202782356 315545003 DUP										
Americium-241	U	0.010	U	0.00735	pCi/L	0.0927		(0-1)	HAKB	11/26/1212:59
	Uncert:	+/-0.00793		+/-0.00648						
	TPU:	+/-0.00794		+/-0.00649						
**Americium-243 Tracer	2.60	2.31		2.41	pCi/L		92.5	(50%-105%)		
	Uncert:	+/-0.0803		+/-0.0798						
	TPU:	+/-0.137		+/-0.136						
QC1202782357 LCS										
Americium-241	1.41			1.47	pCi/L		104	(80%-120%)	HAKB	11/26/1212:59
	Uncert:			+/-0.053						
	TPU:			+/-0.0813						
**Americium-243 Tracer	2.08			2.09	pCi/L		100	(50%-105%)		
	Uncert:			+/-0.0623						
	TPU:			+/-0.107						
QC1202782355 MB										
Americium-241			U	0.00	pCi/L				HAKB	11/26/1212:59
	Uncert:			+/-0.00454						
	TPU:			+/-0.00454						
**Americium-243 Tracer	2.08			1.95	pCi/L		93.7	(50%-105%)		
	Uncert:			+/-0.0619						
	TPU:			+/-0.107						
Batch 1264270										
QC1202782359 315545003 DUP										
Plutonium-238	U	-0.0027	U	-0.00277	pCi/L	0.0034		(0-1)	HAKB	11/23/1212:47
	Uncert:	+/-0.00468		+/-0.0062						
	TPU:	+/-0.00468		+/-0.0062						
Plutonium-239/240	U	0.00	U	0.00832	pCi/L	0.358		(0-1)		
	Uncert:	+/-0.0054		+/-0.0062						
	TPU:	+/-0.0054		+/-0.00621						
**Plutonium-242 Tracer	2.43	1.95		1.93	pCi/L		79.3	(50%-105%)		
	Uncert:	+/-0.0811		+/-0.0822						
	TPU:	+/-0.134		+/-0.136						
QC1202782360 LCS										
Plutonium-238			U	0.0176	pCi/L			(80%-120%)	HAKB	11/23/1212:47
	Uncert:			+/-0.00647						
	TPU:			+/-0.00652						
Plutonium-239/240	2.03			2.00	pCi/L		98.7	(80%-120%)		
	Uncert:			+/-0.0626						
	TPU:			+/-0.106						
**Plutonium-242 Tracer	1.94			1.78	pCi/L		91.5	(50%-105%)		
	Uncert:			+/-0.0617						
	TPU:			+/-0.104						
QC1202782358 MB										

QC Summary

Workorder: 315352

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1264270										
Plutonium-238			U	0.00	pCi/L				HAKB	11/23/1212:47
	Uncert:			+/-0.00274						
	TPU:			+/-0.00274						
Plutonium-239/240			U	0.00387	pCi/L					
	Uncert:			+/-0.00387						
	TPU:			+/-0.00387						
**Plutonium-242 Tracer	1.94			1.73	pCi/L		89.1	(50%-105%)		
	Uncert:			+/-0.0614						
	TPU:			+/-0.103						
Batch 1264271										
QC1202782362 315545003 DUP										
Uranium-234		0.311		0.370	pCi/L	0.375		(0-1)	HAKB	11/23/1212:46
	Uncert:	+/-0.0301		+/-0.0343						
	TPU:	+/-0.0365		+/-0.0423						
Uranium-235/236	U	0.00648	U	0.0141	pCi/L	0.213		(0-1)		
	Uncert:	+/-0.00916		+/-0.00862						
	TPU:	+/-0.00917		+/-0.00867						
Uranium-238		0.197		0.199	pCi/L	0.0254		(0-1)		
	Uncert:	+/-0.0233		+/-0.0248						
	TPU:	+/-0.0265		+/-0.028						
**Uranium-232 Tracer	2.73	2.48		2.13	pCi/L		77.9	(50%-105%)		
	Uncert:	+/-0.085		+/-0.0891						
	TPU:	+/-0.196		+/-0.199						
QC1202782363 LCS										
Uranium-234				2.63	pCi/L				HAKB	11/23/1212:46
	Uncert:			+/-0.0837						
	TPU:			+/-0.194						
Uranium-235/236				0.148	pCi/L					
	Uncert:			+/-0.0228						
	TPU:			+/-0.0248						
Uranium-238	2.70			2.59	pCi/L		95.8	(80%-120%)		
	Uncert:			+/-0.0828						
	TPU:			+/-0.191						
**Uranium-232 Tracer	2.19			1.41	pCi/L		64.5	(50%-105%)		
	Uncert:			+/-0.0765						
	TPU:			+/-0.164						
QC1202782361 MB										
Uranium-234			U	0.00481	pCi/L				HAKB	11/23/1212:46
	Uncert:			+/-0.0101						
	TPU:			+/-0.0101						
Uranium-235/236			U	0.00572	pCi/L					
	Uncert:			+/-0.007						
	TPU:			+/-0.00701						
Uranium-238			U	0.00462	pCi/L					
	Uncert:			+/-0.00731						
	TPU:			+/-0.00732						
**Uranium-232 Tracer	2.19			1.67	pCi/L		76.3	(50%-105%)		
	Uncert:			+/-0.0715						

QC Summary

Workorder: 315352

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1264271										
	TPU:			+/-0.159						
Rad Gamma Spec										
Batch 1264174										
QC1202782105 315352001 DUP										
Cesium-137	U	0.667	U	-1.76	pCi/L	0.452		(0-1)	KXG3	11/19/1212:03
	Uncert:	+/-1.26		+/-1.43						
	TPU:	+/-1.26		+/-1.43						
Cobalt-60	U	-0.571	U	-1.22	pCi/L	0.120		(0-1)		
	Uncert:	+/-1.09		+/-1.61						
	TPU:	+/-1.09		+/-1.61						
Neptunium-237	U	-0.694	U	-3.29	pCi/L	0.215		(0-1)		
	Uncert:	+/-3.03		+/-3.01						
	TPU:	+/-3.03		+/-3.01						
Potassium-40	U	-17.2	U	-34	pCi/L	0.230		(0-1)		
	Uncert:	+/-19.7		+/-16.8						
	TPU:	+/-19.7		+/-16.8						
Sodium-22	U	0.918	U	0.637	pCi/L	0.0497		(0-1)		
	Uncert:	+/-1.26		+/-1.57						
	TPU:	+/-1.26		+/-1.57						
QC1202782106 LCS										
Americium-241	2780			2900	pCi/L		104	(80%-120%)	KXG3	11/19/1209:32
	Uncert:			+/-202						
	TPU:			+/-202						
Cesium-137	6090			6150	pCi/L		101	(80%-120%)		
	Uncert:			+/-255						
	TPU:			+/-255						
Cobalt-60	5640			5620	pCi/L		99.7	(80%-120%)		
	Uncert:			+/-233						
	TPU:			+/-233						
Neptunium-237			U	-33.7	pCi/L					
	Uncert:			+/-21.1						
	TPU:			+/-21.1						
Potassium-40			U	-65.4	pCi/L					
	Uncert:			+/-46.2						
	TPU:			+/-46.2						
Sodium-22			U	-6.45	pCi/L					
	Uncert:			+/-6.01						
	TPU:			+/-6.01						
QC1202782104 MB										
Cesium-137			U	-0.063	pCi/L				KXG3	11/19/1209:32
	Uncert:			+/-1.06						
	TPU:			+/-1.06						
Cobalt-60			U	1.61	pCi/L					
	Uncert:			+/-1.30						
	TPU:			+/-1.30						
Neptunium-237			U	1.61	pCi/L					
	Uncert:			+/-2.44						
	TPU:			+/-2.44						

QC Summary

Workorder: 315352

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1264174										
Potassium-40			U	16.7	pCi/L					
Uncert:				+/-14.8						
TPU:				+/-14.8						
Sodium-22			U	0.208	pCi/L					
Uncert:				+/-1.16						
TPU:				+/-1.16						
Rad Gas Flow										
Batch 1264650										
QC1202783219 315352005 DUP										
Strontium-90	U	-0.0566	U	-0.266	pCi/L	0.500		(0-1)	VXC2	12/03/1212:39
Uncert:		+/-0.120		+/-0.0895						
TPU:		+/-0.120		+/-0.0896						
**Strontium Carrier	7.17	6.60		7.10	mg		99.1	(50%-105%)		
QC1202783221 LCS										
Strontium-90	24.8			22.4	pCi/L		90.1	(80%-120%)	VXC2	11/30/1216:05
Uncert:				+/-0.604						
TPU:				+/-1.95						
**Strontium Carrier	7.17			7.10	mg		99.1	(50%-105%)		
QC1202783218 MB										
Strontium-90			U	0.227	pCi/L				VXC2	11/30/1216:11
Uncert:				+/-0.149						
TPU:				+/-0.150						
**Strontium Carrier	7.17			6.90	mg		96.3	(50%-105%)		
QC1202783220 315352005 MS										
Strontium-90	124 U	-0.0566		113	pCi/L		91.1	(75%-125%)	VXC2	11/30/1216:04
Uncert:		+/-0.120		+/-3.14						
TPU:		+/-0.120		+/-9.63						
**Strontium Carrier	7.17	6.60		6.60	mg		92.1	(50%-105%)		
Batch 1268150										
QC1202791496 315159001 DUP										
Alpha	U	0.830	U	0.155	pCi/L	0.312		(0-1)	DYT1	12/06/1213:08
Uncert:		+/-0.612		+/-0.463						
TPU:		+/-0.616		+/-0.464						
Beta	U	1.67	U	1.12	pCi/L	0.184		(0-1)		12/05/1216:21
Uncert:		+/-0.821		+/-0.671						
TPU:		+/-0.833		+/-0.677						
QC1202791499 LCS										
Alpha	12.0			11.7	pCi/L		97.3	(80%-120%)	DYT1	12/06/1213:02
Uncert:				+/-0.616						
TPU:				+/-1.20						
Beta	49.6			51.8	pCi/L		104	(80%-120%)		12/05/1216:18
Uncert:				+/-0.934						
TPU:				+/-4.41						
QC1202791495 MB										
Alpha			U	-0.0368	pCi/L				DYT1	12/06/1213:07
Uncert:				+/-0.0451						
TPU:				+/-0.0452						
Beta			U	-0.135	pCi/L					12/05/1216:20

QC Summary

Workorder: **315352**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1268150										
	Uncert:			+/-0.106						
	TPU:			+/-0.106						
QC1202791497 315159001 MS										
Alpha	481	0.830	U	473	pCi/L		98.2	(75%-125%)	DYT1	12/06/1213:01
	Uncert:	+/-0.612		+/-24.9						
	TPU:	+/-0.616		+/-47.7						
Beta	1980	1.67	U	2190	pCi/L		110	(75%-125%)		12/05/1216:18
	Uncert:	+/-0.821		+/-39.0						
	TPU:	+/-0.833		+/-185						
QC1202791498 315159001 MSD										
Alpha	481	0.830	U	472	pCi/L	0.000951	98.1	(0-1)	DYT1	12/06/1213:01
	Uncert:	+/-0.612		+/-25.1						
	TPU:	+/-0.616		+/-48.5						
Beta	1980	1.67	U	2150	pCi/L	0.0534	108	(0-1)		12/05/1216:18
	Uncert:	+/-0.821		+/-38.8						
	TPU:	+/-0.833		+/-191						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.

QC Summary

Workorder: **315352**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-321

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Special Instructions:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CASA-13-24211	Nov 14 2012	12:52	W			1			1	1
CASA-13-24219	Nov 14 2012	12:52	W	1	1		1	1		

Special Instructions:

Relinquished by: Melissa Martyn		Date/Time: 11/15/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24211 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/14/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1252	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-35b	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Sampled within 50' of running diesel generator.

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 6.14 mg/L Oxidation-Reduction Potential 188.4 MV pH 7.66 SU

Specific Conductance 170 uS/cm Temperature 21.07 deg C Turbidity 0.51 NTU

COLLECTED BY (PRINT) W. Shan

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) David Fellenz (Signature)	11/14/12 1400	(Printed Name) W. Martin (Signature)	11/14/12 1400
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24219 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/14/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1252	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-35b	↓	FIELD PREP:	F	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
↓	WSP-GENINORG	1 LITER POLY	1	ICE	↓	↓
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS:

LOCATION COMMENTS: See CASA-13-24211

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) W. Shan

RELINQUISHED BY (Printed Name) David Fellenz **(Signature)**	**Date/Time** 11/14/12 1400	**RECEIVED BY (Printed Name)** **(Signature)**	**Date/Time** 11/14/12 1400
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-321

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
315351	EPA:120.1	1				
315351	EPA:150.1	1				
315351	EPA:160.1	1				
315351	EPA:245.2	1				
315351	EPA:300.0	1				
315351	EPA:310.1	1				
315351	EPA:350.1	1				
315351	EPA:351.2	1				
315351	EPA:353.2	1				
315351	EPA:365.4	1				
315351	EPA:900	1				
315351	EPA:901.1	1				
315351	EPA:905.0	1				
315351	HASL-300:AM-241	1				
315351	HASL-300:ISOPU	1				
315351	HASL-300:ISOU	1				
315351	SM:A2340B	1				
315351	SW-846:6010B	1				
315351	SW-846:6020	1				
315351	SW-846:6850	1				
315351	SW-846:9060	1				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
315351	EPA:120.1	1267060	1267060	1							
315351	EPA:150.1	1265360	1265360	1							
315351	EPA:160.1	1264462	1264462	1					1		
315351	EPA:245.2	1266834	1266827	1					1	1	
315351	EPA:300.0	1264118	1264118	1					1		
315351	EPA:310.1	1265998	1265998	1					2	1	
315351	EPA:350.1	1265956	1265955	1					1	1	1
315351	EPA:351.2	1265958	1265957	1					1	1	
315351	EPA:353.2	1263016	1263016	1					1		
315351	EPA:365.4	1263579	1263578	1					1	1	1
315351	EPA:900	1268150	1268150	1					1	1	1
315351	EPA:901.1	1264174	1264174	1					1		
315351	EPA:905.0	1264650	1264650	1					1	1	
315351	HASL-300:AM-241	1264269	1264269	1					1		
315351	HASL-300:ISOPU	1264270	1264270	1					1		
315351	HASL-300:ISOU	1264271	1264271	1					1		
315351	SM:A2340B	1270221	1270221	1							
315351	SW-846:6010B	1264954	1264953	1					1	1	
315351	SW-846:6020	1264956	1264955	1					1	1	
315351	SW-846:6850	1265809	1265808	1					1	2	2
315351	SW-846:9060	1265851	1265851	1					1		

2. Distribution Of Analytes In EDD.

Data Validation Report for: Chain Of Custody No. 2013-321

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				1			
		1				1			
		1				2			
		1				1			
		1				1			
		2				1			
		1				1			
		1				1			
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1							
		1				1			

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CASA-13-24219	1202788865	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CASA-13-24219	315351002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202788867	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24219	1202784743	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24219	315351002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202784744	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CASA-13-24219	1202782758	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CASA-13-24219	315351002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202782760	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202782757	MB	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	SWWS46-13-24772	1202782759	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24281	1202788351	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24281	1202788352	MS	0	0	1	0
EPA:245.2	INORGANIC	CASA-13-24219	315351002	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202788350	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202788349	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CASA-13-24218	1202781991	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CASA-13-24219	315351002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202781993	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202781990	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CASA-13-24219	1202786324	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CASA-13-24219	1202786330	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CASA-13-24219	315351002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202786332	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202786333	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202786320	MB	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202786321	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	1202786154	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	1202786155	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	1202786156	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24219	315351002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202786157	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202786153	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24210	1202786159	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24210	1202786161	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24211	315351001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202786165	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202786158	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24266	1202780694	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CASA-13-24219	315351002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202779484	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202779479	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	SWWS46-13-24772	1202782515	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	1202786124	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	1202786125	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	1202786126	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24219	315351002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202780727	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202780723	MB	1	0	0	0
EPA:900	RAD	CAMO-13-24249	1202791496	DUP	2	0	0	0
EPA:900	RAD	CAMO-13-24249	1202791497	MS	0	0	2	0
EPA:900	RAD	CAMO-13-24249	1202791498	MSD	0	0	2	0
EPA:900	RAD	CASA-13-24211	315351001	REG	2	0	0	0

EPA:900	RAD	LCS	1202791499	LCS	0	0	2	0
EPA:900	RAD	MB	1202791495	MB	2	0	0	0
EPA:901.1	RAD	CASA-13-24211	315351001	REG	5	0	0	0
EPA:901.1	RAD	CASA-13-24212	1202782105	DUP	6	0	0	0
EPA:901.1	RAD	LCS	1202782106	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202782104	MB	6	0	0	0
EPA:905.0	RAD	CASA-13-24206	1202783219	DUP	1	0	0	0
EPA:905.0	RAD	CASA-13-24206	1202783220	MS	0	0	1	0
EPA:905.0	RAD	CASA-13-24211	315351001	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202783221	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202783218	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24271	1202782356	DUP	1	0	0	0
HASL-300:AM-241	RAD	CASA-13-24211	315351001	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202782357	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202782355	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24271	1202782359	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CASA-13-24211	315351001	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202782360	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202782358	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24271	1202782362	DUP	3	0	0	0
HASL-300:ISOU	RAD	CASA-13-24211	315351001	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202782363	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202782361	MB	3	0	0	0
SM:A2340B	INORGANIC	CASA-13-24219	315351002	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAPA-13-24782	1202783824	DUP	22	0	0	0
SW-846:6010B	INORGANIC	CAPA-13-24782	1202783825	MS	0	0	22	0
SW-846:6010B	INORGANIC	CASA-13-24219	315351002	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202783823	LCS	0	0	22	0
SW-846:6010B	INORGANIC	MB	1202783822	MB	22	0	0	0
SW-846:6020	INORGANIC	CASA-13-24218	1202783829	DUP	13	0	0	0
SW-846:6020	INORGANIC	CASA-13-24218	1202783830	MS	0	0	13	0
SW-846:6020	INORGANIC	CASA-13-24219	315351002	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202783828	LCS	0	0	13	0
SW-846:6020	INORGANIC	MB	1202783827	MB	13	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24268	1202785742	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24268	1202785743	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24219	315351002	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202785741	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202785740	MB	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	WST50-12-23903	1202785744	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	WST50-12-23903	1202785745	MSD	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	CASA-13-24211	1202785853	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CASA-13-24211	315351001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202785855	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202785852	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202788349	METHOD BLANK	EPA:245.2	W	Mercury	-0.081	J	ug/L	0.2

Any samples affected by the presence of contaminants in blanks?

Field Sample ID	Blank Field Sample ID	Blank Lab Sample ID	Blank Type	Analytical Method	Parameter Name	Units	Blank Result	Sample Result	Lab Qualifier	Detect Limit	Detected
CASA-13-24219	MB	1202788349	METHOD BLANK	EPA:245.2	Mercury	ug/L	-0.081	0.067	U	0.2	N

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CASA-13-24218	1202786155	1202786156	EPA:350.1	Ammonia as Nitrogen	1265955	11/27/2012	W	93.1	110	110	90
CASA-13-24210	1202786161		EPA:351.2	Total Kjeldahl Nitrogen	1265957	12/7/2012	W	88.1		110	90

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-35b	2013-321	CASA-13-24211	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-35b	2013-321	CASA-13-24211	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-35b	2013-321	CASA-13-24211	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N

Correction Factor (ND)	Correction Factor (J)	Use Factors
5		Y

Rejection Limit	RPD	RPD Limit
10	15.9	15
10		

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
0.0027	pCi/L	0.0027	pCi/L	0.0307	0.00603	W	11/14/2012		1264269	VAL	Y
-0.738	pCi/L	-0.738	pCi/L	5.66	1.56	W	11/14/2012		1264174	VAL	Y
0.83	pCi/L	0.83	pCi/L	5.41	1.26	W	11/14/2012		1264174	VAL	Y

R-35b	2013-321	CASA-13-24211	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-35b	2013-321	CASA-13-24211	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-35b	2013-321	CASA-13-24211	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-35b	2013-321	CASA-13-24211	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-35b	2013-321	CASA-13-24211	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-35b	2013-321	CASA-13-24211	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-35b	2013-321	CASA-13-24211	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-35b	2013-321	CASA-13-24211	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-35b	2013-321	CASA-13-24211	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N

Reason Code	Description
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CASA-13-24211	R-35b	REG	EPA:351.2	0	1
CASA-13-24211	R-35b	REG	EPA:900	0	2
CASA-13-24211	R-35b	REG	EPA:901.1	0	5
CASA-13-24211	R-35b	REG	EPA:905.0	0	1
CASA-13-24211	R-35b	REG	HASL-300:AM-241	0	1
CASA-13-24211	R-35b	REG	HASL-300:ISOPU	0	2
CASA-13-24211	R-35b	REG	HASL-300:ISOU	0	3
CASA-13-24211	R-35b	REG	SW-846:9060	0	1
CASA-13-24219	R-35b	REG	EPA:120.1	0	1
CASA-13-24219	R-35b	REG	EPA:150.1	0	1
CASA-13-24219	R-35b	REG	EPA:160.1	0	1
CASA-13-24219	R-35b	REG	EPA:245.2	0	1
CASA-13-24219	R-35b	REG	EPA:300.0	0	4
CASA-13-24219	R-35b	REG	EPA:310.1	0	2
CASA-13-24219	R-35b	REG	EPA:350.1	0	1
CASA-13-24219	R-35b	REG	EPA:353.2	0	1
CASA-13-24219	R-35b	REG	EPA:365.4	0	1
CASA-13-24219	R-35b	REG	SM:A2340B	0	1
CASA-13-24219	R-35b	REG	SW-846:6010B	0	17
CASA-13-24219	R-35b	REG	SW-846:6020	0	11
CASA-13-24219	R-35b	REG	SW-846:6850	0	1

0.603	pCi/L	0.603	pCi/L	2.13	0.59	W	11/14/2012		1268150	VAL	Y
1.06	pCi/L	1.06	pCi/L	2.41	0.724	W	11/14/2012		1268150	VAL	Y
-2.49	pCi/L	-2.49	pCi/L	10.4	3.02	W	11/14/2012		1264174	VAL	Y
0.00574	pCi/L	0.00574	pCi/L	0.0276	0.00574	W	11/14/2012		1264270	VAL	Y
0.0115	pCi/L	0.0115	pCi/L	0.0458	0.00703	W	11/14/2012		1264270	VAL	Y
-23.1	pCi/L	-23.1	pCi/L	65.3	17.2	W	11/14/2012		1264174	VAL	Y
0.177	pCi/L	0.177	pCi/L	6.46	1.73	W	11/14/2012		1264174	VAL	Y
-0.174	pCi/L	-0.174	pCi/L	0.497	0.113	W	11/14/2012		1264650	VAL	Y
0.0148	pCi/L	0.0148	pCi/L	0.0433	0.0104	W	11/14/2012		1264271	VAL	Y

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

December 13, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 315351
SDG: 2013-321

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 16, 2012, and analyzed for General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-321
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 315351
SDG: 2013-321

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....10

Perchlorates by LCMSMS Analysis.....12

Case Narrative.....13

Sample Data Summary.....19

Quality Control Summary.....21

Quality Control Data.....24

Miscellaneous.....30

Metals Analysis.....32

Case Narrative.....33

Sample Data Summary.....39

Quality Control Summary.....43

General Chem Analysis.....57

Case Narrative.....58

Sample Data Summary.....86

Quality Control Summary.....91

Miscellaneous.....96

Radiological Analysis.....100

Sample Data Summary.....112

Quality Control Data.....115

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 315351
SDG # : 2013-321

December 13, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 16, 2012 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Container received for Gross A/B was preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). The containers for Radiological test was received with temperature of 15,17c. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
315351001	CASA-13-24211
315351002	CASA-13-24219

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Hope Taylor for
Valerie Davis
Project Manager

List of current GEL Certifications as of 13 December 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

315351

COC/Lab Request #: 2013-321

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CASA-13-24211	Nov 14 2012	12:52	W			1			1	1
CASA-13-24219	Nov 14 2012	12:52	W	1	1		1	1		

Special Instructions:

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
Melissa Montoya		11/15/12 3:00	P. Nent	11-16-12 0900
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/AR/COC/Work Order: 2013-321**
Received By: Patricia Dent	**Date Received:November 16, 2012**

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0CPM**
Classified Radioactive II or III by RSO?		X	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		X	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **2-4,15,17C**
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524646**
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			X	Sample ID's, containers affected and observed pH:**CASA-13-24211 for Gross A/B** If Preservation added, Lot#**L03022**
6	VOA vials free of headspace (defined as < 6mm bubble)?		X		Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?	X			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			X	**CLIENTS**
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.	X			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9832 5403 2C 5462 9832 5399 3C 5462 9832 5414 4C 5462 9832 5377 15C 5462 9832 5388 17C**

Comments (Use Continuation Form if needed):

PM (PMA) review Initials HH Date 11/19/12 Page 1 of 1

Subject: Sample receipt issues from 11/16/12
From: Pat Dent <Pat.Dent@gel.com>
Date: 11/17/2012 8:33 AM
To: "Keith R. Greene" <kgreene@lanl.gov>
CC: "team.davis" <team.davis@gel.com>, LANL@amrad.com

Good Morning all listed below are issues that occurred 11/16/12

Containers received for Gross A/B was preserved prior to analysis

RN#2013-322
Sample ID CASA-13-24208 the lab received 1 8260b container instead of 2 as indicated on coc.
CASA-13-24206,24212 the lab received 2 SVOA containers coc indicates 3.
CASA-13-24205 the lab received 1 SVOA,1 PCB containers each coc indicates 3.

Thanks!! Pat Dent

--
Patricia Dent
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Rd.
Charleston, S.C. 29407
Main: 843-556-8171 Ext 4264
Fax: 843-766-1178
Email: pad@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 15NOV12
ACTWGT: 51.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: WE991158W100

2c

FedEx Express

2 of 2
MPS# 0263 5462 9832 5403
Mstr# 5462 9832 5399 0201

FRI - 16 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

NPDES

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 15NOV12
ACTWGT: 49.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: WE991158W100

3c

FedEx Express

1 of 2
TRK# 0201 5462 9832 5399
MASTER

FRI - 16 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 15NOV12
ACTWGT: 28.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: WE6L11570000

4c

FedEx Express

TRK# 0201 5462 9832 5414

FRI - 16 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 15NOV12
ACTWGT: 53.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

15c

FedEx Express

1 of 2
TRK# 0201 5462 9832 5377
MASTER

FRI - 16 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 15NOV12
ACTWGT: 40.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

17C

5GDC3/EE38/18BC

FedEx Express

J111311060601125

2 of 2

MPS# 0263 5462 9832 5388
Mstr# 5462 9832 5377

FRI - 16 NOV A1
PRIORITY OVERNIGHT
0201

XX CHSA

29407
SC-US CHS

Part # 156148-434 RITZ 08/10

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC/MSMS
ARS International (ARSL)
SDG 2013-321

Method/Analysis Information

Procedure:	**Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method:	SW846 6850 Modified
Prep Method:	SW846 6850 Modified
Analytical Batch Number:	1265809
Prep Batch Number:	1265808

Sample Analysis

Sample ID	Client ID
315351002	CASA-13-24219
1202785746	Interference Check Sample (ICS)
1202785740	Method Blank (MB)
1202785741	Laboratory Control Sample (LCS)
1202785742	315450004(CAMO-13-24268) Matrix Spike (MS)
1202785743	315450004(CAMO-13-24268) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 9.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

ICV Requirements
All associated initial calibration verification standards (ICV) met the acceptance criteria.

CCB Requirements
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

CCV Requirements
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

Low Level Standard (CRI) Requirements
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Interference Check Sample (ICS)
The interference check sample (ICS) met all recovery acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Client sample 315450004 (CAMO-13-24268) from SDG 2013-334 was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
A low recovery for Perchlorate-101 was observed in MS (1202785742). The acceptance range is 75-125%. This may be the result of the background concentration or matrix effect present in the parent sample, 315450004 (CAMO-13-24268), and the need to dilute all at a 1:10 dilution prior to analysis.

Matrix Spike Duplicate (MSD) Recovery Statement
A negative recovery for Perchlorate-101 was observed in MSD (1202785743). The acceptance range is 75-125%. This may be the result of the background concentration or matrix effect present in the parent sample, 315450004 (CAMO-13-24268), and the need to dilute all at a 1:10 dilution prior to analysis.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits.

Retention Time Standard Area Acceptance
The retention time standard areas were within the required acceptance criteria for all samples and QC.

Retention Time
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
QC samples 1202785742 (CAMO-13-24268MS) and 1202785743 (CAMO-13-24268MSD) were diluted to bring the over range concentrations within the calibration range.

Sample Re-extraction/Re-analysis
Sample 315351002 (CASA-13-24219) was re-analyzed to confirm the potential of carryover from the previous sample. The re-analysis data are reported.

Miscellaneous Information

Data Exception (DER) Documentation
Data Exception Report 1146217 was generated for this SDG.

A low recovery for Perchlorate-101 was observed in MS (1202785742). The acceptance range is 75-125%. This may be the result of the background concentration or matrix effect present in the parent sample, 315450004 (CAMO-13-24268), and the need to dilute all at a 1:10 dilution prior to analysis.

A negative recovery for Perchlorate-101 was observed in MSD (1202785743). The acceptance range is 75-125%. This may be the result of the background concentration or matrix effect present in the parent sample, 315450004 (CAMO-13-24268), and the need to dilute all at a 1:10 dilution prior to analysis.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

Additional Comments
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples.

Please see the isotope ratio criteria in the Miscellaneous Section.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-321 GEL Work Order: 315351

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 06 DEC 2012 **Title: Group Leader**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24219

Date Received: 16-NOV-12

GEL Job No (SDG): 2013-321

GEL Sample ID: 315351002

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.591	ug/L		1	28-NOV-12 18:47	per1128033a
	Perchlorate Isotope Ratio			3.17			1	28-NOV-12 18:47	per1128033a
14797-73-0	Perchlorate-101	.05	.2	0.596	ug/L		1	28-NOV-12 18:47	per1128033a
	Perchlorate-O(18)			0.527	ug/L		1	28-NOV-12 18:47	per1128033a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2013-321

Extract Batch Code: 1265808

Date Filtered: 27-NOV-12

Matrix: WATER

Sample ID: 1202785741

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.195	ug/L	97.3		85 - 115
Perchlorate Isotope Ratio		3.2				-
Perchlorate-101	0.200	.195	ug/L	97.3		85 - 115
Perchlorate-O(18)		.492	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2013-321

Extract Batch Code: 1265808

Date Extracted: 27-NOV-12

GEL MS/PS ID: 1202785742

Client ID: CAMO-13-24268

GEL MSD/PSD ID: 1202785743

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Recovery Limit
Perchlorate	0.200	6.13	ug/L	6.31	90.5		6.37	121		.968		30	75 - 125
Perchlorate Isotope Ratio	0	3.05		3.14			3.2			2.03			-
Perchlorate-101	0.200	6.29	ug/L	6.30	4.99	*	6.23	-28.4	*	1.07		30	75 - 125
Perchlorate-O(18)	0	4.99	ug/L	5.05			5.06			.136			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 27-NOV-12

GEL Job No (SDG): 2013-321

GEL Sample ID: 1202785740

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	28-NOV-12 14:44	per1128012a
	Perchlorate Isotope Ratio						1	28-NOV-12 14:44	per1128012a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	28-NOV-12 14:44	per1128012a
	Perchlorate-O(18)			0.500	ug/L		1	28-NOV-12 14:44	per1128012a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 27-NOV-12

GEL Job No (SDG): 2013-321

GEL Sample ID: 1202785741

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.195	ug/L	J	1	28-NOV-12 14:56	per1128013a
	Perchlorate Isotope Ratio			3.2			1	28-NOV-12 14:56	per1128013a
14797-73-0	Perchlorate-101	.05	.2	0.195	ug/L	J	1	28-NOV-12 14:56	per1128013a
	Perchlorate-O(18)			0.492	ug/L		1	28-NOV-12 14:56	per1128013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2013-321

GEL Sample ID: 1202785746

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.198	ug/L	J	1	28-NOV-12 15:08	per1128014a
	Perchlorate Isotope Ratio			3.07			1	28-NOV-12 15:08	per1128014a
14797-73-0	Perchlorate-101	.05	.2	0.206	ug/L		1	28-NOV-12 15:08	per1128014a
	Perchlorate-O(18)			0.522	ug/L		1	28-NOV-12 15:08	per1128014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24268MS

Date Received: 17-NOV-12

GEL Job No (SDG): 2013-321

GEL Sample ID: 1202785742

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	6.31	ug/L		10	30-NOV-12 14:22	per1130013a
	Perchlorate Isotope Ratio			3.14			10	30-NOV-12 14:22	per1130013a
14797-73-0	Perchlorate-101	.5	2	6.30	ug/L		10	30-NOV-12 14:22	per1130013a
	Perchlorate-O(18)			5.05	ug/L		10	30-NOV-12 14:22	per1130013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24268MSD

Date Received: 17-NOV-12

GEL Job No (SDG): 2013-321

GEL Sample ID: 1202785743

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	6.37	ug/L		10	30-NOV-12 14:33	per1130014a
	Perchlorate Isotope Ratio			3.2			10	30-NOV-12 14:33	per1130014a
14797-73-0	Perchlorate-101	.5	2	6.23	ug/L		10	30-NOV-12 14:33	per1130014a
	Perchlorate-O(18)			5.06	ug/L		10	30-NOV-12 14:33	per1130014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
05-DEC-12	Federal	Others	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LC-MS/MS	SW846-6850 Modified	Liquid	ARSL001
Batch ID:	**Sample Numbers:**		
1265809	See below		

Potentially affected work order(s)(SDG): 315267(2013-312),315285(2013-311),315351(2013-321),315352(2013-322),315450(2013-334)

Application Issues:

Failed Recovery for MS/PS

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Spike recoveries outside the acceptance range of 75-125% were observed for MS (1202785744) and MSD (1202785745). Please see the Form 3 in the data package for a complete list of recoveries. 2. Low recovery for Perchlorate-101 was observed in MS (1202785742). The acceptance range is 75-125%. 3. A negative recovery for Perchlorate-101 was observed in MSD (1202785743). The acceptance range is 75-125%.	1. The outliers observed in the matrix spikes may be the result of the background concentration present in the parent sample, 315285003, and the need to dilute all at a 1:250 dilution prior to analysis. 2. & 3. The outliers observed in the matrix spikes may be the result of the background concentration present in the parent sample, 315450004, and the need to dilute all at a 1:10 dilution prior to analysis.

Originator's Name:

Charles Wilson 05-DEC-12

Data Validator/Group Leader:

Michael Penny 05-DEC-12

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-321

Sample Analysis

Sample ID	Client ID
315351002	CASA-13-24219
1202783822	Method Blank (MB) **ICP**
1202783823	Laboratory Control Sample (LCS)
1202783826	315453014(CAPA-13-24782L) Serial Dilution (SD)
1202783824	315453014(CAPA-13-24782D) Sample Duplicate (DUP)
1202783825	315453014(CAPA-13-24782S) Matrix Spike (MS)
1202783827	Method Blank (MB) **ICP-MS**
1202783828	Laboratory Control Sample (LCS)
1202783831	315267002(CASA-13-24218L) Serial Dilution (SD)
1202783829	315267002(CASA-13-24218D) Sample Duplicate (DUP)
1202783830	315267002(CASA-13-24218S) Matrix Spike (MS)
1202788349	Method Blank (MB) **CVAA**
1202788350	Laboratory Control Sample (LCS)
1202788353	315353002(CAMO-13-24281L) Serial Dilution (SD)
1202788351	315353002(CAMO-13-24281D) Sample Duplicate (DUP)
1202788352	315353002(CAMO-13-24281S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1264954, 1264956, 1266834 and 1270221
Prep Batch :	1264953, 1264955 and 1266827
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 8
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B
Prep Method :	SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 315453014 (CAPA-13-24782)-ICP, 315267002 (CASA-13-24218)-ICP-MS and 315353002 (CAMO-13-24281)-CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified

holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instruments. Dilutions were required for this SDG in order to minimize tin suppression due to matrix interferences.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness

by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 12/13/12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-321 GEL Work Order: 315351

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by 12/13/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-321 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 315351002 **BASIS:** As Received **DATE COLLECTED** 14-NOV-12

CLIENT ID: CASA-13-24219 **LEVEL:** Low **DATE RECEIVED** 16-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/30/12 08:55	113012W1-4	1266834

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-321 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 315351002 **BASIS:** As Received **DATE COLLECTED** 14-NOV-12

CLIENT ID: CASA-13-24219 **LEVEL:** Low **DATE RECEIVED** 16-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	12/05/12 14:32	120512A-1	1264954
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	SKJ	12/05/12 05:19	121204-3	1264956
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	SKJ	12/05/12 05:19	121204-3	1264956
7440-39-3	Barium	37.7	ug/L		1	5	5	1	P	HSC	12/05/12 14:32	120512A-1	1264954
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	12/05/12 14:32	120512A-1	1264954
7440-42-8	Boron	22	ug/L	J	15	50	50	1	P	HSC	12/05/12 14:32	120512A-1	1264954
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	SKJ	12/05/12 05:19	121204-3	1264956
7440-70-2	Calcium	15200	ug/L		50	200	200	1	P	HSC	12/05/12 14:32	120512A-1	1264954
7440-47-3	Chromium	5	ug/L	J	2	10	10	1	MS	SKJ	12/05/12 05:19	121204-3	1264956
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	12/05/12 14:32	120512A-1	1264954
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	12/05/12 14:32	120512A-1	1264954
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	12/05/12 14:32	120512A-1	1264954
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	SKJ	12/05/12 05:19	121204-3	1264956
7439-95-4	Magnesium	5130	ug/L		110	300	300	1	P	HSC	12/05/12 14:32	120512A-1	1264954
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	12/05/12 14:32	120512A-1	1264954
7439-98-7	Molybdenum	1.21	ug/L		0.165	0.5	0.5	1	MS	SKJ	12/05/12 05:19	121204-3	1264956
7440-02-0	Nickel	1.77	ug/L	J	0.5	2	2	1	MS	SKJ	12/05/12 05:19	121204-3	1264956
7440-09-7	Potassium	1980	ug/L		50	150	150	1	P	HSC	12/05/12 14:32	120512A-1	1264954
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	SKJ	12/05/12 05:19	121204-3	1264956
7631-86-9	Silica	75600	ug/L		53	213	213	1	P	HSC	12/05/12 14:32	120512A-1	1264954
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	SKJ	12/05/12 05:19	121204-3	1264956
7440-23-5	Sodium	11900	ug/L		100	300	300	1	P	HSC	12/05/12 14:32	120512A-1	1264954
7440-24-6	Strontium	67	ug/L		1	5	5	1	P	HSC	12/05/12 14:32	120512A-1	1264954
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	SKJ	12/05/12 05:19	121204-3	1264956
7440-31-5	Tin	50	ug/L	U	12.5	50	50	5	P	HSC	12/06/12 13:26	120612A-2	1264954
7440-61-1	Uranium	0.301	ug/L		0.067	0.2	0.2	1	MS	SKJ	12/05/12 05:19	121204-3	1264956
7440-62-2	Vanadium	14.4	ug/L		1	5	5	1	P	HSC	12/05/12 14:32	120512A-1	1264954
7440-66-6	Zinc	30	ug/L		3.3	10	10	1	P	HSC	12/05/12 14:32	120512A-1	1264954

METALS

INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-321 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 315351002 **BASIS:** As Received **DATE COLLECTED** 14-NOV-12

CLIENT ID: CASA-13-24219 **LEVEL:** Low **DATE RECEIVED** 16-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	59.1	mg/L		0.453	1.24	1.24	1		JJ2	12/13/12 08:32		1270221

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1264954	1264953	SW846 3005A	50	mL	50	mL	11/26/12	MTM1
1264956	1264955	SW846 3005A	50	mL	50	mL	11/26/12	MTM1
1266834	1266827	EPA 245.1/245.2 Prep	20	mL	20	mL	11/29/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**
P **SW846 3005/6010B**
AV **EPA 245.1/245.2**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−321

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202783822								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	50	ug/L	+/−150	U	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202783827								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202788349								
	Mercury	−0.081	ug/L	+/−0.2	J	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−321 **Client ID** CAPA−13−24782S

Contract: LANL00110 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315453014 **Spike ID:** 1202783825

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5430		68	U	5000	108		P
Barium	ug/L	75−125	526		1	U	500	105		P
Beryllium	ug/L	75−125	528		1	U	500	106		P
Boron	ug/L	75−125	521		15	U	500	104		P
Calcium	ug/L	75−125	5310		53.2	J	5000	105		P
Cobalt	ug/L	75−125	521		1	U	500	104		P
Copper	ug/L	75−125	529		3	U	500	106		P
Iron	ug/L	75−125	5440		30	U	5000	108		P
Magnesium	ug/L	75−125	5500		110	U	5000	110		P
Manganese	ug/L	75−125	531		2.59	J	500	106		P
Potassium	ug/L	75−125	5380		50	U	5000	108		P
Silica	ug/L	75−125	11100		98.8	J	10700	103		P
Sodium	ug/L	75−125	6000		140	J	5000	117		P
Strontium	ug/L	75−125	540		1	U	500	108		P
Tin	ug/L	75−125	521		2.5	U	500	104		P
Vanadium	ug/L	75−125	531		1	U	500	106		P
Zinc	ug/L	75−125	504		3.3	U	500	101		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−321 **Client ID** CASA−13−24218S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315267002 **Spike ID:** 1202783830

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	200		1	U	200	99.6		MS
Arsenic	ug/L	75−125	76.1		1.7	U	80	95		MS
Cadmium	ug/L	75−125	10.2		0.11	U	10	102		MS
Chromium	ug/L	75−125	50.9		6.25	J	50	89.4		MS
Lead	ug/L	75−125	40.7		0.5	U	40	102		MS
Molybdenum	ug/L	75−125	50.7		1.36		50	98.6		MS
Nickel	ug/L	75−125	60.1		14.9		50	90.4		MS
Selenium	ug/L	75−125	19.6		1.5	U	20	97.4		MS
Silver	ug/L	75−125	51.2		0.2	U	50	102		MS
Thallium	ug/L	75−125	94.4		0.45	U	100	94.4		MS
Uranium	ug/L	75−125	51.3		0.693		50	101		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−321 **Client ID** CAMO−13−24281S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315353002 **Spike ID:** 1202788352

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.11		0.067	U	2	106		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−321 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAPA−13−24782D

Matrix: LIQUID **Level:** Low

Sample ID: 315453014 **Duplicate ID:** 1202783824 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L		1	U	1	U			P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	15	U			P
Calcium	ug/L	+/−200	53.2	J	54.3	J	2.11		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L		3	U	3	U			P
Iron	ug/L		30	U	30	U			P
Magnesium	ug/L		110	U	110	U			P
Manganese	ug/L	+/−10	2.59	J	2.87	J	10.2		P
Potassium	ug/L		50	U	50	U			P
Silica	ug/L	+/−213	98.8	J	149	J	40.3		P
Sodium	ug/L	+/−300	140	J	191	J	31.1		P
Strontium	ug/L		1	U	1	U			P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L		1	U	1	U			P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−321 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CASA−13−24218D

Matrix: LIQUID **Level:** Low

Sample ID: 315267002 **Duplicate ID:** 1202783829 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	6.25	J	5.64	J	10.2		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.36		1.28		6.21		MS
Nickel	ug/L	+/−20%	14.9		13.8		7.97		MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.693		0.637		8.42		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−321 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24281D

Matrix: LIQUID **Level:** Low

Sample ID: 315353002 **Duplicate ID:** 1202788351 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−321

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783823								
	Aluminum	ug/L	5000	5180		104	80−120	P
	Barium	ug/L	500	508		102	80−120	P
	Beryllium	ug/L	500	514		103	80−120	P
	Boron	ug/L	500	505		101	80−120	P
	Calcium	ug/L	5000	5100		102	80−120	P
	Cobalt	ug/L	500	499		99.8	80−120	P
	Copper	ug/L	500	516		103	80−120	P
	Iron	ug/L	5000	5250		105	80−120	P
	Magnesium	ug/L	5000	5280		106	80−120	P
	Manganese	ug/L	500	515		103	80−120	P
	Potassium	ug/L	5000	5150		103	80−120	P
	Silica	ug/L	10700	10600		98.8	80−120	P
	Sodium	ug/L	5000	5540		111	80−120	P
	Strontium	ug/L	500	519		104	80−120	P
	Tin	ug/L	500	502		100	80−120	P
	Vanadium	ug/L	500	517		103	80−120	P
	Zinc	ug/L	500	491		98.3	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−321

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783828								
	Antimony	ug/L	50	50.2		100	80−120	MS
	Arsenic	ug/L	50	48.4		96.9	80−120	MS
	Cadmium	ug/L	50	50.6		101	80−120	MS
	Chromium	ug/L	50	50.3		101	80−120	MS
	Lead	ug/L	50	52.5		105	80−120	MS
	Molybdenum	ug/L	50	48.5		97	80−120	MS
	Nickel	ug/L	50	52.4		105	80−120	MS
	Selenium	ug/L	50	49.3		98.6	80−120	MS
	Silver	ug/L	50	52.4		105	80−120	MS
	Thallium	ug/L	50	50.6		101	80−120	MS
	Uranium	ug/L	50	51.5		103	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−321

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202788350								
	Mercury	ug/L	2	2.09		104	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−321 **Client ID** CAPA−13−24782L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315453014 **Serial Dilution ID:** 1202783826

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	1	U	5	U				P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	53.2	J	250	U	100			P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	110	U	550	U				P
Manganese	2.59	J	10	U	100			P
Potassium	50	U	250	U				P
Silica	98.8	J	265	U	100			P
Sodium	140	J	500	U	100			P
Strontium	1	U	5	U				P
Tin	2.5	U	12.5	U				P
Vanadium	1	U	5	U				P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−321 **Client ID** CASA−13−24218L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315267002 **Serial Dilution ID:** 1202783831

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	6.25	J	10	U	100			MS
Lead	.5	U	12.6					MS
Molybdenum	1.36		2.34	J	71.4			MS
Nickel	14.9		15		.779			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.693		.64	J	7.65			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−321 **Client ID** CAMO−13−24281L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315353002 **Serial Dilution ID:** 1202788353

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-321

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1265851 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
315351001	CASA-13-24211
1202785852	Method Blank (MB)
1202785853	315351001(CASA-13-24211) Sample Duplicate (DUP)
1202785854	315351001(CASA-13-24211) Post Spike (PS)
1202785855	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315351001 (CASA-13-24211).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages

electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1267060	**Method:**	EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
315351002	CASA-13-24219
1202788865	315351002(CASA-13-24219) Sample Duplicate (DUP)
1202788867	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315351002 (CASA-13-24219).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1265360 **Method:** EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
315351002	CASA-13-24219
1202784743	315351002(CASA-13-24219) Sample Duplicate (DUP)
1202784744	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

The following sample was selected for QC analysis: 315351002 (CASA-13-24219).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following sample from this sample group was received by the lab outside of the method specified holding time: 315351002 (CASA-13-24219).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1143472 315351002 (CASA-13-24219).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1264118	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
315351002	CASA-13-24219
1202781990	Method Blank (MB)
1202781991	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202781992	315267002(CASA-13-24218) Post Spike (PS)
1202781993	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202781991 (CASA-13-24218), 1202781992 (CASA-13-24218) and 315351002 (CASA-13-24219).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1265956	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1265955	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
315351002	CASA-13-24219
1202786153	Method Blank (MB)
1202786154	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202786155	315267002(CASA-13-24218) Matrix Spike (MS)
1202786156	315267002(CASA-13-24218) Matrix Spike Duplicate (MSD)
1202786157	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The relative percent difference (RPD) between the Spike and Spike Duplicate was outside of the required acceptance limits. However, both the Spike and Spike Duplicate recoveries were within the required acceptance limits; therefore, the data is deemed acceptable. 1202786156 (CASA-13-24218).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1143774 1202786156 (CASA-13-24218).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1265958	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1265957	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
315351001	CASA-13-24211
1202786158	Method Blank (MB)
1202786159	315267001(CASA-13-24210) Sample Duplicate (DUP)
1202786161	315267001(CASA-13-24210) Matrix Spike (MS)
1202786165	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 13.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267001 (CASA-13-24210).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202786161 (CASA-13-24210).

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202786159 (CASA-13-24210).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1147238 1202786161 (CASA-13-24210).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are

present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1263016	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
315351002	CASA-13-24219
1202779479	Method Blank (MB)
1202779484	Laboratory Control Sample (LCS)
1202780694	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202780695	315159002(CAMO-13-24266) Post Spike (PS)
1202782515	315361001(SWWS46-13-24772) Sample Duplicate (DUP)
1202782516	315361001(SWWS46-13-24772) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 315159002 (CAMO-13-24266) and 315361001 (SWWS46-13-24772).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202780694 (CAMO-13-24266), 1202780695 (CAMO-13-24266), 1202782515 (SWWS46-13-24772) and 1202782516 (SWWS46-13-24772). The following sample in this sample group was diluted due to matrix interference: 315351002 (CASA-13-24219).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1263579	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1263578	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
315351002	CASA-13-24219
1202780723	Method Blank (MB)
1202780727	Laboratory Control Sample (LCS)
1202786124	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202786125	315267002(CASA-13-24218) Matrix Spike (MS)
1202786126	315267002(CASA-13-24218) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following sample was re-analyzed due to instrument failure: 1202780727 (LCS).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Solids, Total Dissolved**		
Analytical Batch:	1264462	**Method:**	EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
315351002	CASA-13-24219
1202782757	Method Blank (MB)
1202782758	315351002(CASA-13-24219) Sample Duplicate (DUP)
1202782759	315361001(SWWS46-13-24772) Sample Duplicate (DUP)
1202782760	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 315351002 (CASA-13-24219) and 315361001 (SWWS46-13-24772).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Alkalinity**		
Analytical Batch:	1265998	**Method:**	EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
315351002	CASA-13-24219
1202786324	315351002(CASA-13-24219) Sample Duplicate (DUP)
1202786330	315351002(CASA-13-24219) Matrix Spike (MS)
1202786333	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315351002 (CASA-13-24219).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____13Dec12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-321 GEL Work Order: 315351

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 13, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-321

Client Sample ID:	CASA-13-24211	Project:	ESHL00210
Sample ID:	315351001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	14-NOV-12 12:52		
Receive Date:	16-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	U	ND	0.330	1.00	mg/L	1	TSM	11/29/12	1522	1265851	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	J	0.0863	0.033	0.100	mg/L	1	KLP1	12/07/12	1506	1265958	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	12/06/12	1500	1265957

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 13, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-321

Client Sample ID:	CASA-13-24219	Project:	ESHL00210
Sample ID:	315351002	Client ID:	ARSL001
Matrix:	W		
Collect Date:	14-NOV-12 12:52		
Receive Date:	16-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		171	1.00	1.00	umhos/cm	1	LXA1	11/30/12	1420	1267060	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 12.1C	H	7.85	0.010	0.100	SU	1	LYG1	11/21/12	0848	1265360	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	J	0.0894	0.067	0.200	mg/L	1	MAR1	11/30/12	1732	1264118	3
Chloride		2.84	0.067	0.200	mg/L	1					
Fluoride		0.498	0.033	0.100	mg/L	1					
Sulfate		3.63	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	U	ND	0.017	0.050	mg/L	1	KLP1	11/27/12	1102	1265956	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		1.17	0.085	0.250	mg/L	5	KLP1	11/19/12	1151	1263016	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	U	ND	0.017	0.050	mg/L	1	KLP1	11/27/12	1658	1263579	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		149	3.40	14.3	mg/L		LYG1	11/19/12	0819	1264462	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		73.1	0.725	1.00	mg/L		LXA1	11/27/12	1248	1265998	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/26/12	1700	1265955
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/26/12	1700	1263578

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 13, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-321
Project:	LANL-WQH Water Samples		

Client Sample ID:	CASA-13-24219	Project:	ESHL00210
Sample ID:	315351002	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: December 13, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **315351**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis											
Batch 1265851											
QC1202785853 315351001 DUP											
Total Organic Carbon Average		U	ND	J	0.356	mg/L	N/A			TSM	11/29/12 15:56
QC1202785855 LCS											
Total Organic Carbon Average	10.0				10.0	mg/L		100	(85%-115%)		11/29/12 15:14
QC1202785852 MB											
Total Organic Carbon Average				U	ND	mg/L					11/29/12 15:05
QC1202785854 315351001 PS											
Total Organic Carbon Average	10.0	U	ND		10.7	mg/L		104	(65%-120%)		11/29/12 16:16
Conductivity Analysis											
Batch 1267060											
QC1202788865 315351002 DUP											
Conductivity			171		170	umhos/cm	0.294		(0%-10%)	LXA1	11/30/12 14:21
QC1202788867 LCS											
Conductivity	1410				1420	umhos/cm		100	(95%-105%)		11/30/12 14:14
Electrode Analysis											
Batch 1265360											
QC1202784743 315351002 DUP											
pH		H	7.85	H	7.85	SU	0.00		(0%-10%)	LYG1	11/21/12 08:50
QC1202784744 LCS											
pH	7.00				7.04	SU		101	(99%-101%)		11/21/12 08:40
Ion Chromatography											
Batch 1264118											
QC1202781991 315267002 DUP											
Bromide		U	ND	U	ND	mg/L	N/A			MAR1	11/30/12 16:34
Chloride			6.27		6.30	mg/L	0.352		(0%-20%)		
Fluoride			0.332		0.333	mg/L	0.271 ^		(+/-0.100)		
Sulfate			5.52		5.55	mg/L	0.524		(0%-20%)		
QC1202781993 LCS											
Bromide	2.50				2.62	mg/L		105	(90%-110%)		11/30/12 15:36
Chloride	10.0				9.24	mg/L		92.4	(90%-110%)		
Fluoride	5.00				4.89	mg/L		97.9	(90%-110%)		
Sulfate	20.0				19.3	mg/L		96.4	(90%-110%)		
QC1202781990 MB											
Bromide				U	ND	mg/L					11/30/12 15:07
Chloride				U	ND	mg/L					
Fluoride				U	ND	mg/L					
Sulfate				U	ND	mg/L					
QC1202781992 315267002 PS											
Bromide	2.50	U	ND		2.59	mg/L		101	(90%-110%)		11/30/12 17:03
Chloride	10.0		6.27		16.2	mg/L		99.7	(90%-110%)		

QC Summary

Workorder: 315351

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1264118											
Fluoride	5.00		0.332		5.12	mg/L		95.8	(90%-110%)		
Sulfate	20.0		5.52		25.0	mg/L		97.3	(90%-110%)	MAR1	11/30/12 17:03
Nutrient Analysis											
Batch 1263016											
QC1202780694 315159002 DUP											
Nitrogen, Nitrate/Nitrite			1.50		1.57	mg/L	4.89		(0%-20%)	KLP1	11/19/12 11:37
QC1202782515 315361001 DUP											
Nitrogen, Nitrate/Nitrite			2.18		2.18	mg/L	0.00		(0%-20%)		11/19/12 12:04
QC1202779484 LCS											
Nitrogen, Nitrate/Nitrite	1.00				1.04	mg/L		104	(90%-110%)		11/19/12 11:28
QC1202779479 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					11/19/12 11:27
QC1202780695 315159002 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.299		1.28	mg/L		98.1	(90%-110%)		11/19/12 11:38
QC1202782516 315361001 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.435		1.47	mg/L		104	(90%-110%)		11/19/12 12:05
Batch 1263579											
QC1202786124 315267002 DUP											
Phosphorus, Total as P		U	ND	U	ND	mg/L	N/A			KLP1	11/27/12 16:55
QC1202780727 LCS											
Phosphorus, Total as P	1.00				0.924	mg/L		92.4	(76%-120%)		11/27/12 16:50
QC1202780723 MB											
Phosphorus, Total as P				U	ND	mg/L					11/27/12 16:37
QC1202786125 315267002 MS											
Phosphorus, Total as P	1.00	U	ND		0.850	mg/L		85	(62%-139%)		11/27/12 16:56
QC1202786126 315267002 MSD											
Phosphorus, Total as P	1.00	U	ND		0.915	mg/L	7.37	91.5	(0%-20%)		11/27/12 16:57
Batch 1265956											
QC1202786154 315267002 DUP											
Nitrogen, Ammonia		J	0.0497	J	0.0418	mg/L	17.3 ^		(+/-0.050)	KLP1	11/27/12 10:59
QC1202786157 LCS											
Nitrogen, Ammonia	1.00				1.05	mg/L		105	(90%-110%)		11/27/12 10:58
QC1202786153 MB											
Nitrogen, Ammonia				U	ND	mg/L					11/27/12 10:57
QC1202786155 315267002 MS											
Nitrogen, Ammonia	1.00	J	0.0497		0.981	mg/L		93.1	(90%-110%)		11/27/12 11:00
QC1202786156 315267002 MSD											
Nitrogen, Ammonia	1.00	J	0.0497		1.15	mg/L	15.9*	110	(0%-15%)		11/27/12 11:01
Batch 1265958											
QC1202786159 315267001 DUP											
Nitrogen, Total Kjeldahl		U	ND	U	ND	mg/L	N/A			KLP1	12/07/12 15:02
QC1202786165 LCS											
Nitrogen, Total Kjeldahl	1.00				0.987	mg/L		98.7	(90%-110%)		12/07/12 15:00
QC1202786158 MB											
Nitrogen, Total Kjeldahl				U	ND	mg/L					12/07/12 14:59
QC1202786161 315267001 MS											
Nitrogen, Total Kjeldahl	1.00	U	ND		0.881	mg/L		88.1 *	(90%-110%)		12/07/12 15:03

QC Summary

Workorder: 315351

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Solids Analysis											
Batch 1264462											
QC1202782758 315351002 DUP											
Total Dissolved Solids			149		151	mg/L	1.90		(0%-10%)	LYG1	11/19/12 08:19
QC1202782759 315361001 DUP											
Total Dissolved Solids			231		239	mg/L	3.04		(0%-10%)		11/19/12 08:19
QC1202782760 LCS											
Total Dissolved Solids	300				291	mg/L		97.1	(95%-105%)		11/19/12 08:19
QC1202782757 MB											
Total Dissolved Solids				U	ND	mg/L					11/19/12 08:19
Titration Analysis											
Batch 1265998											
QC1202786324 315351002 DUP											
Alkalinity, Total as CaCO3			73.1		72.6	mg/L	0.707		(0%-20%)	LXA1	11/27/12 12:51
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A				
QC1202786333 LCS											
Alkalinity, Total as CaCO3	50.0				51.0	mg/L		102	(90%-110%)		11/27/12 10:38
QC1202786330 315351002 MS											
Alkalinity, Total as CaCO3	50.0		73.1		123	mg/L		99.9	(80%-120%)		11/27/12 12:56

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E Organics--Concentration of the target analyte exceeds the instrument calibration range
- F Estimated Value
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded
- J Value is estimated
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- M M if above MDC and less than LLD
- M Matrix Related Failure

QC Summary

Workorder: **315351**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
26-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1265360	See below.		

Potentially affected work order(s)(SDG): 315351(2013-321),315352(2013-322),315353(2013-323),315450(2013-334),315545(2013-353)

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 315351 002 315352 002,006 315353 002 315450 004,007 315545 002,004	1. Samples were received out of holding.

Originator's Name:

Lisa Gregory 26-NOV-12

Data Validator/Group Leader:

Julia Hamilton 13-DEC-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
27-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1	Liquid	ESHL, ORNL
Batch ID:	**Sample Numbers:**		
1265956	See below.		

Potentially affected work order(s)(SDG): **315267(2013-312),315351(2013-321),315352(2013-322),315353(2013-323),315450(2013-334),315545(2013-353),315650**

Application Issues:

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Failed RPD for MS/MSD: QC 1202786156MSD	1. The relative percent difference (RPD) between the Spike and Spike Duplicate was outside of the required acceptance limits. However, both the Spike and Spike Duplicate recoveries were within the required acceptance limits; therefore, the data is deemed acceptable.

Originator's Name:
Kristen Parson 27-NOV-12

Data Validator/Group Leader:
Julia Hamilton 27-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
07-DEC-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1265958	See below.		

Potentially affected work order(s)(SDG): **315267(2013-312),315311,315351(2013-321),315352(2013-322),315353(2013-323),315450(2013-334),315545(2013-353),315780**

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS: QC 1202786161MS	1. The spike recovery falls outside of the established acceptance limits due to matrix interference:

Originator's Name:

Kristen Parson 07-DEC-12

Data Validator/Group Leader:

Julia Hamilton 10-DEC-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-321
Work Order 315351

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1264269

Sample ID	Client ID
315351001	CASA-13-24211
1202782355	Method Blank (MB)
1202782356	315545003(CAMO-13-24271) Sample Duplicate (DUP)
1202782357	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202782355 (MB) and 1202782357 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315545003 (CAMO-13-24271). The QC was from ARSL work order 315545.

QC Information

All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1264270

Sample ID	Client ID
315351001	CASA-13-24211
1202782358	Method Blank (MB)
1202782359	315545003(CAMO-13-24271) Sample Duplicate (DUP)
1202782360	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202782358 (MB) and 1202782360 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315545003 (CAMO-13-24271). The QC was from ARSL work order 315545.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1264271

Sample ID	Client ID
315351001	CASA-13-24211
1202782361	Method Blank (MB)
1202782362	315545003(CAMO-13-24271) Sample Duplicate (DUP)
1202782363	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202782361 (MB) and 1202782363 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315545003 (CAMO-13-24271). The QC was from ARSL work order 315545.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1264174

Sample ID	Client ID
315351001	CASA-13-24211
1202782104	Method Blank (MB)
1202782105	315352001(CASA-13-24212) Sample Duplicate (DUP)
1202782106	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in June 2012, July 2012 and August 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 315352001 (CASA-13-24212). The QC was from ARSL work order 315352.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1264650

Sample ID	Client ID
315351001	CASA-13-24211
1202783218	Method Blank (MB)
1202783219	315352005(CASA-13-24206) Sample Duplicate (DUP)
1202783220	315352005(CASA-13-24206) Matrix Spike (MS)
1202783221	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202783218 (MB) and 1202783221 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315352005 (CASA-13-24206). The QC was from ARSL work order 315352.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202783219 (CASA-13-24206) was recounted due to high relative percent difference/relative error ratio. The recount is reported. Sample 315351001 (CASA-13-24211) was recounted due to a suspected false positive. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202783220 (CASA-13-24206), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1268150

Sample ID	Client ID
315351001	CASA-13-24211
1202791495	Method Blank (MB)
1202791496	315159001(CAMO-13-24249) Sample Duplicate (DUP)
1202791497	315159001(CAMO-13-24249) Matrix Spike (MS)
1202791498	315159001(CAMO-13-24249) Matrix Spike Duplicate (MSD)
1202791499	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in December 2012. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202791495 (MB) and 1202791499 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315159001 (CAMO-13-24249). The QC was from ARSL work order 315159.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Samples were reprepped due to high relative percent difference/relative error ratio. The re-analysis is being reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike and matrix spike duplicate, 1202791497 (CAMO-13-24249) and 1202791498 (CAMO-13-24249), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-321 GEL Work Order: 315351

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Heather M. McCarty **Name:** **Heather McCarty**

Date: **11 DEC 2012** **Title:** **Analyst II**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CASA-13-24211
Sample ID: 315351001
Matrix: W
Collect Date: 14-NOV-12
Receive Date: 16-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.0027	+/-0.00603	0.0307	+/-0.00603	0.050	pCi/L		HAKB	11/26/12	1259	1264269	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.00574	+/-0.00574	0.0276	+/-0.00575	0.050	pCi/L		HAKB	11/23/12	1247	1264270	2
Plutonium-239/240	U	0.0115	+/-0.00703	0.0458	+/-0.00705	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.186	+/-0.0279	0.0693	+/-0.0306	1.00	pCi/L		HAKB	11/23/12	1246	1264271	3
Uranium-235/236	U	0.0148	+/-0.0104	0.0433	+/-0.0105	1.00	pCi/L						
Uranium-238		0.128	+/-0.0205	0.0471	+/-0.0221	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-0.738	+/-1.56	5.66	+/-1.56	8.00	pCi/L		KXG3	11/19/12	0930	1264174	4
Cobalt-60	U	0.830	+/-1.26	5.41	+/-1.26	8.00	pCi/L						
Neptunium-237	U	-2.49	+/-3.02	10.4	+/-3.02	10.0	pCi/L						
Potassium-40	U	-23.1	+/-17.2	65.3	+/-17.2	10.0	pCi/L						
Sodium-22	U	0.177	+/-1.73	6.46	+/-1.73	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	-0.174	+/-0.113	0.497	+/-0.113	0.500	pCi/L		VXC2	12/02/12	1343	1264650	5
WSP-GrossA/B "As Received"													
Beta	U	1.06	+/-0.724	2.41	+/-0.730	3.00	pCi/L		DYT1	12/05/12	1618	1268150	6
Alpha	U	0.603	+/-0.590	2.13	+/-0.593	3.00	pCi/L		DYT1	12/06/12	1304	1268150	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1264269	84.4	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1264270	76.4	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1264271	77.4	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1264650	94.9	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CASA-13-24211
Sample ID: 315351001

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

QC Summary

Report Date: December 11, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico
Contact: **Keith Greene**

Workorder: **315351**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1264269										
QC1202782356 315545003 DUP										
Americium-241	U	0.010	U	0.00735	pCi/L	0.0927		(0-1)	HAKB	11/26/1212:59
	Uncert:	+/-0.00793		+/-0.00648						
	TPU:	+/-0.00794		+/-0.00649						
**Americium-243 Tracer	2.60	2.31		2.41	pCi/L		92.5	(50%-105%)		
	Uncert:	+/-0.0803		+/-0.0798						
	TPU:	+/-0.137		+/-0.136						
QC1202782357 LCS										
Americium-241	1.41			1.47	pCi/L		104	(80%-120%)	HAKB	11/26/1212:59
	Uncert:			+/-0.053						
	TPU:			+/-0.0813						
**Americium-243 Tracer	2.08			2.09	pCi/L		100	(50%-105%)		
	Uncert:			+/-0.0623						
	TPU:			+/-0.107						
QC1202782355 MB										
Americium-241			U	0.00	pCi/L				HAKB	11/26/1212:59
	Uncert:			+/-0.00454						
	TPU:			+/-0.00454						
**Americium-243 Tracer	2.08			1.95	pCi/L		93.7	(50%-105%)		
	Uncert:			+/-0.0619						
	TPU:			+/-0.107						
Batch 1264270										
QC1202782359 315545003 DUP										
Plutonium-238	U	-0.0027	U	-0.00277	pCi/L	0.0034		(0-1)	HAKB	11/23/1212:47
	Uncert:	+/-0.00468		+/-0.0062						
	TPU:	+/-0.00468		+/-0.0062						
Plutonium-239/240	U	0.00	U	0.00832	pCi/L	0.358		(0-1)		
	Uncert:	+/-0.0054		+/-0.0062						
	TPU:	+/-0.0054		+/-0.00621						
**Plutonium-242 Tracer	2.43	1.95		1.93	pCi/L		79.3	(50%-105%)		
	Uncert:	+/-0.0811		+/-0.0822						
	TPU:	+/-0.134		+/-0.136						
QC1202782360 LCS										
Plutonium-238			U	0.0176	pCi/L			(80%-120%)	HAKB	11/23/1212:47
	Uncert:			+/-0.00647						
	TPU:			+/-0.00652						
Plutonium-239/240	2.03			2.00	pCi/L		98.7	(80%-120%)		
	Uncert:			+/-0.0626						
	TPU:			+/-0.106						
**Plutonium-242 Tracer	1.94			1.78	pCi/L		91.5	(50%-105%)		
	Uncert:			+/-0.0617						
	TPU:			+/-0.104						
QC1202782358 MB										

QC Summary

Workorder: 315351

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1264270										
Plutonium-238			U	0.00	pCi/L				HAKB	11/23/1212:47
	Uncert:			+/-0.00274						
	TPU:			+/-0.00274						
Plutonium-239/240			U	0.00387	pCi/L					
	Uncert:			+/-0.00387						
	TPU:			+/-0.00387						
**Plutonium-242 Tracer	1.94			1.73	pCi/L		89.1	(50%-105%)		
	Uncert:			+/-0.0614						
	TPU:			+/-0.103						
Batch 1264271										
QC1202782362 315545003 DUP										
Uranium-234		0.311		0.370	pCi/L	0.375		(0-1)	HAKB	11/23/1212:46
	Uncert:	+/-0.0301		+/-0.0343						
	TPU:	+/-0.0365		+/-0.0423						
Uranium-235/236	U	0.00648	U	0.0141	pCi/L	0.213		(0-1)		
	Uncert:	+/-0.00916		+/-0.00862						
	TPU:	+/-0.00917		+/-0.00867						
Uranium-238		0.197		0.199	pCi/L	0.0254		(0-1)		
	Uncert:	+/-0.0233		+/-0.0248						
	TPU:	+/-0.0265		+/-0.028						
**Uranium-232 Tracer	2.73	2.48		2.13	pCi/L		77.9	(50%-105%)		
	Uncert:	+/-0.085		+/-0.0891						
	TPU:	+/-0.196		+/-0.199						
QC1202782363 LCS										
Uranium-234				2.63	pCi/L				HAKB	11/23/1212:46
	Uncert:			+/-0.0837						
	TPU:			+/-0.194						
Uranium-235/236				0.148	pCi/L					
	Uncert:			+/-0.0228						
	TPU:			+/-0.0248						
Uranium-238	2.70			2.59	pCi/L		95.8	(80%-120%)		
	Uncert:			+/-0.0828						
	TPU:			+/-0.191						
**Uranium-232 Tracer	2.19			1.41	pCi/L		64.5	(50%-105%)		
	Uncert:			+/-0.0765						
	TPU:			+/-0.164						
QC1202782361 MB										
Uranium-234			U	0.00481	pCi/L				HAKB	11/23/1212:46
	Uncert:			+/-0.0101						
	TPU:			+/-0.0101						
Uranium-235/236			U	0.00572	pCi/L					
	Uncert:			+/-0.007						
	TPU:			+/-0.00701						
Uranium-238			U	0.00462	pCi/L					
	Uncert:			+/-0.00731						
	TPU:			+/-0.00732						
**Uranium-232 Tracer	2.19			1.67	pCi/L		76.3	(50%-105%)		
	Uncert:			+/-0.0715						

QC Summary

Workorder: 315351

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1264271										
	TPU:			+/-0.159						
Rad Gamma Spec										
Batch 1264174										
QC1202782105 315352001 DUP										
Cesium-137	U	0.667	U	-1.76	pCi/L	0.452		(0-1)	KXG3	11/19/1212:03
	Uncert:	+/-1.26		+/-1.43						
	TPU:	+/-1.26		+/-1.43						
Cobalt-60	U	-0.571	U	-1.22	pCi/L	0.120		(0-1)		
	Uncert:	+/-1.09		+/-1.61						
	TPU:	+/-1.09		+/-1.61						
Neptunium-237	U	-0.694	U	-3.29	pCi/L	0.215		(0-1)		
	Uncert:	+/-3.03		+/-3.01						
	TPU:	+/-3.03		+/-3.01						
Potassium-40	U	-17.2	U	-34	pCi/L	0.230		(0-1)		
	Uncert:	+/-19.7		+/-16.8						
	TPU:	+/-19.7		+/-16.8						
Sodium-22	U	0.918	U	0.637	pCi/L	0.0497		(0-1)		
	Uncert:	+/-1.26		+/-1.57						
	TPU:	+/-1.26		+/-1.57						
QC1202782106 LCS										
Americium-241	2780			2900	pCi/L		104	(80%-120%)	KXG3	11/19/1209:32
	Uncert:			+/-202						
	TPU:			+/-202						
Cesium-137	6090			6150	pCi/L		101	(80%-120%)		
	Uncert:			+/-255						
	TPU:			+/-255						
Cobalt-60	5640			5620	pCi/L		99.7	(80%-120%)		
	Uncert:			+/-233						
	TPU:			+/-233						
Neptunium-237			U	-33.7	pCi/L					
	Uncert:			+/-21.1						
	TPU:			+/-21.1						
Potassium-40			U	-65.4	pCi/L					
	Uncert:			+/-46.2						
	TPU:			+/-46.2						
Sodium-22			U	-6.45	pCi/L					
	Uncert:			+/-6.01						
	TPU:			+/-6.01						
QC1202782104 MB										
Cesium-137			U	-0.063	pCi/L				KXG3	11/19/1209:32
	Uncert:			+/-1.06						
	TPU:			+/-1.06						
Cobalt-60			U	1.61	pCi/L					
	Uncert:			+/-1.30						
	TPU:			+/-1.30						
Neptunium-237			U	1.61	pCi/L					
	Uncert:			+/-2.44						
	TPU:			+/-2.44						

QC Summary

Workorder: 315351

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1264174										
Potassium-40			U	16.7	pCi/L					
Uncert:				+/-14.8						
TPU:				+/-14.8						
Sodium-22			U	0.208	pCi/L					
Uncert:				+/-1.16						
TPU:				+/-1.16						
Rad Gas Flow										
Batch 1264650										
QC1202783219 315352005 DUP										
Strontium-90	U	-0.0566	U	-0.266	pCi/L	0.500		(0-1)	VXC2	12/03/1212:39
Uncert:		+/-0.120		+/-0.0895						
TPU:		+/-0.120		+/-0.0896						
**Strontium Carrier	7.17	6.60		7.10	mg		99.1	(50%-105%)		
QC1202783221 LCS										
Strontium-90	24.8			22.4	pCi/L		90.1	(80%-120%)	VXC2	11/30/1216:05
Uncert:				+/-0.604						
TPU:				+/-1.95						
**Strontium Carrier	7.17			7.10	mg		99.1	(50%-105%)		
QC1202783218 MB										
Strontium-90			U	0.227	pCi/L				VXC2	11/30/1216:11
Uncert:				+/-0.149						
TPU:				+/-0.150						
**Strontium Carrier	7.17			6.90	mg		96.3	(50%-105%)		
QC1202783220 315352005 MS										
Strontium-90	124 U	-0.0566		113	pCi/L		91.1	(75%-125%)	VXC2	11/30/1216:04
Uncert:		+/-0.120		+/-3.14						
TPU:		+/-0.120		+/-9.63						
**Strontium Carrier	7.17	6.60		6.60	mg		92.1	(50%-105%)		
Batch 1268150										
QC1202791496 315159001 DUP										
Alpha	U	0.830	U	0.155	pCi/L	0.312		(0-1)	DYT1	12/06/1213:08
Uncert:		+/-0.612		+/-0.463						
TPU:		+/-0.616		+/-0.464						
Beta	U	1.67	U	1.12	pCi/L	0.184		(0-1)		12/05/1216:21
Uncert:		+/-0.821		+/-0.671						
TPU:		+/-0.833		+/-0.677						
QC1202791499 LCS										
Alpha	12.0			11.7	pCi/L		97.3	(80%-120%)	DYT1	12/06/1213:02
Uncert:				+/-0.616						
TPU:				+/-1.20						
Beta	49.6			51.8	pCi/L		104	(80%-120%)		12/05/1216:18
Uncert:				+/-0.934						
TPU:				+/-4.41						
QC1202791495 MB										
Alpha			U	-0.0368	pCi/L				DYT1	12/06/1213:07
Uncert:				+/-0.0451						
TPU:				+/-0.0452						
Beta			U	-0.135	pCi/L					12/05/1216:20

QC Summary

Workorder: **315351**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1268150										
	Uncert:			+/-0.106						
	TPU:			+/-0.106						
QC1202791497 315159001 MS										
Alpha	481	0.830	U	473	pCi/L		98.2	(75%-125%)	DYT1	12/06/1213:01
	Uncert:	+/-0.612		+/-24.9						
	TPU:	+/-0.616		+/-47.7						
Beta	1980	1.67	U	2190	pCi/L		110	(75%-125%)		12/05/1216:18
	Uncert:	+/-0.821		+/-39.0						
	TPU:	+/-0.833		+/-185						
QC1202791498 315159001 MSD										
Alpha	481	0.830	U	472	pCi/L	0.000951	98.1	(0-1)	DYT1	12/06/1213:01
	Uncert:	+/-0.612		+/-25.1						
	TPU:	+/-0.616		+/-48.5						
Beta	1980	1.67	U	2150	pCi/L	0.0534	108	(0-1)		12/05/1216:18
	Uncert:	+/-0.821		+/-38.8						
	TPU:	+/-0.833		+/-191						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative

QC Summary

Workorder: **315351**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

American Radiation Services - Primary
1726 Wooddale Court
Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-320

Client Contact:

Lab Agreement # : 63641-001-10
Project Number :
Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3	Special Instructions:
CASA-13-24211	Nov 14 2012	12:52	W	1	

Special Instructions:

Relinquished by: Melissa Martyn		Date/Time: 11/14/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24211

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/14/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1252	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-35b	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Sampled within 50' of running diesel generator.

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 6.14 mg/L Oxidation-Reduction Potential 188.4 MV pH 7.66 SU

Specific Conductance 170 uS/cm Temperature 21.07 deg C Turbidity 0.51 NTU

COLLECTED BY (PRINT) W. Shan

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) David Fellenz (Signature)	11/14/12 1400	(Printed Name) J. Martin (Signature)	11/14/12 1400
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-320

1. Distribution Of Samples In EDD.

	Analytical	Regular	Field	Trip	Field	Equipment
SDG	Method	Samples	Duplicates	Blanks	Blanks	Blanks
ARS1-12-02309	Generic:Low_Level_Tritium	1				

	Analytical	Analysis	Prep	Regular	Field	Trip	Field	Equipment	Method	Matrix	Matrix
SDG	Method	Lot ID	Lot ID	Samples	Duplicates	Blanks	Blanks	Blanks	Blanks	Spikes	Spike Dups
ARS1-12-02309	Generic:Low_Level_Tritium	ARS1-B12-02721	ARS1-B12-02721	1					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
Generic:Low_Level_Tritium	RAD							
LCS	ARS1-B12-02721-01	LCS	0	0	1	0		
Generic:Low_Level_Tritium	RAD	CASA-13-24211	ARS1-B12-02721-21	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	LCSD	ARS1-B12-02721-02	LCSD	0	0	1	0
Generic:Low_Level_Tritium	RAD	MB	ARS1-B12-02721-03	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

No.

Any samples affected by the presence of contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

No.

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

Data Validation Report for: Chain Of Custody No. 2013-320

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1	1						

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-35b	2013-320	CASA-13-24211	REG	INIT	RAD	Generic:Low_Level_Tritium	Tritium	U	U	R5	N

Reason Code	Description
R5	Analyte is not detected because the amount reported is less than the MDC.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CASA-13-24211	R-35b	REG	Generic:Low_Level_Tritium	0	1

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
-0.311	pCi/L	-0.311	pCi/L	2.906	0.847	W	11/14/2012		ARS1-B12-02721	VAL	Y

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Request Number: 2013-320

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-320

Original COC

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-320

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

- 24 Hour - ☐ Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3
CASA-13-24211	Nov 14 2012	12:52	W	1

Special Instructions:

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
Melissa Montoya		11/14/12 3:00		11/15/12 10:10
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-320

Case Narrative

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

December 14, 2012

LANL
Keith Greene
PO Box 1663 MS M992
Los Alamos, NM 87545

Request Number: **2013-320**
LANL Sample ID: **CASA-13-24211.**

Dear Mr. Greene;

On November 15, 2012, ARS International received one (1) water sample to be analyzed for Low Level Tritium.

The sample underwent enrichment and was counted using the appropriate counting equipment and QA/QC for this type of analysis. Results of the analysis and QA/QC are attached in the data package.

The client and QA/QC samples were counted with a count time sufficient to meet quality control parameters for counting equipment and were within acceptance criteria and statistical sound detection limits.

If you have any questions please do not hesitate to call at 225.381.2991 or email LANL@amrad.com.

Sincerely,

James D. Pu

Laboratory Management
ARS International

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

COVER PAGE

PROJECT SAMPLE IDENTIFICATION
CROSS-REFERENCE
TO ARS SAMPLE LABORATORY IDs
Subcontract (LANL Agreement Number) 63641-001-10

Request Number	LANL PROJECT SAMPLE ID NUMBER	American Radiation Services SAMPLE ID NUMBER(S)
2013-320	CASA-13-24211	ARS1-12-02309-001

ANALYTICAL METHODS
Tritium analyses were performed using **ARS-040 Tritium Assay in Water Samples Using Electrolytic Enrichment.**

ANALYTICAL RESULTS
The result data that are flagged with "U" indicate that the activity is below the MDC.

American Radiation Services Project Manager/Laboratory Director's Comments:
"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

"I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the LANL specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."

James D. [illegible]	Laboratory Management, ARS International	12-14-12
Signature	**Title**	**Date**

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02309	**Request or PO Number:**	2013-320
Client Sample ID:	CASA-13-24211	**ARS Sample ID:**	ARS1-12-02309-001
Sample Collection Date:	11/14/12	**Date Received:**	11/15/12
Sample Matrix:	Aqueous	**Report Date:**	12/14/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	-0.311	0.847	2.906	1.403	U	pCi/L	ARS-040	12/08/12 08:38	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

QC Results Report

Sample Delivery Group: ARS1-12-02309
Date Received: 11/15/2012

Laboratory Control Sample Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Percent Recovery (%)	LCS Acceptance Range
ARS1-B12-02721	LCS	H3	25.875	4.032	2.269	25.703		pCi/L	ARS-040	12/4/12 18:56	RJU	101	80%-120%

Blank Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician
ARS1-B12-02721	MBL	H3	-0.085	0.625	2.135	NA	U	pCi/L	ARS-040	12/4/12 18:56	RJU

Sample RER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	RER	RER AcceptanceRange
ARS1-B12-02721	LCSD	H3	25.875	4.032	24.604	3.836		pCi/L	ARS-040	12/4/12 18:56	RJU	0.16	< 1

Sample DER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	DER	DER AcceptanceRange
ARS1-B12-02721	LCSD	H3	25.875	4.032	24.604	3.836		pCi/L	ARS-040	12/4/12 18:56	RJU	0.46	< 3

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of ARS International.

LELAP Certificate# 01949 NELAP Certificate # E87558

QC Evaluation

EPA Method: ARS-040
Batch ID: ARS1-B12-02721
SDG's: ARS1-12-02261;2262;2263;2264;2305;2306;2307;2309

LCS	25.8750	**CSU (2s)**	7.9020
LCSD	24.6040	**CSU-D (2s)**	7.5190

DER = abs(LSC-LSCD) / sqr((2s CSU/2)^2)+((2s CSU-D/2)^2) *at 1 sigma* = **< 3**

DER 1.271 / 5.453828 = 0.233047 **< 3**

% RPD= ABS(LCS - LSCD) / (LCS+LCSD)/2 * 100 = **< 25%**

%RPD 1.271 / 25.2395 *100 = 5.035757 **< 25%**

The *RPD* shall be less than 25% or other client-applied criteria

RER= abs((LCS-LCSD)) / (CSU)+(CSD) *at 2 sigma* = **<1** ***<--LANL Requirement***

RER = 1.271 / 15.4210 0.082420077 **<1**

Blank Information

	Act	CSU(2s)	MDA	Act>MDA
AM-241				
U-234				
U-235				
U-238				
Pu-238				
Pu-239/240				
Th-228				
Th-230				
Th-232				
H3	-0.085	1.225	2.135	
Ra-226				
Ra-228				
Total U				
Pb-210				
Po-209				
Sr-90				
TC-99				
NI-63				

*MDA should be below RDL
*Blank activity must be below MDA
*Blank activity must be < 1.65*CSU (DOE only)

ACT = -0.085
CSU = 1.225
Is ACT<1.65*CSU? **YES**

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

ARS INTERNATIONAL

Analysis Batch ID **ARS1-B12-02721**

Method **ARS-040** **Analysis** **LSC-A-022** **Matrix** **AQ**

Description **Low Level Tritium by Electrolytic Enrichment**

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02721-01	LCS	B-14793								
ARS1-B12-02721-02	LCSD	B-14794								
ARS1-B12-02721-03	MBL									
ARS1-B12-02721-04	TRG				**ARS1-12-02261**	001	1	CAMO-13-24279	STD	11/29/12
ARS1-B12-02721-05	TRG				**ARS1-12-02262**	001	1	CAMO-13-24241	STD	12/06/12
ARS1-B12-02721-06	TRG				**ARS1-12-02262**	002	1	CAMO-13-24242	STD	12/06/12
ARS1-B12-02721-07	TRG				**ARS1-12-02262**	003	1	CAMO-13-24225	STD	12/06/12
ARS1-B12-02721-08	TRG				**ARS1-12-02262**	004	1	CAMO-13-24247	STD	12/06/12
ARS1-B12-02721-09	TRG				**ARS1-12-02262**	005	1	CAMO-13-24248	STD	12/06/12
ARS1-B12-02721-10	TRG				**ARS1-12-02263**	001	1	CAMO-13-24276	STD	12/06/12
ARS1-B12-02721-11	TRG				**ARS1-12-02264**	001	1	CASA-13-24209	STD	12/06/12
ARS1-B12-02721-12	TRG				**ARS1-12-02264**	002	1	CASA-13-24213	STD	12/06/12
ARS1-B12-02721-13	TRG				**ARS1-12-02264**	003	1	CASA-13-24214	STD	12/06/12
ARS1-B12-02721-14	TRG				**ARS1-12-02305**	001	1	CASA-13-24210	STD	12/12/12
ARS1-B12-02721-15	TRG				**ARS1-12-02306**	001	1	CAMO-13-24245	STD	12/12/12
ARS1-B12-02721-16	TRG				**ARS1-12-02306**	002	1	CAMO-13-24246	STD	12/12/12
ARS1-B12-02721-17	TRG				**ARS1-12-02306**	003	1	CAMO-13-24249	STD	12/12/12
ARS1-B12-02721-18	TRG				**ARS1-12-02306**	004	1	CAMO-13-24250	STD	12/12/12
ARS1-B12-02721-19	TRG				**ARS1-12-02307**	001	1	CAMO-13-24253	STD	12/12/12
ARS1-B12-02721-20	TRG				**ARS1-12-02307**	002	1	CAMO-13-24228	STD	12/12/12
ARS1-B12-02721-21	TRG				**ARS1-12-02309**	001	1	CASA-13-24211	STD	12/12/12

127700
12-02261-001-1
WRAD

127702
12-02262-001-1
WRAD

127704
12-02262-002-1
WRAD

127706
12-02262-003-1
WRAD

127708
12-02262-004-1
WRAD

127710
12-02262-005-1
WRAD

127712
12-02263-001-1
WRAD

127714
12-02264-001-1
WRAD

127716
12-02264-002-1
WRAD

127718
12-02264-003-1
WRAD

127720
12-02305-001-1
WRAD

127722
12-02306-001-1
WRAD

127724
12-02306-002-1
WRAD

127726
12-02306-003-1
WRAD

127728
12-02306-004-1
WRAD

127730
12-02307-001-1
WRAD

127732
12-02307-002-1
WRAD

127734
12-02309-001-1
WRAD

American Radiation Services
Baton Rouge Laboratory

LCS Report
Analytical Batch: ARS1-B12-02721

BlindID	ABatch	ABatchSampleID	BlindGroup	StdID	Isotope	ExpectedAddition	ExpectedValue	EmptyWt	GrossWt	NetWt	UserID	ModDate	ExpectedValue_CT	MidPointCountDate	KnownValue
B-14793	ARS1-B12-02721	ARS1-B12-02721-01	B-H3	S-0279	H-3	5	2.552560129	13.098	18.151	5.053	AMRAD\BSTEFFENS	11/13/2012			
B-14794	ARS1-B12-02721	ARS1-B12-02721-02	B-H3	S-0279	H-3	5	2.552560129	13.14	18.192	5.052	AMRAD\BSTEFFENS	11/13/2012			

ID 31001_040	ABatch	AnalysisCode	ABatchSampleID	ClientID	IC_ID	S01_1_EnrichCellNo	S01_2_TareCell	S01_3_TareResv	S02_GrossWtResv	S03_1_WtNa2O2	C_GrossSampleAdded
444	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-01			4	327.7	200.9	701.14	2.07	500.24
445	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-02			33	336.25	215.3	718.8	2.08	503.5
446	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-03			74	328.56	197.95	701.97	2.06	504.02
447	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-04	CAMO-13-24279		61	335.51	213.55	714.87	2	501.32
448	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-05	CAMO-13-24241		64	331.04	209.03	714.77	2.01	505.74
449	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-06	CAMO-13-24242		68	334.63	204.08	706.25	2.02	502.17
450	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-07	CAMO-13-24225		29	335.72	206.2	707.31	2.06	501.11
451	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-08	CAMO-13-24247		55	331.14	208.66	711.99	2.02	503.33
452	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-09	CAMO-13-24248		84	336.66	197.55	700.94	2.05	503.39
453	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-10	CAMO-13-24276		89	340.12	203.22	707.98	2.08	504.76
454	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-11	CASA-13-24209		97	332.94	202.132	708.3	2	506.168
455	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-12	CASA-13-24213		3	332.17	214.84	717.62	2.03	502.78
456	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-13	CASA-13-24214		16	329.44	217.7	718.25	2.09	500.55
457	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-14	CASA-13-24210		26	337.76	213.12	716.43	2	503.31
458	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-15	CAMO-13-24245		44	331.35	214.173	718.93	2.08	504.757
459	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-16	CAMO-13-24246		50	329.91	216.33	717.493	2.07	501.163
460	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-17	CAMO-13-24249		31	334.66	204.09	709.85	2.08	505.76
461	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-18	CAMO-13-24250		8	332.1	204.54	705.56	2	501.02
462	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-19	CAMO-13-24253		87	334.14	207.46	710.88	2.01	503.42
463	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-20	CAMO-13-24228		94	337.21	197.78	700.71	2.05	502.93
464	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-21	CASA-13-24211		99	336.65	206.9	709.24	2.06	502.34

12-4-12

S04_1_ElectrolSD	S04_2_StartAmp	S04_3_StartBathC	S05_1_ElectrolED	S05_2_EndBathC	S05_3_EndCellWt	C_GrossSmplRec	C_EnrichmentF	S06_TareWt	S07_GrossWt	C_RecoveredWa
11/16/2012 15:00:00	5	1.8	11/30/2012 14:58:00	2	545.34	16.74	29.88291517	117.45	130.16	12.71
11/16/2012 15:00:00	5	1.8	11/30/2012 15:00:00	2	567.84	16.29	30.90853284	117.71	129.56	11.85
11/16/2012 15:00:00	5	1.8	11/29/2012 07:51:00	1.8	543.45	16.94	29.75324675	101.5	114.12	12.62
11/16/2012 15:00:00	5	1.8	11/29/2012 07:53:00	1.8	565.75	16.69	30.03714799	108.55	121.28	12.73
11/16/2012 15:00:00	5	1.8	11/30/2012 15:01:00	2	555.66	15.59	32.44002566	104.53	115.28	10.75
11/16/2012 15:00:00	5	1.8	12/03/2012 12:24:00	1.9	553.86	15.15	33.14653465	102.66	112.87	10.21
11/16/2012 15:00:00	5	1.8	11/29/2012 13:10:00	2	558.94	17.02	29.44242068	116.99	128.81	11.82
11/16/2012 15:00:00	5	1.8	11/30/2012 15:03:00	2	555.09	15.29	32.91890124	110.03	121.82	11.79
11/16/2012 15:00:00	5	1.8	11/30/2012 15:05:00	2	549.5	15.29	32.92282538	109.95	120.14	10.19
11/16/2012 15:00:00	5	1.8	11/30/2012 15:06:00	2	560.19	16.85	29.95608309	96.23	110.02	13.79
11/16/2012 15:00:00	5	1.8	11/30/2012 15:07:00	2	552.49	17.418	29.06005282	107.55	120.29	12.74
11/16/2012 15:00:00	5	1.8	11/29/2012 13:08:00	2	563.52	16.51	30.45305875	117.92	129.06	11.14
11/16/2012 15:00:00	5	1.8	12/04/2012 07:37:00	2.1	564.03	16.89	29.63587922	105.46	120.29	14.83
11/16/2012 15:00:00	5	1.8	12/04/2012 07:39:00	2.1	565.2	14.32	35.14734637	101.94	114.75	12.81
11/16/2012 15:00:00	5	1.8	12/04/2012 07:42:00	2.1	563.27	17.747	28.44182115	116.81	128.38	11.57
11/16/2012 15:00:00	5	1.8	12/04/2012 07:45:00	2.1	563.14	16.9	29.65461538	109.51	121.45	11.94
11/16/2012 15:00:00	5	1.8	12/04/2012 11:41:00	2.1	555.31	16.56	30.5410628	111.9	124.2	12.3
11/16/2012 15:00:00	5	1.8	11/29/2012 07:56:00	1.8	553.44	16.8	29.82261905	105.48	117.84	12.36
11/16/2012 15:00:00	5	1.8	11/29/2012 07:58:00	1.8	558.66	17.06	29.5087925	112	125.02	13.02
11/16/2012 15:00:00	5	1.8	11/29/2012 13:05:00	1.9	551.09	16.1	31.2378882	115.1	127.71	12.61
11/16/2012 15:00:00	5	1.8	11/29/2012 13:03:00	1.9	560.98	17.43	28.82042456	104.78	117.5	12.72

12-4-12

S08_TearWtLSCVial	S09_VialPlusSmpl	C_NetSample	S10_1_WtVislSmplDrWatFill	C_NetDeadWaterAdded	C_TareWtBFCocktail	S10_2_GrossWtVSC	C_NetWtCocktailAdded	UserID	ModDate
6.44	16.44	10	0	0	16.44	27.34	10.9	AMRAD\RUSEY	12/03/2012 12:16:52
6.44	16.45	10.01	0	0	16.45	27.43	10.98	AMRAD\RUSEY	12/03/2012 12:18:50
6.51	16.53	10.02	0	0	16.53	27.02	10.49	AMRAD\RUSEY	11/29/2012 14:42:42
6.53	16.54	10.01	0	0	16.54	26.83	10.29	AMRAD\RUSEY	11/29/2012 14:44:17
6.45	16.5	10.05	0	0	16.5	26.92	10.42	AMRAD\RUSEY	12/03/2012 12:20:31
6.53	16.54	10.01	0	0	16.54	26.86	10.32	AMRAD\RUSEY	12/03/2012 14:37:15
6.38	16.42	10.04	0	0	16.42	27.17	10.75	AMRAD\RUSEY	11/29/2012 15:39:24
6.59	16.64	10.05	0	0	16.64	26.96	10.32	AMRAD\RUSEY	12/03/2012 12:23:43
6.47	16.53	10.06	0	0	16.53	26.85	10.32	AMRAD\RUSEY	12/03/2012 14:39:07
6.54	16.54	10	0	0	16.54	26.89	10.35	AMRAD\RUSEY	12/03/2012 14:41:26
6.68	16.69	10.01	0	0	16.69	26.99	10.3	AMRAD\RUSEY	12/03/2012 14:43:02
6.52	16.56	10.04	0	0	16.56	26.84	10.28	AMRAD\RUSEY	11/29/2012 15:42:09
6.64	16.69	10.05	0	0	16.69	26.89	10.2	AMRAD\RUSEY	12/04/2012 10:57:08
6.38	16.39	10.01	0	0	16.39	26.6	10.21	AMRAD\RUSEY	12/04/2012 10:59:05
6.61	16.64	10.03	0	0	16.64	26.99	10.35	AMRAD\RUSEY	12/04/2012 11:01:07
6.49	16.54	10.05	0	0	16.54	26.84	10.3	AMRAD\RUSEY	12/04/2012 11:02:49
6.46	16.53	10.07	0	0	16.53	26.79	10.26	AMRAD\RUSEY	12/04/2012 13:55:27
6.5	16.58	10.08	0	0	16.58	26.89	10.31	AMRAD\RUSEY	11/29/2012 14:45:59
6.56	16.58	10.02	0	0	16.58	26.94	10.36	AMRAD\RUSEY	11/29/2012 14:47:45
6.46	16.49	10.03	0	0	16.49	26.79	10.3	AMRAD\RUSEY	11/29/2012 15:43:57
6.57	16.59	10.02	0	0	16.59	26.89	10.3	AMRAD\RUSEY	11/29/2012 15:45:48

12-4-12

AMRAD
AMERICAN RADIATION SERVICES, LLC

LSC Instrument Data Transfer Report

\\Packard3170\Results\H3 Low Level\Low Level H3_3\

Batch Sample ID	Non-BKG Samples Transferred	Samples Eligible To Save	
ARS1-B12-02721	21	21	LSC 1

LIMS Batch Sample ID	LSC P#	LSC PID	LSC S#	LSC SMPL_ID	LSC Count Date	LSC CPMA	LSC tSIE	LSC EFF	LSC Count Dur	Analysis Batch	LIMS SDG	LIMS Run
BKG	10		1	BACKGROUND	12/04/12 14:45	1.11	395.29	25.3300	240.00	ARS1-B12-02721		
ARS1-B12-02721-01	10		2	B12-02721-01	12/04/12 18:56	4.84	378.07	24.5900	240.00	ARS1-B12-02721		
ARS1-B12-02721-02	10		3	B12-02721-02	12/04/12 23:07	4.79	377.91	24.5800	240.00	ARS1-B12-02721		
ARS1-B12-02721-03	10		4	B12-02721-03	12/05/12 03:18	1.09	407.72	25.9200	240.00	ARS1-B12-02721		
ARS1-B12-02721-04	10		5	B12-02721-04	12/05/12 07:29	1.08	378.13	24.5900	240.00	ARS1-B12-02721	ARS1-12-02261	1
ARS1-B12-02721-05	10		6	B12-02721-05	12/05/12 11:40	1.28	395.32	25.3300	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-06	2		1	B12-02721-06	12/06/12 16:58	3.80	401.27	25.6100	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-07	2		2	B12-02721-07	12/06/12 21:09	1.32	410.59	26.0600	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-08	2		3	B12-02721-08	12/07/12 01:20	1.47	395.87	25.3500	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-09	2		4	B12-02721-09	12/07/12 05:31	1.35	351.17	23.5500	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-10	2		5	B12-02721-10	12/07/12 09:42	1.06	286.28	20.1600	240.00	ARS1-B12-02721	ARS1-12-02263	1
ARS1-B12-02721-11	2		6	B12-02721-11	12/07/12 13:53	1.82	354.31	23.6700	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-12	10		13	B12-02721-12	12/05/12 15:52	1.03	220.99	15.6400	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-13	10		14	B12-02721-13	12/05/12 20:03	1.28	402.67	25.6800	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-14	10		15	B12-02721-14	12/06/12 00:14	1.00	286.72	20.1900	240.00	ARS1-B12-02721	ARS1-12-02305	1
ARS1-B12-02721-15	10		16	B12-02721-15	12/06/12 04:24	1.16	290.87	20.4700	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-16	10		17	B12-02721-16	12/06/12 08:35	1.17	258.02	18.2400	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-17	10		18	B12-02721-17	12/06/12 12:46	3.55	251.93	17.8300	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-18	10		1	B12-02721-18	12/07/12 18:04	1.08	258.29	18.2500	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-19	10		2	B12-02721-19	12/07/12 22:15	1.85	308.77	21.6900	240.00	ARS1-B12-02721	ARS1-12-02307	1
ARS1-B12-02721-20	10		3	B12-02721-20	12/08/12 02:26	1.39	304.39	21.3900	240.00	ARS1-B12-02721	ARS1-12-02307	1
ARS1-B12-02721-21	10		4	B12-02721-21	12/08/12 06:37	1.07	280.53	19.7700	240.00	ARS1-B12-02721	ARS1-12-02309	1

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Total_Bkg_Count_Duration_min	DF	Sample_Activity_Conc	Standard_Counting_Uncertainty	CU_1	CSU_1	CU_1_96	CSU_1_96	MDC	DLC	ActivityReportUnits
LSC-A-022	AR51-B12-02721-01	240.000	0.98654	25.875	1.091	1.091	4.032	2.139	7.902	2.269	1.095	pCi
LSC-A-022	ARS1-B12-02721-02	240.000	0.98638	24.604	1.047	1.047	3.836	2.052	7.519	2.186	1.055	pCi
LSC-A-022	ARS1-B12-02721-03	240.000	0.99908	-0.085	0.625	0.625	0.625	1.225	1.225	2.135	1.031	pCi
LSC-A-022	ARS1-B12-02721-04	240.000	0.99478	-0.213	0.655	0.655	0.655	1.283	1.285	2.247	1.085	pCi
LSC-A-022	ARS1-B12-02721-05	240.000	0.99462	1.037	0.608	0.608	0.628	1.192	1.230	1.997	0.964	pCi
LSC-A-022	ARS1-B12-02721-06	240.000	0.99447	15.912	0.845	0.845	2.532	1.656	4.963	1.933	0.933	pCi
L5C-A-022	ARS1-B12-02721-07	240.000	0.99432	1.394	0.661	0.661	0.694	1.296	1.359	2.153	1.039	pCi
LSC-A-022	ARS1-B12-02721-08	240.000	0.99524	2.149	0.620	0.620	0.699	1.215	1.369	1.959	0.946	pCi
LSC-A-022	ARS1-B12-02721-09	240.000	0.99524	1.567	0.650	0.650	0.691	1.274	1.355	2.102	1.015	pCi
LSC-A-022	ARS1-B12-02721-10	240.000	0.99508	-0.376	0.795	0.795	0.797	1.559	1.563	2.738	1.322	pCi
LSC-A-022	ARS1-B12-02721-11	240.000	0.99508	5.262	0.817	0.817	1.136	1.601	2.227	2.422	1.169	pCi
LSC-A-022	ARS1-B12-02721-12	240.000	0.99570	-0.793	0.998	0.998	1.005	1.956	1.970	3.460	1.670	pCi
LSC-A-022	ARS1-B12-02721-13	240.000	0.99554	1.108	0.657	0.657	0.678	1.288	1.329	2.159	1.042	pCi
LSC-A-022	ARS1-B12-02721-14	240.000	0.99646	-0.723	0.658	0.658	0.667	1.290	1.307	2.296	1.109	pCi
LSC-A-022	ARS1-B12-02721-15	240.000	0.99631	0.469	0.844	0.844	0.847	1.655	1.661	2.843	1.372	pCi
LSC-A-022	ARS1-B12-02721-16	240.000	0.99631	0.613	0.905	0.905	0.910	1.775	1.784	3.040	1.468	pCi
LSC-A-022	ARS1-B12-02721-17	240.000	0.99585	22.455	1.280	1.280	3.603	2.510	7.063	3.008	1.452	pCi
LSC-A-022	ARS1-B12-02721-18	240.000	0.99570	-0.287	0.882	0.882	0.883	1.729	1.731	3.027	1.461	pCi
LSC-A-022	ARS1-B12-02721-19	240.000	0.99539	5.878	0.879	0.879	1.245	1.723	2.440	2.593	1.252	pCi
LSC-A-022	ARS1-B12-02721-20	240.000	0.99539	2.120	0.766	0.766	0.830	1.502	1.626	2.460	1.188	pCi
LSC-A-022	ARS1-B12-02721-21	240.000	0.99631	-0.311	0.846	0.846	0.847	1.658	1.661	2.906	1.403	pCi

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Initial_Mass_sample_g	Mass_Na2O2_added_g	Final_mass_electrolyzed_sample_NaOH_g	Mass_equivalent_NaOH_g	Final_Mass_Electrolyzed_sample_g	VolumeFactor_X	Enrichment_Factor_Y
LSC-A-022	ARS1-B12-02721-01	500.240	2.070	16.740	2.124	14.616	0.029	26.782
LSC-A-022	ARS1-B12-02721-02	503.500	2.080	16.290	2.134	14.156	0.028	27.791
LSC-A-022	ARS1-B12-02721-03	504.020	2.060	16.940	2.114	14.826	0.029	26.608
LSC-A-022	ARS1-B12-02721-04	501.320	2.000	16.690	2.052	14.638	0.029	26.799
LSC-A-022	ARS1-B12-02721-05	505.740	2.010	15.590	2.062	13.528	0.027	29.154
LSC-A-022	ARS1-B12-02721-06	502.170	2.020	15.150	2.073	13.077	0.026	29.914
LSC-A-022	ARS1-B12-02721-07	501.110	2.060	17.020	2.114	14.906	0.030	26.324
LSC-A-022	ARS1-B12-02721-08	503.330	2.020	15.290	2.073	13.217	0.026	29.675
LSC-A-022	ARS1-B12-02721-09	503.390	2.050	15.290	2.103	13.187	0.026	29.745
LSC-A-022	ARS1-B12-02721-10	504.760	2.080	16.850	2.134	14.716	0.029	26.838
LSC-A-022	ARS1-B12-02721-11	506.168	2.000	17.418	2.052	15.366	0.030	25.815
LSC-A-022	ARS1-B12-02721-12	502.780	2.030	16.510	2.083	14.427	0.029	27.251
LSC-A-022	ARS1-B12-02721-13	500.550	2.090	16.890	2.144	14.746	0.029	26.571
LSC-A-022	ARS1-B12-02721-14	503.310	2.000	14.320	2.052	12.268	0.024	31.878
LSC-A-022	ARS1-B12-02721-15	504.757	2.080	17.747	2.134	15.613	0.031	25.354
LSC-A-022	ARS1-B12-02721-16	501.163	2.070	16.900	2.124	14.776	0.029	26.550
LSC-A-022	ARS1-B12-02721-17	505.760	2.080	16.560	2.134	14.426	0.029	27.409
LSC-A-022	ARS1-B12-02721-18	501.020	2.000	16.800	2.052	14.748	0.029	26.591
LSC-A-022	ARS1-B12-02721-19	503.420	2.010	17.060	2.062	14.998	0.030	26.286
LSC-A-022	ARS1-B12-02721-20	502.930	2.050	16.100	2.103	13.997	0.028	28.064
LSC-A-022	ARS1-B12-02721-21	502.340	2.060	17.430	2.114	15.316	0.030	25.707

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Average_Sample_CPM	Bkg_CPM	tSIE	Detector_Eff_decimal	Aliquot	AliqUnits	Activity_reference_date	Start_Date_of_Count	Sample_Count_Duration_min
LSC-A-022	ARS1-B12-02721-01	4.839	1.107	378.070	0.246	0.01000	L	9/7/2012	12/4/2012	240.000
LSC-A-022	ARS1-B12-02721-02	4.791	1.107	377.910	0.246	0.01001	L	9/7/2012	12/4/2012	240.000
LSC-A-022	ARS1-B12-02721-03	1.094	1.107	407.720	0.259	0.01002	L	11/29/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-04	1.076	1.107	378.130	0.246	0.01001	L	11/1/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-05	1.277	1.107	395.320	0.253	0.01005	L	10/31/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-06	3.801	1.107	401.270	0.256	0.01001	L	10/31/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-07	1.319	1.107	410.590	0.261	0.01004	L	10/31/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-08	1.466	1.107	395.870	0.254	0.01005	L	11/6/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-09	1.351	1.107	351.170	0.236	0.01006	L	11/6/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-10	1.062	1.107	286.280	0.202	0.01000	L	11/5/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-11	1.818	1.107	354.310	0.237	0.01001	L	11/5/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-12	1.032	1.107	220.990	0.156	0.01004	L	11/7/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-13	1.275	1.107	402.670	0.257	0.01005	L	11/7/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-14	1.004	1.107	286.720	0.202	0.01001	L	11/13/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-15	1.161	1.107	290.870	0.205	0.01003	L	11/12/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-16	1.173	1.107	258.020	0.182	0.01005	L	11/12/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-17	3.550	1.107	251.930	0.178	0.01007	L	11/9/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-18	1.076	1.107	258.290	0.183	0.01008	L	11/9/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-19	1.849	1.107	308.770	0.217	0.01002	L	11/8/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-20	1.389	1.107	304.390	0.214	0.01003	L	11/8/2012	12/8/2012	240.000
LSC-A-022	ARS1-B12-02721-21	1.072	1.107	280.530	0.198	0.01002	L	11/14/2012	12/8/2012	240.000

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	AliquotReportUnits	UserID	ModDate
LSC-A-022	ARS1-B12-02721-01	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-02	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-03	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-04	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-05	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-06	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-07	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-08	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-09	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-10	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-11	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-12	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-13	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-14	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-15	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-16	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-17	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-18	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-19	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-20	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-21	L	AMRAD\RUSEY	12/10/2012

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\20121204_1437.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

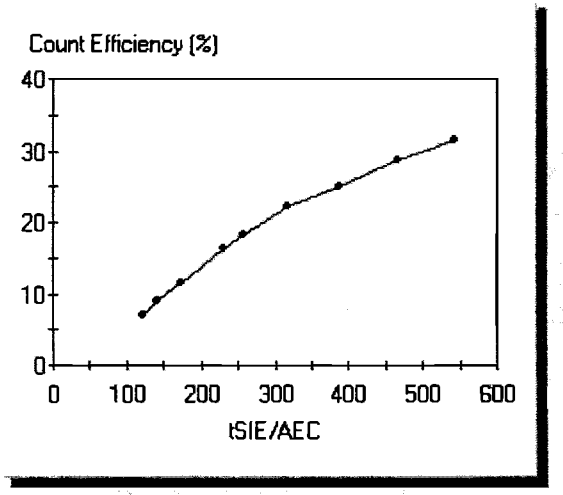
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
10	1	BACKGROUND	1.107	4.37	395.29	25.33	240.00	12/4/2012	2:45:58 PM	
10	2	B12-02721-01	4.839	19.68	378.07	24.59	240.00	12/4/2012	6:56:59 PM	
10	3	B12-02721-02	4.791	19.49	377.91	24.58	240.00	12/4/2012	11:07:59 PM	
10	4	B12-02721-03	1.094	4.22	407.72	25.92	240.00	12/5/2012	3:18:59 AM	
10	5	B12-02721-04	1.076	4.37	378.13	24.59	240.00	12/5/2012	7:29:54 AM	
10	6	B12-02721-05	1.277	5.04	395.32	25.33	240.00	12/5/2012	11:40:51 AM	
Missing vial 7.										
Missing vial 8.										
Missing vial 9.										
Missing vial 10.										
Missing vial 11.										
Missing vial 12.										
10	13	B12-02721-12	1.032	6.60	220.99	15.64	240.00	12/5/2012	3:52:07 PM	
10	14	B12-02721-13	1.275	4.96	402.67	25.68	240.00	12/5/2012	8:03:04 PM	
10	15	B12-02721-14	1.004	4.97	286.72	20.19	240.00	12/6/2012	12:14:02 AM	
10	16	B12-02721-15	1.161	5.67	290.87	20.47	240.00	12/6/2012	4:24:59 AM	
10	17	B12-02721-16	1.173	6.43	258.02	18.24	240.00	12/6/2012	8:35:55 AM	
10	18	B12-02721-17	3.550	19.91	251.93	17.83	240.00	12/6/2012	12:46:52 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\20121206_1649.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

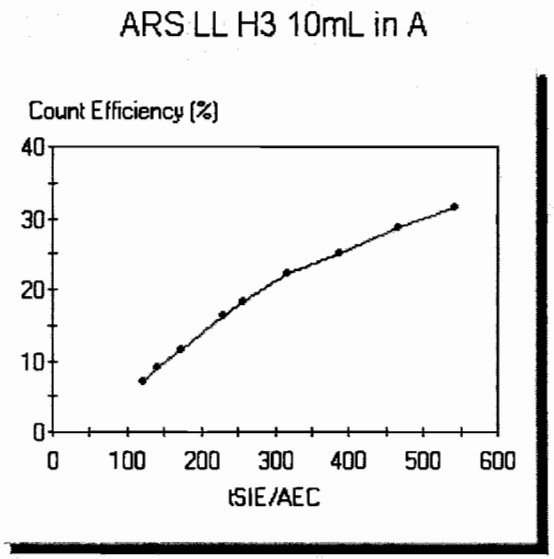
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	B12-02721-06	3.801	14.84	401.27	25.61	240.00	12/6/2012	4:58:25 PM	
2	2	B12-02721-07	1.319	5.06	410.59	26.06	240.00	12/6/2012	9:09:28 PM	
2	3	B12-02721-08	1.466	5.78	395.87	25.35	240.00	12/7/2012	1:20:23 AM	
2	4	B12-02721-09	1.351	5.73	351.17	23.55	240.00	12/7/2012	5:31:20 AM	
2	5	B12-02721-10	1.062	5.27	286.28	20.16	240.00	12/7/2012	9:42:17 AM	
2	6	B12-02721-11	1.818	7.68	354.31	23.67	240.00	12/7/2012	1:53:14 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\20121207_1755.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

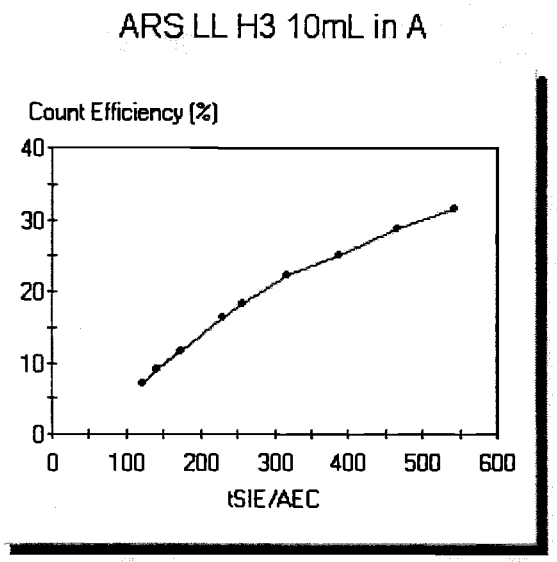
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
10	1	B12-02721-18	1.076	5.89	258.29	18.25	240.00	12/7/2012	6:04:50 PM	
10	2	B12-02721-19	1.849	8.53	308.77	21.69	240.00	12/7/2012	10:15:50 PM	
10	3	B12-02721-20	1.389	6.50	304.39	21.39	240.00	12/8/2012	2:26:47 AM	
10	4	B12-02721-21	1.072	5.42	280.53	19.77	240.00	12/8/2012	6:37:44 AM	

ARS Batch Number: ARS1-B12 - 02721

Enter these Values for LCS			Report Name	Field Name on the Report
	Current ACT	5.6490	Standards Report	ACT at Date Above (dpm/g)
	NetWt	5.0530	LCS Report	NetWt
	Aliquot	0.5002	Tritium Enrichment Data	Gross Sample Added/1000

Enter these Values for LCSD			Report Name	Field Name on the Report
	Current ACT	5.6490	Standards Report	ACT at Date Above (dpm/g)
	NetWt	5.0520	LCS Report	NetWt
	Aliquot	0.5035	Tritium Enrichment Data	Gross Sample Added/1000

Expected Value Calculations

ARS Batch Number: ARS1-B11 - 02721

LCS	**CALCULATED EXPECTED VALUE**	=	25.703			
			Range	20.563	-	30.844
LCSD	**CALCULATED EXPECTED VALUE**	=	25.532			
			Range	20.425	-	30.638

32 of

Exit

AMRAD AMERICAN RADIATION SERVICES, LLC

Standards Activity as of: 12/03/12 12:16

Active	Std ID	Isotope	PSCLT	Verification Date	Exp Date	Status	Ref Date	Ref ACT (dpm)	ACT at Date Above (dpm/g)	Halflife (days)	Parent ID	Expended Date	Comments
A	**S-0279**	H-3	**SL**	09/10/12	09/10/13	OK	09/07/12	5.7255E+00	**5.6493**	4.500E+03	**S-0237**		H3 LCS standard. Dilution performed as stated above by B Steffens. -B

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
11-21-12	0702	SNC-16	QA	QA	[illegible]
11-21-12	1136	Background	B12 02616	1417	[illegible]
↓	↓	B12-02616 - 01	↓	↓	[illegible]
↓	↓	B12-02616 - 02	↓	↓	[illegible]
↓	↓	B12-02616 - 03	↓	↓	[illegible]
↓	↓	B12-02616 - 04	↓	↓	[illegible]
↓	↓	B12-02616 - 05	↓	↓	[illegible]
↓	↓	B12-02616 - 06	↓	↓	[illegible]
↓	↓	B12-02616 - 07	↓	↓	[illegible]
↓	↓	B12-02616 - 08	↓	↓	[illegible]
↓	↓	B12-02616 - 09	↓	↓	[illegible]
↓	↓	B12-02616 - 10	↓	↓	[illegible]
11-21-12	1200	SNC-16	QA	QA	[illegible]
12-4-12	0732	SNC-16	QA	QA	[illegible]
12-4-12	1434	Background	B12-02721	1437	[illegible]
↓	↓	B12-02721 - 01	↓	↓	[illegible]
↓	↓	B12-02721 - 02	↓	↓	[illegible]
↓	↓	B12-02721 - 03	↓	↓	[illegible]
↓	↓	B12-02721 - 04	↓	↓	[illegible]
↓	↓	B12-02721 - 05	↓	↓	[illegible]

Reviewed By: [illegible] Date: 12-10-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-4-12	1434	B12-02721-06	B12-02721	1437	[illegible]
↓	↓	B12-02721-07	↓	↓	[illegible]
↓	↓	B12-02721-08	↓	↓	[illegible]
↓	↓	B12-02721-09	↓	↓	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
↓	↓	B12-02721-12	↓	↓	[illegible]
↓	↓	B12-02721-13	↓	↓	[illegible]
↓	↓	B12-02721-14	↓	↓	[illegible]
↓	↓	B12-02721-15	↓	↓	[illegible]
↓	↓	B12-02721-16	↓	↓	[illegible]
↓	↓	B12-02721-17	↓	↓	[illegible]
↓	↓	B12-02721-18	↓	↓	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]
12-4-12	1437	SNC-16	QA	QA	[illegible]
* 12-5-12	1604	B12-02721-06	B12-02721	1649	[illegible]
↓	↓	B12-02721-07	↓	↓	[illegible]
↓	↓	B12-02721-08	↓	↓	[illegible]

* Will count before SNC † 12-5-12

Reviewed By: [illegible] Date: 12-10-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-5-12	1604	B12-02721-09	B12-02721	1649	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
12-7-12	1026	B12-02721-18	B12-02721	1755	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]

12-10-12

Reviewed By: SDR Date: 12-10-12
Initials

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

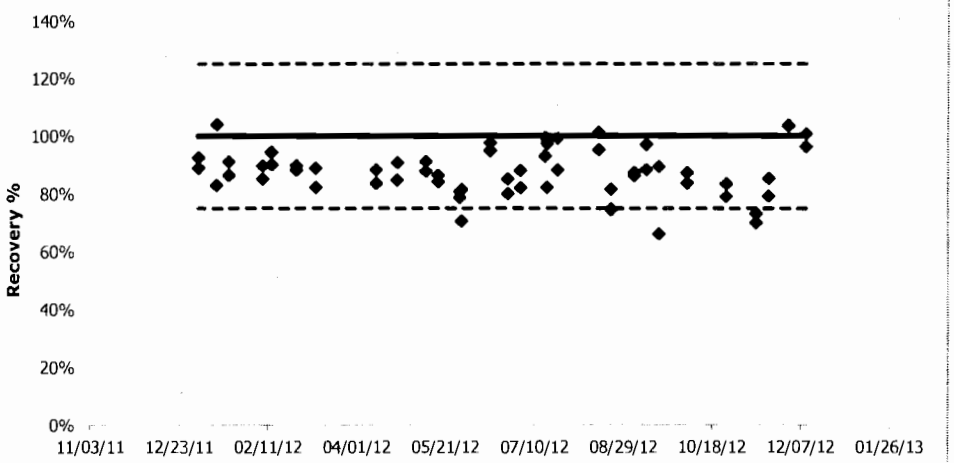
Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Control Charts

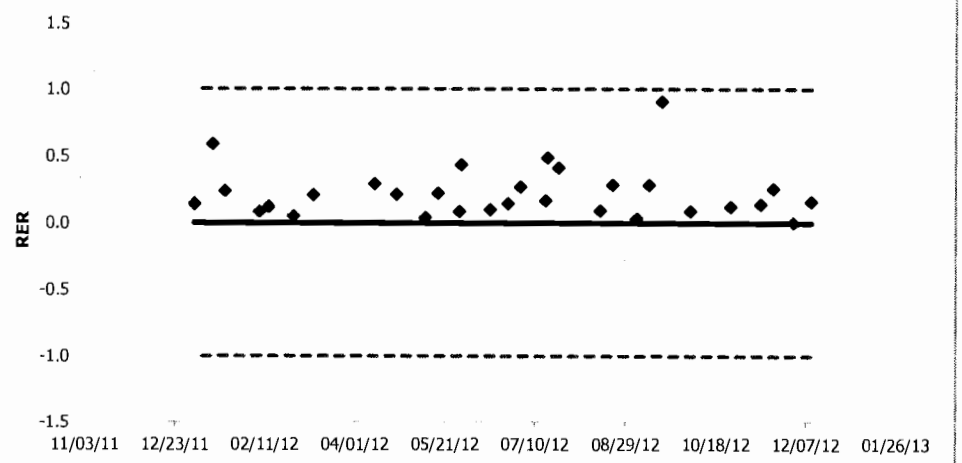
QC Chart

LLH-3 LCS



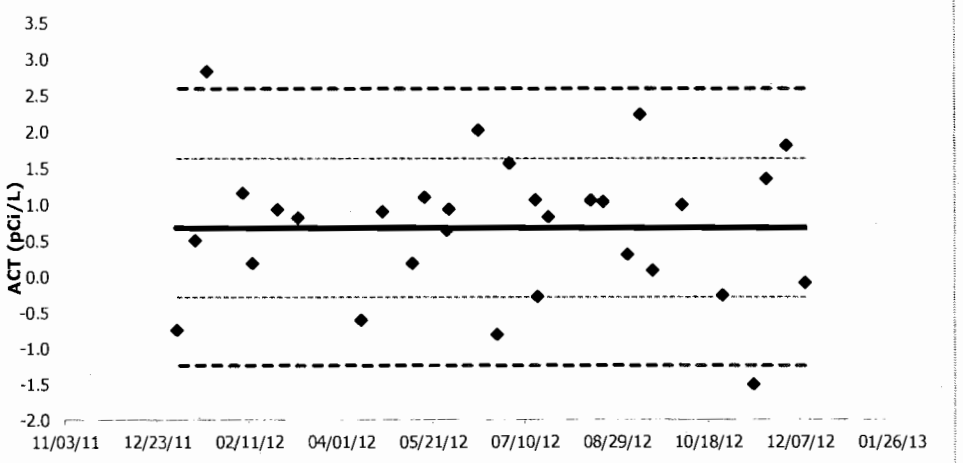
Average	STDEV	n	UCL	LCL
0.8778	0.0828	30	1.2500	0.7500

LLH-3 RER



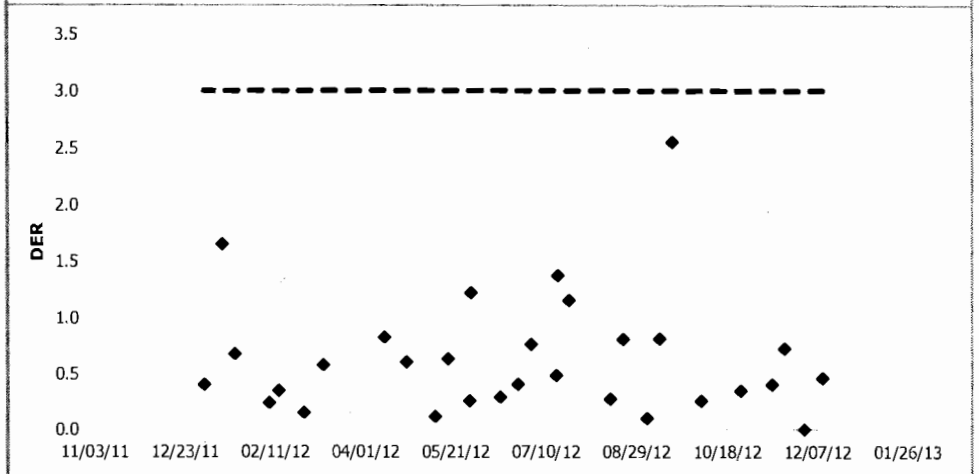
		n	UCL	LCL
		30	1.0000	-1.0000

LLH-3 Blank



Average	STDEV	n	UCL	LCL
0.6761	0.9576	30	2.5912	-1.2390

LLH-3 DER



		n	UCL	
		30	3.0000	

3H Efficiency

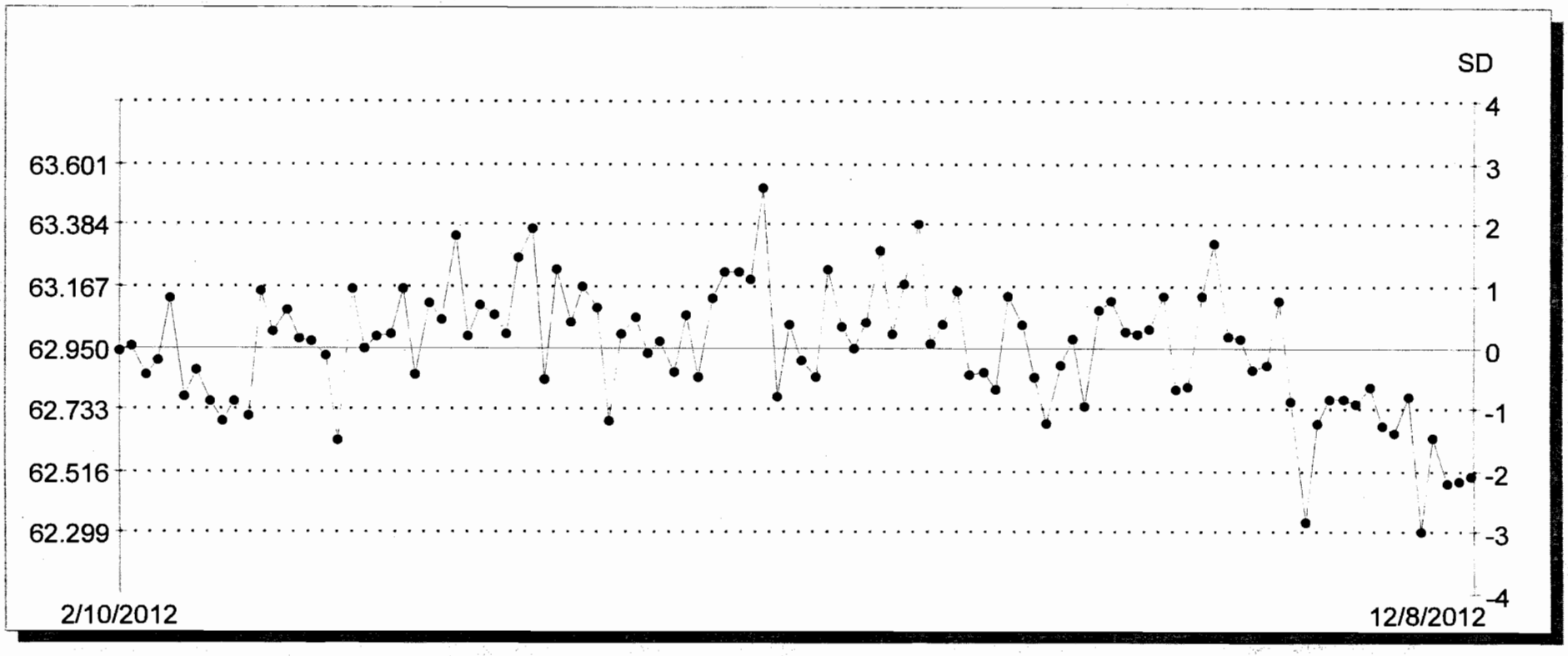
Total # pts : 5553
Valid # pts : 106
Mean : 62.95
SD : 0.22

Date	Value	Valid Pt
Feb 10, 2012	62.94	X
Feb 15, 2012	62.96	X
Feb 16, 2012	62.86	X
Feb 17, 2012	62.90	X
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X

Jun 30, 2012	62.97	X
Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X
Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 21, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X

Nov 13, 2012	62.76	X
Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X
Nov 18, 2012	62.68	X
Nov 19, 2012	62.65	X
Nov 18, 2012	62.78	X
Nov 20, 2012	62.30	X
Nov 21, 2012	62.63	X
Nov 23, 2012	62.47	X
Dec 04, 2012	62.48	X
Dec 08, 2012	62.49	X

3H Efficiency
Total # pts : 5553
Valid # pts : 106
Mean : 62.95
SD : 0.22



3H Background

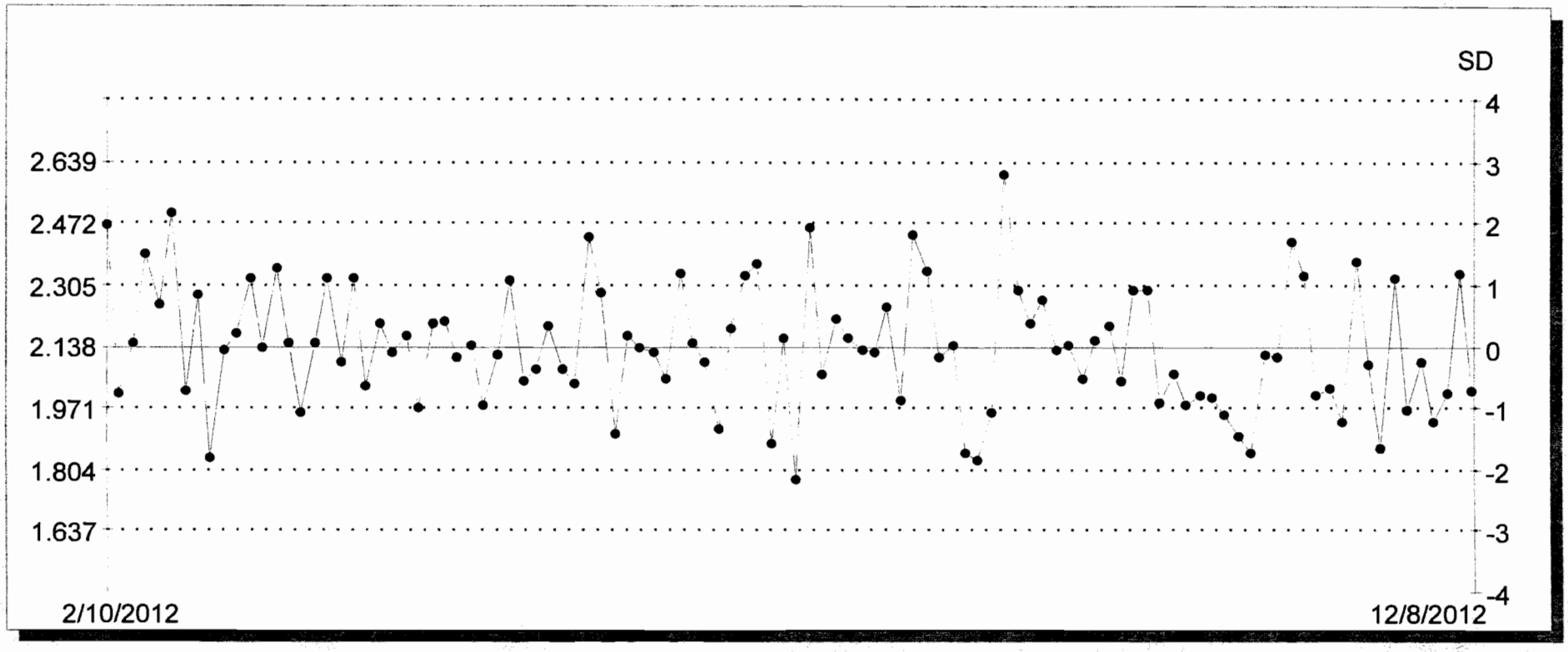
Total # pts : 5479
Valid # pts : 106
Mean : 2.14
SD : 0.17

Date	Value	Valid Pt
Feb 10, 2012	2.47	X
Feb 15, 2012	2.01	X
Feb 16, 2012	2.15	X
Feb 17, 2012	2.39	X
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X

Jun 30, 2012	2.12	X
Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X
Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 22, 2012	2.19	X
Jul 26, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 09, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X

Nov 13, 2012	1.93	X
Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X
Nov 18, 2012	1.86	X
Nov 19, 2012	2.32	X
Nov 19, 2012	1.96	X
Nov 20, 2012	2.09	X
Nov 21, 2012	1.93	X
Nov 23, 2012	2.01	X
Dec 04, 2012	2.34	X
Dec 08, 2012	2.02	X

3H Background
Total # pts : 5479
Valid # pts : 106
Mean : 2.14
SD : 0.17



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium- Screening by Low Level Liquid Scintillation Counting

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Samples

Procedures: **ARS-060** **ARS-040** *Section 14.1 Tritium Screen in Clean Water without Distillation*

ARS File ID Numbers: ARS1-12-02305; 2306; 2307; 2309
ARS Batch ID: ARS1-B12-02720

	Sample ID:	COUNT TIME	CPMA	Background CPMA	Eff Nucl In A	Aliquot (grams)	ACTIVITY	units	MDA	Sample Must be analyzed as LSC-A-001
1	B12-02720-04	120	1.982	1.188	27.31	10.00	130.962	pCi/L	97.38927	YES, analyze by LSC-A-001.
2	B12-02720-05	120	1.362	1.188	27.33	10.02	28.621	pCi/L	97.12375	NO
3	B12-02720-06	120	1.378	1.188	27.43	10.00	31.201	pCi/L	96.96321	NO
4	B12-02720-07	120	1.343	1.188	27.22	10.03	25.573	pCi/L	97.41902	NO
5	B12-02720-08	120	1.422	1.188	27.31	10.01	38.557	pCi/L	97.29198	NO
6	B12-02720-09	120	1.600	1.188	27.58	10.04	67.022	pCi/L	96.05165	NO
7	B12-02720-10	120	1.724	1.188	27.09	10.04	88.771	pCi/L	97.78902	NO
8	B12-02720-11	120	1.450	1.188	27.2	10.01	43.346	pCi/L	97.68544	NO
9							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
10							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
11							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
12							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
13							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
14							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
15							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
16							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
17							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
18							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
19							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
20							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
21							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
22							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
23							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!

Per VIM, run all samples by LSC-A-022
SDB
11-19-12

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

Analysis Batch ID **ARS1-B12-02720**

Method **ARS-054** **Analysis** **LSC-A-021** **Matrix** **AQ**

Description **Low Level Tritium Screening**

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02720-01	LCS									
ARS1-B12-02720-02	LCSD									
ARS1-B12-02720-03	MBL									
ARS1-B12-02720-04	TRG				**ARS1-12-02305**	001	1	CASA-13-24210	STD	12/12/12
ARS1-B12-02720-05	TRG				**ARS1-12-02306**	001	1	CAMO-13-24245	STD	12/12/12
ARS1-B12-02720-06	TRG				**ARS1-12-02306**	002	1	CAMO-13-24246	STD	12/12/12
ARS1-B12-02720-07	TRG				**ARS1-12-02306**	003	1	CAMO-13-24249	STD	12/12/12
ARS1-B12-02720-08	TRG				**ARS1-12-02306**	004	1	CAMO-13-24250	STD	12/12/12
ARS1-B12-02720-09	TRG				**ARS1-12-02307**	001	1	CAMO-13-24253	STD	12/12/12
ARS1-B12-02720-10	TRG				**ARS1-12-02307**	002	1	CAMO-13-24228	STD	12/12/12
ARS1-B12-02720-11	TRG				**ARS1-12-02309**	001	1	CASA-13-24211	STD	12/12/12

126796
12-02305-001-1
WRAD

126797
12-02306-001-1
WRAD

126798
12-02306-002-1
WRAD

126799
12-02306-003-1
WRAD

126800
12-02306-004-1
WRAD

126801
12-02307-001-1
WRAD

126804
12-02307-002-1
WRAD

126805
12-02309-001-1
WRAD

54 of 81

ID_11001_054	ABatch	ABatchSampleID	ClientID	Aliquot1	AliquotUnits1	IC_ID1	Aliquot2	AliquotUnits2	IC_ID2	UserID	ModDate
11995	ARS1-B12-02720	ARS1-B12-02720-01		1	g					AMRAD\RUSEY	11/16/2012 13:10:45
11996	ARS1-B12-02720	ARS1-B12-02720-02		1	g					AMRAD\RUSEY	11/16/2012 13:10:45
11997	ARS1-B12-02720	ARS1-B12-02720-03		1	g					AMRAD\RUSEY	11/16/2012 13:10:45
11998	ARS1-B12-02720	ARS1-B12-02720-04	CASA-13-24210	10	g	126796				AMRAD\RUSEY	11/16/2012 13:10:45
11999	ARS1-B12-02720	ARS1-B12-02720-05	CAMO-13-24245	10.02	g	126797				AMRAD\RUSEY	11/16/2012 13:10:45
12000	ARS1-B12-02720	ARS1-B12-02720-06	CAMO-13-24246	10	g	126798				AMRAD\RUSEY	11/16/2012 13:10:45
12001	ARS1-B12-02720	ARS1-B12-02720-07	CAMO-13-24249	10.03	g	126799				AMRAD\RUSEY	11/16/2012 13:10:45
12002	ARS1-B12-02720	ARS1-B12-02720-08	CAMO-13-24250	10.01	g	126800				AMRAD\RUSEY	11/16/2012 13:10:45
12003	ARS1-B12-02720	ARS1-B12-02720-09	CAMO-13-24253	10.04	g	126801				AMRAD\RUSEY	11/16/2012 13:10:46
12004	ARS1-B12-02720	ARS1-B12-02720-10	CAMO-13-24228	10.04	g	126804				AMRAD\RUSEY	11/16/2012 13:10:46
12005	ARS1-B12-02720	ARS1-B12-02720-11	CASA-13-24211	10.01	g	126805				AMRAD\RUSEY	11/16/2012 13:10:46

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121117_0729
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121117_0729\20121117_0729.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121117_0729\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121117_0729\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

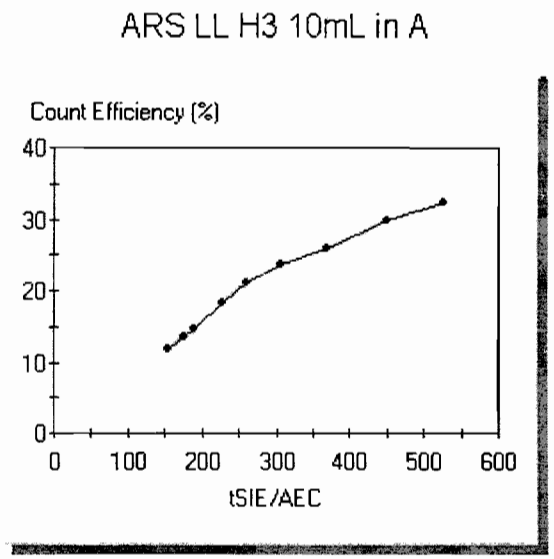
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/18/2011
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
526.29	32.47
450.16	29.90
370.15	25.92
306.68	23.60
260.68	20.99
228.69	18.21
189.46	14.53
177.14	13.64
155.73	11.73

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	BACKGROUND	1.188	4.61	365.54	25.76	120.00	11/17/2012	7:38:00 AM	
2	2	B12-02720-04	1.982	7.26	398.11	27.31	120.00	11/17/2012	9:47:57 AM	
2	3	B12-02720-05	1.362	4.98	398.46	27.33	120.00	11/17/2012	11:57:51 AM	
2	4	B12-02720-06	1.378	5.02	400.41	27.43	120.00	11/17/2012	2:07:44 PM	
2	5	B12-02720-07	1.343	4.93	396.35	27.22	120.00	11/17/2012	4:17:39 PM	
2	6	B12-02720-08	1.422	5.21	398.01	27.31	120.00	11/17/2012	6:27:33 PM	
2	7	B12-02720-09	1.600	5.80	403.48	27.58	120.00	11/17/2012	8:37:29 PM	
2	8	B12-02720-10	1.724	6.36	393.65	27.09	120.00	11/17/2012	10:47:23 PM	
2	9	B12-02720-11	1.450	5.33	395.94	27.20	120.00	11/18/2012	12:57:20 AM	

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
11-14-12	0802	B12-0276-06	B12-0276	0812	[illegible]
↓	↓	B12-0276-09	↓	↓	[illegible]
↓	↓	B12-0276-10	↓	↓	[illegible]
↓	↓	B12-0276-11	↓	↓	[illegible]
↓	↓	B12-0276-12	↓	↓	[illegible]
↓	↓	B12-0276-13	↓	↓	[illegible]
11-14-12	0814	Soil 16	0814	0814	[illegible]
11-14-12	1311	Background	B12-0266	0810	[illegible]
↓	↓	B12-0266-01	↓	↓	[illegible]
↓	↓	B12-0266-02	↓	↓	[illegible]
↓	↓	B12-0266-03	↓	↓	[illegible]
↓	↓	B12-0266-04	↓	↓	[illegible]
↓	↓	B12-0266-05	↓	↓	[illegible]
↓	↓	B12-0266-06	↓	↓	[illegible]
↓	↓	B12-0266-07	↓	↓	[illegible]
↓	↓	B12-0266-08	↓	↓	[illegible]
↓	↓	B12-0266-09	↓	↓	[illegible]
↓	↓	B12-0266-10	↓	↓	[illegible]
11-16-12	0801	B12-0266-01	B12-0266	2266	[illegible]
11-16-12	1317	Background	B12-0276	C729	[illegible]

Reviewed By: [illegible] Date: 12-14-12
Initials

Beta Liquid Scintillation Counter Log Book

hnician initials	Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials

Page 49 of 200
CL-13
56 of 81

Reviewed By: SDL Date: 12-14-12
Initials

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Control Charts

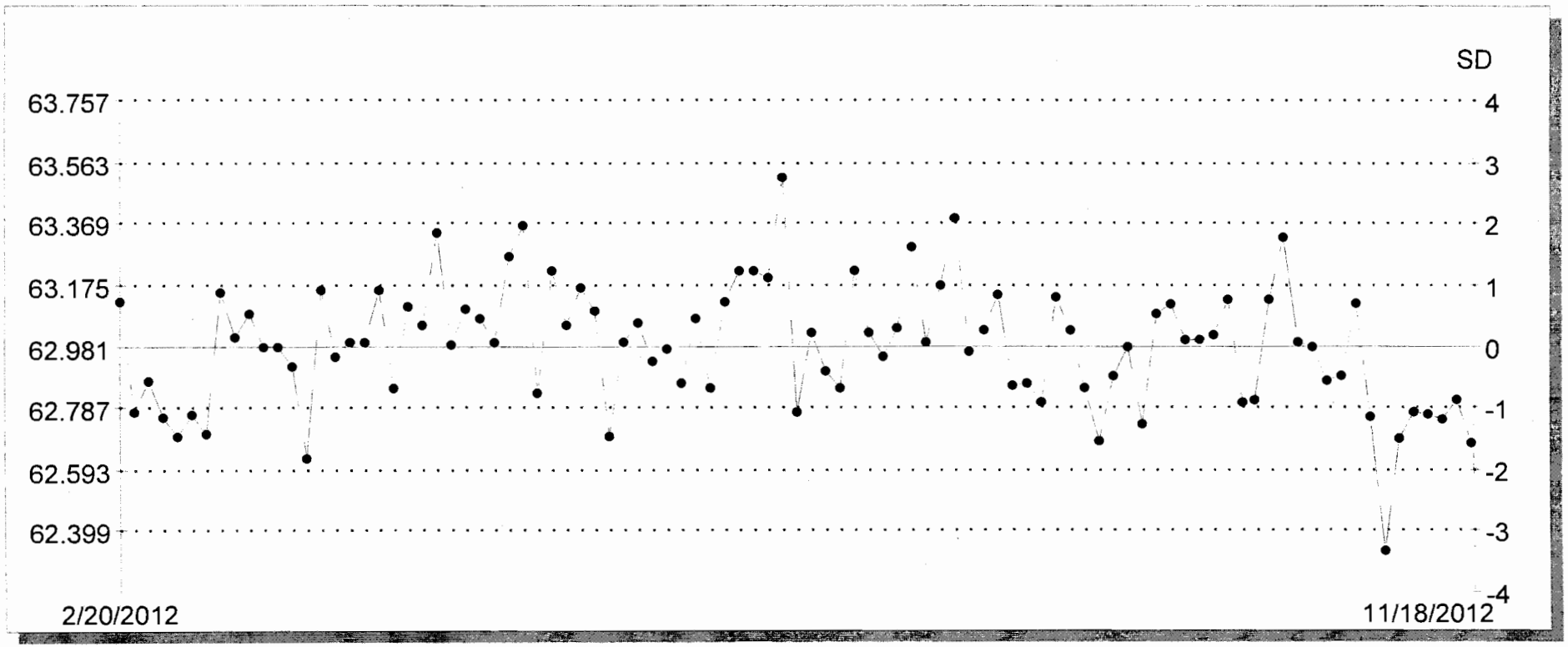
3H Efficiency

Total # pts : 5546
Valid # pts : 95
Mean : 62.98
SD : 0.19

Date	Value	Valid Pt
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X
Jun 30, 2012	62.97	X
Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X

Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 22, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X
Nov 12, 2012	62.77	X
Nov 13, 2012	62.76	X
Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X

3H Efficiency
Total # pts : 5546
Valid # pts : 95
Mean : 62.98
SD : 0.19

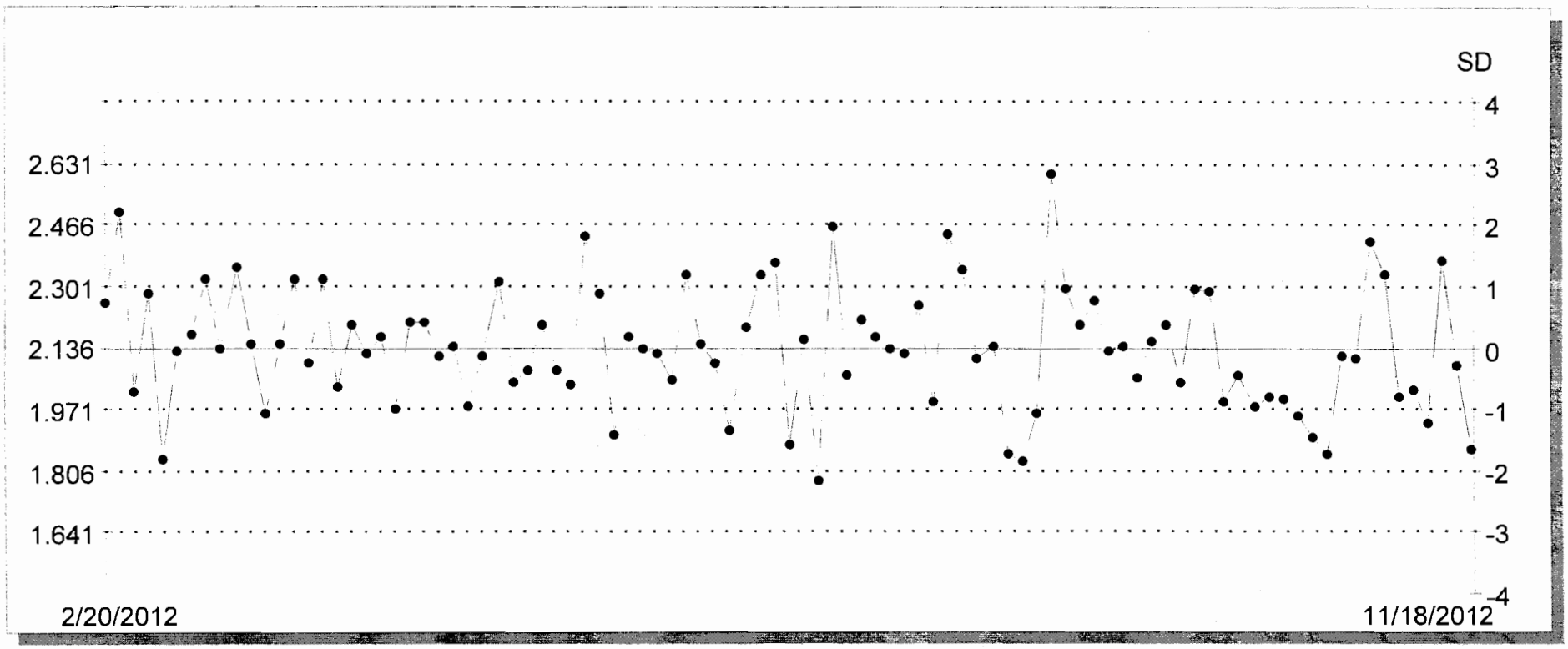


3H Background
Total # pts : 5472
Valid # pts : 95
Mean : 2.14
SD : 0.16

Date	Value	Valid Pt
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X
Jun 30, 2012	2.12	X
Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X

Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 22, 2012	2.19	X
Jul 26, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 08, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X
Nov 12, 2012	2.02	X
Nov 13, 2012	1.93	X
Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X

3H Background
Total # pts : 5472
Valid # pts : 95
Mean : 2.14
SD : 0.16



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Liquid Scintillation Counting

Calibration Information

ARS INTERNATIONAL

QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS

ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE 9/10/2012 20:16 *date counted*
STANDARD REFERENCE # S-0279

Principal Radionuclide		Half Life, Years		Half Life, Days
H-3	*ENTER -->*		*OR -->*	4.4998E+03
		1.232E+01		4.4998E+03

Radionuclide H-3 Dilution Reference Date 9/7/2012 10:40

Dilution Activity 2.58 pCi per gram ===> dpm/g 5.73
Verif. Date Decay Corrected 2.58 pCi per gram ===> dpm/g 5.72

Minimum of 3 Required

Trial ID	Sample Counts	Count Time (min)	Detector	Efficiency	Bkg. (cpm)	Net Weight	Decay Corrected Activity Result (dpm/g)	Decay Corrected Activity Result (pCi/g)
S-0279-V1	15.91	1	LSC	0.3302	6.49	5.019	5.68	2.56
S-0279-V2	16.21	1	LSC	0.3291	6.49	5.018	5.89	2.65
S-0279-V3	15.76	1	LSC	0.3290	6.49	5.018	5.62	2.53
S-0279-V4	15.62	1	LSC	0.3293	6.49	5.008	5.54	2.49
S-0279-V5	15.76	1	LSC	0.3280	6.49	5.018	5.63	2.54

	Average	5.67	2.55
	Two Sigma Uncertainty	0.26	0.12
10% Max *PASS*	Standard Deviation percent of known concentration	2.30%	2.30%
	Target Activity	5.72	2.58
5% Max *PASS*	% Diff	-0.91%	-0.91%

Verification Expiration Date: ###############

Prepared & Counted By [signature] Date: 9/10/2012 20:16
Verified & Approved By [signature] Date: 9-11-12 0817
QC Approval [signature] Date: 9-11-12 0817

S-0279		
H-3	Verified	*9/10/12*
SL	**Expires**	**9/10/13**
Manufactuer	**NIST SRM 4927F**	
Sol Matrix	H2O	
Ref No	NIST SRM 4927F	
Tech	Unknown	
Parent ID	S-0237	

ARS INTERNATIONAL

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

H-3 Standard Verification

Verifier's Name: Brian Steffens **Date:** 9/7/2012

Pipettor ID: FJ40469

Pipettor ID: Auto-pipettor

Pipettor ID: na

Standard ID: S-0279

Standard ID: N/A

Standards brought up to ~5g with distilled dead water.
Standards made in glass vials.

15mL of Ultima Gold added to standard

	Weight of Standard
S-0279-V1	5.019 **g**
S-0279-V2	5.018 **g**
S-0279-V3	5.018 **g**
S-0279-V4	5.008 **g**
S-0279-V5	5.018 **g**

Balance ID: H1331122173560P

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931
Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\20120910_0931.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\H-3 Normal 3.lsa

Count Conditions-

Nuclide: H-3 Normal
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: UG STD H-3
Count Time (min): 120.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

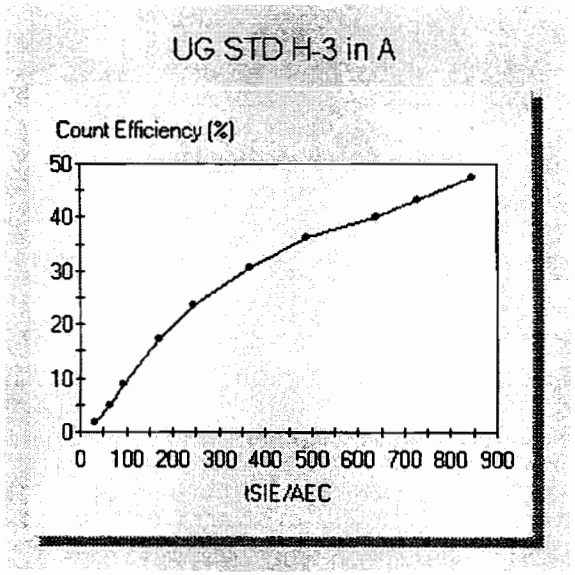
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 06/27/2012
Date Modified:
UG STD H-3 in A

tSIE/AEC	Count Efficiency (%)
846.90	47.58
730.85	43.21
639.47	40.08
487.78	36.36
365.41	30.73
244.81	23.69
169.28	17.31
95.01	8.79
64.60	4.97
34.32	1.64

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
54	1	BACKGROUND	6.49	19.81	409.74	32.77	120.00	9/10/2012	9:36:46 AM	
54	2	S-0279-V1	15.91	48.18	415.20	33.02	120.00	9/10/2012	11:44:40 AM	
54	3	S-0279-V2	16.21	49.25	412.72	32.91	120.00	9/10/2012	1:52:36 PM	
54	4	S-0279-V3	15.76	47.89	412.56	32.90	120.00	9/10/2012	4:00:32 PM	
54	5	S-0279-V4	15.62	47.44	413.22	32.93	120.00	9/10/2012	6:08:27 PM	
54	6	S-0279-V5	15.76	48.04	410.40	32.80	120.00	9/10/2012	8:16:20 PM	

STD ID: S-0279

ARS INTERNATIONAL

Add/Edit *Secondary Stds*

Planning	
Planning Comments	Create a H3 LCS standard.
Target dpm/g (on dil. date)	5.5
Target Final volume mL	2000
Appx mass g of Parent Sol'n	3.606433954
Appx vol ml of Parent Sol'n	3.612937241
Expected Addition for Analysis g	5

Standards Preparation / Dilution	
Secondary Solution #	S-0279
Dilution Date (New Ref Date)	09/07/2012 10:40
Ampoule, Empty (g)	
Ampoule /Solution Gross (g)	
Net Wt Removed (g)	
Transfer Container, empty (g)	13.144
Container Plus Solution (g)	16.89
Net Wt Transferred (g)	3.746
DPM Xferred on 09/07/2012 10:40	11425.69101
Diluent/matrix	DI H2O
Diluent Density Cont, empty (g)	
Test Mass of 5 ml of Diluent (g)	
Diluent Density Test - (g/mL)	
Dilution Empty Container Mass (g)	473.93
Dilution Full Cont g (If measured)	2469.52
Dilution Final Volume ml (If measured)	2000
Final Dilution Density (g/mL)	0.997795
Final Dilution Measured Mass g	1995.59
Comments	H3 LCS standard. Dilution performed as stated above by B Steffens. -BJS 9/7/12
Final Dilution dpm/g	5.725470166
Final Dil New Ref Date/Time	09/07/2012 10:40

Parent Standard Data

Parent Solution Reference #	NIST SRM 4927F			
Parent Solution #	S-0237			
Parent Principal Radionuclide	H-3	Half Life (Days)	4499.8000000	
Parent Reference Date	03/22/2010 10:10			
Parent Certified Act	3503.682716	Certi Act/Vol Units	dpm	g
Parent Cert Act Uncert 1 Sigma	0.0036			
Parent Sp. Gravity G/Ml	0.9982			
Parent Supplier	NIST SRM 4927F			
Parent Date Recvd	01/02/00			
Parent Received By	Unknown			
Parent Cert Exp Date				
Parent Matrix	H2O			
Certified dpm/g At Ref Date	3503.682716			
Certified dpm/g on 09/07/2012 10:40	3050.10438			
Parent Comments	Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Steffens. -BJS 3/22/10			
Parent Tech	Unknown			
Is_Primary	FALSE			
Is_LCS	TRUE			
Is_Tracer	FALSE			
Is_Calib	FALSE			

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Folder Duplicate

Report Compilation Checklist

ARS SDG: 12-02309 **Client Name:** LANL **Sample Matrix:** AQ

LEVEL 1 COMPONENTS	1st Reviewer	
1) Cover Page Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
2) Technical Review Checklist(s) Complete and Accurate?	~~Yes~~ No N/A	
3) Case Narrative Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
4) Form 1s Present for all Samples and Tests?	~~Yes~~ No N/A	
5) Client Specific Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 2 COMPONENTS	1st Reviewer	
6) Batch Quality Control Report is Present and Accurate?	~~Yes~~ No N/A	
7) DQO Report is Present and Accurate?	~~Yes~~ No N/A	
8) Client Specific Batch QC Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 3 COMPONENTS	1st Reviewer	
9) Efficiencies are Present?	~~Yes~~ No N/A	
10) Calibrations are Present?	~~Yes~~ No N/A	
11) Backgrounds are Present?	~~Yes~~ No N/A	
12) Spectrum Analysis is Present?	~~Yes~~ No N/A	
13) Spectral Plots are Present?	~~Yes~~ No N/A	
14) Plateaus are Present?	~~Yes~~ No N/A	
15) Control Charts are Present?	~~Yes~~ No N/A	
16) Other:	Yes No ~~N/A~~	

LEVEL 4 COMPONENTS	1st Reviewer	
17) Preparation Raw Data Present, Signed and Complete?	~~Yes~~ No N/A	
18) Instrument Raw Data Present and Complete?	~~Yes~~ No N/A	
19) Calibration Certificates Present?	~~Yes~~ No N/A	
20) Copies of Log Book Pages Present?	~~Yes~~ No N/A	
21) Sample Receiving Documentation Present?	~~Yes~~ No N/A	
22) LIMS Reports Present?	~~Yes~~ No N/A	
23) Applicable Correspondence Present?	~~Yes~~ No N/A	
24) Other:	Yes No ~~N/A~~	

SDh 12-14-12
Report Generator Signature **Date**

James D. Fu 12-14-12
Management Review Signature **Date**

LSC
Technical Review Checklist

ARS SDG ARS1-12-02309

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-B12-02720 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-021 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) Sample Prep Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

11-16-12

Chemist Signature Date 11-16-12 Verifier Review Signature N/A Date

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature James D. [illegible] Date 12-14-12

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) NCR # (If initiated): _____

11-16-12

Analyst Signature Date 11-16-12 Technicial Reviewer Signature N/A Date

Batch A: ARS1-B12-02720

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes No ~~N/A~~	Yes No (N/A)
2) RDL Criteria are Met?	Yes No ~~N/A~~	Yes No (N/A)
3) Method Blank Criterion Met?	Yes No ~~N/A~~	Yes No (N/A)
4) LCS/LCD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
[signature]	12-14-12	[signature]	12-14-12

GENERAL COMMENTS

LSC
Technical Review Checklist

ARS SDG ARS1-12-02309

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-B12-02721 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-022 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) Sample Prep Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Chemist Signature 12-4-12 Date Verifier Review Signature 12-4-12 Date

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature 12-14-12 Date

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) NCR # (If initiated): _____

Analyst Signature 12-10-12 Date Technicial Reviewer Signature 12-10-12 Date

Batch A: ARS1-B12-02721

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes ~~No~~ N/A	Yes (No) N/A
2) RDL Criteria are Met?	~~Yes~~ No N/A	(Yes) No N/A
3) Method Blank Criterion Met?	~~Yes~~ No N/A	(Yes) No N/A
4) LCS/LCD Criteria Met?	~~Yes~~ No N/A	(Yes) No N/A
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	~~Yes~~ No N/A	(Yes) No N/A
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
[signature]	12-14-12	[signature]	12-14-12

GENERAL COMMENTS

DQO Report for SDG
ARS1-12-02309

77 of 88

Analysis Code	Group	Isotope	Activity Units	Aliquot Units	ProcedureNo	RDL	LCS_LL	LCS_UL	MS_LL	MS_UL	RadY_LL	RadY_UL	GravY_LL	GravY_LL	RER	RPD	DiltionReq	RoughPrepReq	BlankCorrectionMDA	BlankCorrectionAll	CountTimeReq	AliquotRequired
LSC-A-021	STD	H-3	pCi	L	ARS-054	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		
LSC-A-022	STD	Enriched H-3	pCi	L	ARS-040	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		

SDG Report - Samples and Containers

SDG Specific Data

SDG	ARS1-12-02309	TAT Days	28	Project Type	Environmental
Sample Count	1 Rpt Level 4	Date Received	11/15/2012	COC Number	2013-320
Client	Los Alamos National Laboratory	Client Deadline	12/15/2012	PO Number	63641-001-10
Client Code	114	Internal Deadline	12/14/2012	Job Number	
Profile Number	PN-00094	Lab Deadline	12/12/2012	Job Location	
Comments					

Samples and Containers (→) Checked In Thus Far

FR	ClientID	Matrix	SampleStartDate	SampleEndDate	Disp	Hold	Arch	Storage	X	Units	Y	Units	Z	Units	Comments
001	CASA-13-24211	AQ	11/14/12 12:52 PM	11/14/12 12:52 PM	H	90	5	E3							
→	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126706	1	1000.00				80	24		N	N/A				

SDG Report - Analysis Assignments

Temp SDG	ARS1-12-02309	Sample Count	1
Client	Los Alamos National Laboratory	Analysis Count	2-2

Samples Count Totals per Analysis

Analysis Code	Analysis Description	Samples Count
LSC-A-021	Low Level Tritium Screen in (Aqueous)	1
LSC-A-022	Low Level Tritium by Enrichment Process in (Aqueous [AQ])	1

Analyses Assigned Per Fraction

Fraction	Analysis Code	X = Assigned
001	LSC-A-021	X
001	LSC-A-022	X

ARS FILE TRACKING SHEET

SDG: ARS1-12-02309

Task	Date / Time	Initials
Date & Time Samples Received	11/15/12 10:30	cad
ICOC Initiated / Storage Location: E3	11/15/12 12:27	cad
Technical Checks Performed	See Batch	
Report Written / EDD Generated: _____/_____|_____ Date/Time Initials	12-14-12 | 1055	SOA
Quality Assurance Checks Performed on Report	12-14-12 1100	
Management Check Performed on Report		JDT
Preliminary Report Sent		
Report E-mailed		
Report Faxed		
Report Reviewed		
Report Mailed		
Invoice Completed Invoice #:_____		
Report Imaged		

SPECIAL REQUIREMENTS

Requirement	Yes	No
3 Hour Rush		✓
24 Hour Rush		✓
48 Hour Rush		✓
3 Day TAT		✓
5 Day TAT		✓

NOTES:

COMPANY NAME: LANL

SDG: ARS1-12-02309

SHIPPING CONTAINER

- Good Condition ☑ Yes ☐ No
- Radioactive ☐ Yes ☑ No
- UN2910 ☐ Yes ☑ No
- Sec. Seals ☑ Yes ☐ No
  - Seals Intact ☑ Yes ☐ No ☐ N/A
- Air Bill ☐ Yes ☑ No

COC PRESENT WITH SAMPLES

- COC ☑ Yes ☐ No

SAMPLE CONTAINER(S)

- Good Condition ☑ Yes ☐ No
- Sec. Seals ☑ Yes ☐ No
  - Seal Intact ☑ Yes ☐ No ☐ N/A
- Marked Radioactive ☐ Yes ☑ No
- # Samples Rcv 9
- Matrix [AF , AQ , BI , FE , LT , SI , SO , UR , VG]

External and Internal Surveys

Exposure Rate Meter:	M3 242861	Serial No.:	PR 264264	Calibration Due Date:	4-18-13
Count Rate Meter:	M2 154859	Serial No.:	PR 184559	Calibration Due Date:	4-18-13

Background Exposure Rate (µR/hr)	24	Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd)	28	µR/hr
Background Count Rate (cpm)	80	Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd)	80	cpm
		Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd)	80	cpm

Sample Label/Comments/Notes	pH Orig (pH ≤ 2 is Acceptable)	pH Final	Mark if Preserve	Acid Lot #	Weight(g) / Volume(mL)	µR/hr (Acceptance Limits <500 µR/hr)	cpm (Acceptance Limits <100 cpm/cm²)
CASH-13-24210			☐		1000mL	24	80
			☐				
CAMO-13-24245			☐		1000mL	24	80
-24246			☐		↓	24	80
-24249			☐		↓	24	90
-24250			☐		↓	24	80
			☐				
CAMO-13-24253			☐		1000mL	24	90
-24228			☐		↓	24	90
			☐				
WST54-13-24790			☐		2410g	26	90
			☐				
* CASH-13-24211			☐		1000mL	24	80
			☐				
			☐				
			☐				
			☐				
			☐				
			☐				

11/15/12

Surveyors' Name: [signature]

Date/Time Surveyed: 11/15/12 1030

* This sample only in this SDG.

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-315

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3
CASA-13-24210	Nov 13 2012	12:59	W	1

Special Instructions:

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 11/14/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24210 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/13/2012	FIELD MATRIX:	WG	↓
TIME COLLECTED (HH:MM):		1259	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-35a	↓	FIELD PREP:	UF	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Sampled ~~do~~ as 11/13/12 upwind from diesel generator ~40'

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 4.90 mg/L Oxidation-Reduction Potential 169.8 MV pH 8.08 SU

Specific Conductance 241 uS/cm Temperature 22.66 deg C Turbidity 1.88 NTU

COLLECTED BY (PRINT) D. Woody

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
Andrey Shepker	11/13/12 1355	S. Sherwood	11/13/12 1355
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-315

1. Distribution Of Samples In EDD.

	Analytical	Regular	Field	Trip	Field	Equipment
SDG	Method	Samples	Duplicates	Blanks	Blanks	Blanks
ARS1-12-02305	Generic:Low_Level_Tritium	1				

	Analytical	Analysis	Prep	Regular	Field	Trip	Field	Equipment	Method	Matrix	Matrix
SDG	Method	Lot ID	Lot ID	Samples	Duplicates	Blanks	Blanks	Blanks	Blanks	Spikes	Spike Dups
ARS1-12-02305	Generic:Low_Level_Tritium	ARS1-B12-02721	ARS1-B12-02721	1					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
Generic:Low_Level_Tritium	RAD							
LCS	ARS1-B12-02721-01	LCS	0	0	1	0		
Generic:Low_Level_Tritium	RAD	CASA-13-24210	ARS1-B12-02721-14	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	LCSD	ARS1-B12-02721-02	LCSD	0	0	1	0
Generic:Low_Level_Tritium	RAD	MB	ARS1-B12-02721-03	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

No.

Any samples affected by the presence of contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

No.

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

Data Validation Report for: Chain Of Custody No. 2013-315

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1	1						

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-35a	2013-315	CASA-13-24210	REG	INIT	RAD	Generic:Low_Level_Tritium	Tritium	U	U	R5	N

Reason Code	Description
R5	Analyte is not detected because the amount reported is less than the MDC.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CASA-13-24210	R-35a	REG	Generic:Low_Level_Tritium	0	1

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
-0.723	pCi/L	-0.723	pCi/L	2.296	0.667	W	11/13/2012		ARS1-B12-02721	VAL	Y

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Request Number: 2013-315

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-315

Original COC

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-315

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3	Special Instructions:
CASA-13-24210	Nov 13 2012	12:59	W	1	

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 11/14/12 3:00	Received by:	11/15/12 1030
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-315

Case Narrative

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

December 12, 2012

LANL
Keith Greene
PO Box 1663 MS M992
Los Alamos, NM 87545

Request Number: **2013-315**
LANL Sample ID: **CASA-13-24210.**

Dear Mr. Greene;

On November 15, 2012, ARS International received one (1) water sample to be analyzed for Low Level Tritium.

The sample underwent enrichment and was counted using the appropriate counting equipment and QA/QC for this type of analysis. Results of the analysis and QA/QC are attached in the data package.

The client and QA/QC samples were counted with a count time sufficient to meet quality control parameters for counting equipment and were within acceptance criteria and statistical sound detection limits.

If you have any questions please do not hesitate to call at 225.381.2991 or email LANL@amrad.com.

Sincerely,

Eugene Mulligan

Laboratory Management
ARS International

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767

1 (800) 401-4277 • Fax (225) 381-2996

COVER PAGE

PROJECT SAMPLE IDENTIFICATION
CROSS-REFERENCE
TO ARS SAMPLE LABORATORY IDs
Subcontract (LANL Agreement Number) 63641-001-10

Request Number	LANL PROJECT SAMPLE ID NUMBER	American Radiation Services SAMPLE ID NUMBER(S)
2013-315	CASA-13-24210	ARS1-12-02305-001

ANALYTICAL METHODS
Tritium analyses were performed using **ARS-040 Tritium Assay in Water Samples Using Electrolytic Enrichment.**

ANALYTICAL RESULTS
The result data that are flagged with "U" indicate that the activity is below the MDC.

American Radiation Services Project Manager/Laboratory Director's Comments:
"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

"I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the LANL specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."

Signature	Title	Date
Virgene Mulligan	Laboratory Management, ARS International	12-12-12

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02305	**Request or PO Number:**	2013-315
Client Sample ID:	CASA-13-24210	**ARS Sample ID:**	ARS1-12-02305-001
Sample Collection Date:	11/13/12	**Date Received:**	11/15/12
Sample Matrix:	Aqueous	**Report Date:**	12/12/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	-0.723	0.667	2.296	1.109	U	pCi/L	ARS-040	12/06/12 02:14	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

QC Results Report

Sample Delivery Group: ARS1-12-02305
Date Received: 11/15/2012

Laboratory Control Sample Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Percent Recovery (%)	LCS Acceptance Range
ARS1-B12-02721	LCS	H3	25.875	4.032	2.269	25.703		pCi/L	ARS-040	12/4/12 18:56	RJU	101	80%-120%

Blank Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician
ARS1-B12-02721	MBL	H3	-0.085	0.625	2.135	NA	U	pCi/L	ARS-040	12/4/12 18:56	RJU

Sample RER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	RER	RER AcceptanceRange
ARS1-B12-02721	LCSD	H3	25.875	4.032	24.604	3.836		pCi/L	ARS-040	12/4/12 18:56	RJU	0.16	< 1

Sample DER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	DER	DER AcceptanceRange
ARS1-B12-02721	LCSD	H3	25.875	4.032	24.604	3.836		pCi/L	ARS-040	12/4/12 18:56	RJU	0.46	< 3

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of ARS International.

LELAP Certificate# 01949 NELAP Certificate # E87558

QC Evaluation

EPA Method: ARS-040
Batch ID: ARS1-B12-02721
SDG's: ARS1-12-02261;2262;2263;2264;2305;2306;2307;2309

LCS	25.8750	**CSU (2s)**	7.9020
LCSD	24.6040	**CSU-D (2s)**	7.5190

DER = abs(LSC-LSCD) / sqr((2s CSU/2)^2)+((2s CSU-D/2)^2) *at 1 sigma* = **< 3**

DER 1.271 / 5.453828 = 0.233047 **< 3**

% RPD= ABS(LCS - LSCD) / (LCS+LCSD)/2 * 100 = **< 25%**

%RPD 1.271 / 25.2395 *100 = 5.035757 **< 25%**

The *RPD* shall be less than 25% or other client-applied criteria

RER= abs((LCS-LCSD)) / (CSU)+(CSD) *at 2 sigma* = **<1** ***<--LANL Requirement***

RER = 1.271 / 15.4210 0.082420077 **<1**

Blank Information

	Act	CSU(2s)	MDA	Act>MDA
AM-241				
U-234				
U-235				
U-238				
Pu-238				
Pu-239/240				
Th-228				
Th-230				
Th-232				
H3	-0.085	1.225	2.135	
Ra-226				
Ra-228				
Total U				
Pb-210				
Po-209				
Sr-90				
TC-99				
NI-63				

*MDA should be below RDL
*Blank activity must be below MDA
*Blank activity must be < 1.65*CSU (DOE only)

ACT = -0.085
CSU = 1.225
Is ACT<1.65*CSU? YES

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

12 of 61

ARS INTERNATIONAL

Analysis Batch ID **ARS1-B12-02721**

Method ARS-040 **Analysis** LSC-A-022 **Matrix** AQ

Description Low Level Tritium by Electrolytic Enrichment

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02721-01	LCS	B-14793								
ARS1-B12-02721-02	LCSD	B-14794								
ARS1-B12-02721-03	MBL									
ARS1-B12-02721-04	TRG				**ARS1-12-02261**	001	1	CAMO-13-24279	STD	11/29/12
ARS1-B12-02721-05	TRG				**ARS1-12-02262**	001	1	CAMO-13-24241	STD	12/06/12
ARS1-B12-02721-06	TRG				**ARS1-12-02262**	002	1	CAMO-13-24242	STD	12/06/12
ARS1-B12-02721-07	TRG				**ARS1-12-02262**	003	1	CAMO-13-24225	STD	12/06/12
ARS1-B12-02721-08	TRG				**ARS1-12-02262**	004	1	CAMO-13-24247	STD	12/06/12
ARS1-B12-02721-09	TRG				**ARS1-12-02262**	005	1	CAMO-13-24248	STD	12/06/12
ARS1-B12-02721-10	TRG				**ARS1-12-02263**	001	1	CAMO-13-24276	STD	12/06/12
ARS1-B12-02721-11	TRG				**ARS1-12-02264**	001	1	CASA-13-24209	STD	12/06/12
ARS1-B12-02721-12	TRG				**ARS1-12-02264**	002	1	CASA-13-24213	STD	12/06/12
ARS1-B12-02721-13	TRG				**ARS1-12-02264**	003	1	CASA-13-24214	STD	12/06/12
ARS1-B12-02721-14	TRG				**ARS1-12-02305**	001	1	CASA-13-24210	STD	12/12/12
ARS1-B12-02721-15	TRG				**ARS1-12-02306**	001	1	CAMO-13-24245	STD	12/12/12
ARS1-B12-02721-16	TRG				**ARS1-12-02306**	002	1	CAMO-13-24246	STD	12/12/12
ARS1-B12-02721-17	TRG				**ARS1-12-02306**	003	1	CAMO-13-24249	STD	12/12/12
ARS1-B12-02721-18	TRG				**ARS1-12-02306**	004	1	CAMO-13-24250	STD	12/12/12
ARS1-B12-02721-19	TRG				**ARS1-12-02307**	001	1	CAMO-13-24253	STD	12/12/12
ARS1-B12-02721-20	TRG				**ARS1-12-02307**	002	1	CAMO-13-24228	STD	12/12/12
ARS1-B12-02721-21	TRG				**ARS1-12-02309**	001	1	CASA-13-24211	STD	12/12/12

127700
12-02261-001-1
WRAD

127702
12-02262-001-1
WRAD

127704
12-02262-002-1
WRAD

127706
12-02262-003-1
WRAD

127708
12-02262-004-1
WRAD

127710
12-02262-005-1
WRAD

127712
12-02263-001-1
WRAD

127714
12-02264-001-1
WRAD

127716
12-02264-002-1
WRAD

127718
12-02264-003-1
WRAD

127720
12-02305-001-1
WRAD

127722
12-02306-001-1
WRAD

127724
12-02306-002-1
WRAD

127726
12-02306-003-1
WRAD

127728
12-02306-004-1
WRAD

127730
12-02307-001-1
WRAD

127732
12-02307-002-1
WRAD

127734
12-02309-001-1
WRAD

American Radiation Services
Baton Rouge Laboratory

LCS Report
Analytical Batch: ARS1-B12-02721

13 of 17

BlindID	ABatch	ABatchSampleID	BlindGroup	StdID	Isotope	ExpectedAddition	ExpectedValue	EmptyWt	GrossWt	NetWt	UserID	ModDate	ExpectedValue_CT	MidPointCountDate	KnownValue
B-14793	ARS1-B12-02721	ARS1-B12-02721-01	B-H3	S-0279	H-3	5	2.552560129	13.098	18.151	5.053	AMRAD\BSTEFFENS	11/13/2012			
B-14794	ARS1-B12-02721	ARS1-B12-02721-02	B-H3	S-0279	H-3	5	2.552560129	13.14	18.192	5.052	AMRAD\BSTEFFENS	11/13/2012			

14 of 81

ID_31001_040	ABatch	AnalysisCode	ABatchSampleID	ClientID	IC_ID	S01_1_EnrichCellNo	S01_2_TareCell	S01_3_TareResv	S02_GrossWtResv	S03_1_WtNa2O2	C_GrossSampleAdded
444	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-01			4	327.7	200.9	701.14	2.07	500.24
445	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-02			33	336.25	215.3	718.8	2.08	503.5
446	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-03			74	328.56	197.95	701.97	2.06	504.02
447	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-04	CAMO-13-24279		61	335.51	213.55	714.87	2	501.32
448	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-05	CAMO-13-24241		64	331.04	209.03	714.77	2.01	505.74
449	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-06	CAMO-13-24242		68	334.63	204.08	706.25	2.02	502.17
450	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-07	CAMO-13-24225		29	335.72	206.2	707.31	2.06	501.11
451	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-08	CAMO-13-24247		55	331.14	208.66	711.99	2.02	503.33
452	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-09	CAMO-13-24248		84	336.66	197.55	700.94	2.05	503.39
453	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-10	CAMO-13-24276		89	340.12	203.22	707.98	2.08	504.76
454	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-11	CASA-13-24209		97	332.94	202.132	708.3	2	506.168
455	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-12	CASA-13-24213		3	332.17	214.84	717.62	2.03	502.78
456	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-13	CASA-13-24214		16	329.44	217.7	718.25	2.09	500.55
457	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-14	CASA-13-24210		26	337.76	213.12	716.43	2	503.31
458	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-15	CAMO-13-24245		44	331.35	214.173	718.93	2.08	504.757
459	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-16	CAMO-13-24246		50	329.91	216.33	717.493	2.07	501.163
460	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-17	CAMO-13-24249		31	334.66	204.09	709.85	2.08	505.76
461	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-18	CAMO-13-24250		8	332.1	204.54	705.56	2	501.02
462	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-19	CAMO-13-24253		87	334.14	207.46	710.88	2.01	503.42
463	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-20	CAMO-13-24228		94	337.21	197.78	700.71	2.05	502.93
464	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-21	CASA-13-24211		99	336.65	206.9	709.24	2.06	502.34

12-4-12

S04_1_ElectrolSD	S04_2_StartAmp	S04_3_StartBathC	S05_1_ElectrolED	S05_2_EndBathC	S05_3_EndCellWt	C_GrossSmplRec	C_EnrichmentF	S06_TareWt	S07_GrossWt	C_RecoveredWa
11/16/2012 15:00:00	5	1.8	11/30/2012 14:58:00	2	545.34	16.74	29.88291517	117.45	130.16	12.71
11/16/2012 15:00:00	5	1.8	11/30/2012 15:00:00	2	567.84	16.29	30.90853284	117.71	129.56	11.85
11/16/2012 15:00:00	5	1.8	11/29/2012 07:51:00	1.8	543.45	16.94	29.75324675	101.5	114.12	12.62
11/16/2012 15:00:00	5	1.8	11/29/2012 07:53:00	1.8	565.75	16.69	30.03714799	108.55	121.28	12.73
11/16/2012 15:00:00	5	1.8	11/30/2012 15:01:00	2	555.66	15.59	32.44002566	104.53	115.28	10.75
11/16/2012 15:00:00	5	1.8	12/03/2012 12:24:00	1.9	553.86	15.15	33.14653465	102.66	112.87	10.21
11/16/2012 15:00:00	5	1.8	11/29/2012 13:10:00	2	558.94	17.02	29.44242068	116.99	128.81	11.82
11/16/2012 15:00:00	5	1.8	11/30/2012 15:03:00	2	555.09	15.29	32.91890124	110.03	121.82	11.79
11/16/2012 15:00:00	5	1.8	11/30/2012 15:05:00	2	549.5	15.29	32.92282538	109.95	120.14	10.19
11/16/2012 15:00:00	5	1.8	11/30/2012 15:06:00	2	560.19	16.85	29.95608309	96.23	110.02	13.79
11/16/2012 15:00:00	5	1.8	11/30/2012 15:07:00	2	552.49	17.418	29.06005282	107.55	120.29	12.74
11/16/2012 15:00:00	5	1.8	11/29/2012 13:08:00	2	563.52	16.51	30.45305875	117.92	129.06	11.14
11/16/2012 15:00:00	5	1.8	12/04/2012 07:37:00	2.1	564.03	16.89	29.63587922	105.46	120.29	14.83
11/16/2012 15:00:00	5	1.8	12/04/2012 07:39:00	2.1	565.2	14.32	35.14734637	101.94	114.75	12.81
11/16/2012 15:00:00	5	1.8	12/04/2012 07:42:00	2.1	563.27	17.747	28.44182115	116.81	128.38	11.57
11/16/2012 15:00:00	5	1.8	12/04/2012 07:45:00	2.1	563.14	16.9	29.65461538	109.51	121.45	11.94
11/16/2012 15:00:00	5	1.8	12/04/2012 11:41:00	2.1	555.31	16.56	30.5410628	111.9	124.2	12.3
11/16/2012 15:00:00	5	1.8	11/29/2012 07:56:00	1.8	553.44	16.8	29.82261905	105.48	117.84	12.36
11/16/2012 15:00:00	5	1.8	11/29/2012 07:58:00	1.8	558.66	17.06	29.5087925	112	125.02	13.02
11/16/2012 15:00:00	5	1.8	11/29/2012 13:05:00	1.9	551.09	16.1	31.2378882	115.1	127.71	12.61
11/16/2012 15:00:00	5	1.8	11/29/2012 13:03:00	1.9	560.98	17.43	28.82042456	104.78	117.5	12.72

12-4-12

S08_TearWtLSCVial	S09_VialPlusSmpl	C_NetSample	S10_1_WtVislSmplDrWatFill	C_NetDeadWaterAdded	C_TareWtBFCocktail	S10_2_GrossWtVSC	C_NetWtCocktailAdded	UserID	ModDate
6.44	16.44	10	0	0	16.44	27.34	10.9	AMRAD\RUSEY	12/03/2012 12:16:52
6.44	16.45	10.01	0	0	16.45	27.43	10.98	AMRAD\RUSEY	12/03/2012 12:18:50
6.51	16.53	10.02	0	0	16.53	27.02	10.49	AMRAD\RUSEY	11/29/2012 14:42:42
6.53	16.54	10.01	0	0	16.54	26.83	10.29	AMRAD\RUSEY	11/29/2012 14:44:17
6.45	16.5	10.05	0	0	16.5	26.92	10.42	AMRAD\RUSEY	12/03/2012 12:20:31
6.53	16.54	10.01	0	0	16.54	26.86	10.32	AMRAD\RUSEY	12/03/2012 14:37:15
6.38	16.42	10.04	0	0	16.42	27.17	10.75	AMRAD\RUSEY	11/29/2012 15:39:24
6.59	16.64	10.05	0	0	16.64	26.96	10.32	AMRAD\RUSEY	12/03/2012 12:23:43
6.47	16.53	10.06	0	0	16.53	26.85	10.32	AMRAD\RUSEY	12/03/2012 14:39:07
6.54	16.54	10	0	0	16.54	26.89	10.35	AMRAD\RUSEY	12/03/2012 14:41:26
6.68	16.69	10.01	0	0	16.69	26.99	10.3	AMRAD\RUSEY	12/03/2012 14:43:02
6.52	16.56	10.04	0	0	16.56	26.84	10.28	AMRAD\RUSEY	11/29/2012 15:42:09
6.64	16.69	10.05	0	0	16.69	26.89	10.2	AMRAD\RUSEY	12/04/2012 10:57:08
6.38	16.39	10.01	0	0	16.39	26.6	10.21	AMRAD\RUSEY	12/04/2012 10:59:05
6.61	16.64	10.03	0	0	16.64	26.99	10.35	AMRAD\RUSEY	12/04/2012 11:01:07
6.49	16.54	10.05	0	0	16.54	26.84	10.3	AMRAD\RUSEY	12/04/2012 11:02:49
6.46	16.53	10.07	0	0	16.53	26.79	10.26	AMRAD\RUSEY	12/04/2012 13:55:27
6.5	16.58	10.08	0	0	16.58	26.89	10.31	AMRAD\RUSEY	11/29/2012 14:45:59
6.56	16.58	10.02	0	0	16.58	26.94	10.36	AMRAD\RUSEY	11/29/2012 14:47:45
6.46	16.49	10.03	0	0	16.49	26.79	10.3	AMRAD\RUSEY	11/29/2012 15:43:57
6.57	16.59	10.02	0	0	16.59	26.89	10.3	AMRAD\RUSEY	11/29/2012 15:45:48

12-4-12

AMRAD
AMERICAN RADIATION SERVICES, LLC

LSC Instrument Data Transfer Report

\\Packard3170\Results\H3 Low Level\Low Level H3_3\

Batch Sample ID	Non-BKG Samples Transferred	Samples Eligible To Save	
ARS1-B12-02721	21	21	LSC 1

LIMS Batch Sample ID	LSC P#	LSC PID	LSC S#	LSC SMPL_ID	LSC Count Date	LSC CPMA	LSC tSIE	LSC EFF	LSC Count Dur	Analysis Batch	LIMS SDG	LIMS Run
BKG	10		1	BACKGROUND	12/04/12 14:45	1.11	395.29	25.3300	240.00	ARS1-B12-02721		
ARS1-B12-02721-01	10		2	B12-02721-01	12/04/12 18:56	4.84	378.07	24.5900	240.00	ARS1-B12-02721		
ARS1-B12-02721-02	10		3	B12-02721-02	12/04/12 23:07	4.79	377.91	24.5800	240.00	ARS1-B12-02721		
ARS1-B12-02721-03	10		4	B12-02721-03	12/05/12 03:18	1.09	407.72	25.9200	240.00	ARS1-B12-02721		
ARS1-B12-02721-04	10		5	B12-02721-04	12/05/12 07:29	1.08	378.13	24.5900	240.00	ARS1-B12-02721	ARS1-12-02261	1
ARS1-B12-02721-05	10		6	B12-02721-05	12/05/12 11:40	1.28	395.32	25.3300	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-06	2		1	B12-02721-06	12/06/12 16:58	3.80	401.27	25.6100	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-07	2		2	B12-02721-07	12/06/12 21:09	1.32	410.59	26.0600	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-08	2		3	B12-02721-08	12/07/12 01:20	1.47	395.87	25.3500	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-09	2		4	B12-02721-09	12/07/12 05:31	1.35	351.17	23.5500	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-10	2		5	B12-02721-10	12/07/12 09:42	1.06	286.28	20.1600	240.00	ARS1-B12-02721	ARS1-12-02263	1
ARS1-B12-02721-11	2		6	B12-02721-11	12/07/12 13:53	1.82	354.31	23.6700	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-12	10		13	B12-02721-12	12/05/12 15:52	1.03	220.99	15.6400	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-13	10		14	B12-02721-13	12/05/12 20:03	1.28	402.67	25.6800	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-14	10		15	B12-02721-14	12/06/12 00:14	1.00	286.72	20.1900	240.00	ARS1-B12-02721	ARS1-12-02305	1
ARS1-B12-02721-15	10		16	B12-02721-15	12/06/12 04:24	1.16	290.87	20.4700	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-16	10		17	B12-02721-16	12/06/12 08:35	1.17	258.02	18.2400	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-17	10		18	B12-02721-17	12/06/12 12:46	3.55	251.93	17.8300	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-18	10		1	B12-02721-18	12/07/12 18:04	1.08	258.29	18.2500	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-19	10		2	B12-02721-19	12/07/12 22:15	1.85	308.77	21.6900	240.00	ARS1-B12-02721	ARS1-12-02307	1
ARS1-B12-02721-20	10		3	B12-02721-20	12/08/12 02:26	1.39	304.39	21.3900	240.00	ARS1-B12-02721	ARS1-12-02307	1
ARS1-B12-02721-21	10		4	B12-02721-21	12/08/12 06:37	1.07	280.53	19.7700	240.00	ARS1-B12-02721	ARS1-12-02309	1

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Total_Bkg_Count_Duration_min	DF	Sample_Activity_Conc	Standard_Counting_Uncertainty	CU_1	CSU_1	CU_1_96	CSU_1_96	MDC	DLC	ActivityReportUnits
LSC-A-022	ARS1-B12-02721-01	240.000	0.98654	25.875	1.091	1.091	4.032	2.139	7.902	2.269	1.095	pCi
LSC-A-022	ARS1-B12-02721-02	240.000	0.98638	24.604	1.047	1.047	3.836	2.052	7.519	2.186	1.055	pCi
LSC-A-022	ARS1-B12-02721-03	240.000	0.99908	-0.085	0.625	0.625	0.625	1.225	1.225	2.135	1.031	pCi
LSC-A-022	ARS1-B12-02721-04	240.000	0.99478	-0.213	0.655	0.655	0.655	1.283	1.285	2.247	1.085	pCi
LSC-A-022	ARS1-B12-02721-05	240.000	0.99462	1.037	0.608	0.608	0.628	1.192	1.230	1.997	0.964	pCi
LSC-A-022	ARS1-B12-02721-06	240.000	0.99447	15.912	0.845	0.845	2.532	1.656	4.963	1.933	0.933	pCi
LSC-A-022	ARS1-B12-02721-07	240.000	0.99432	1.394	0.661	0.661	0.694	1.296	1.359	2.153	1.039	pCi
LSC-A-022	ARS1-B12-02721-08	240.000	0.99524	2.149	0.620	0.620	0.699	1.215	1.369	1.959	0.946	pCi
LSC-A-022	ARS1-B12-02721-09	240.000	0.99524	1.567	0.650	0.650	0.691	1.274	1.355	2.102	1.015	pCi
LSC-A-022	ARS1-B12-02721-10	240.000	0.99508	-0.376	0.795	0.795	0.797	1.559	1.563	2.738	1.322	pCi
LSC-A-022	ARS1-B12-02721-11	240.000	0.99508	5.262	0.817	0.817	1.136	1.601	2.227	2.422	1.169	pCi
LSC-A-022	ARS1-B12-02721-12	240.000	0.99570	-0.793	0.998	0.998	1.005	1.956	1.970	3.460	1.670	pCi
LSC-A-022	ARS1-B12-02721-13	240.000	0.99554	1.108	0.657	0.657	0.678	1.288	1.329	2.159	1.042	pCi
LSC-A-022	ARS1-B12-02721-14	240.000	0.99646	-0.723	0.658	0.658	0.667	1.290	1.307	2.296	1.109	pCi
LSC-A-022	ARS1-B12-02721-15	240.000	0.99631	0.469	0.844	0.844	0.847	1.655	1.661	2.843	1.372	pCi
LSC-A-022	ARS1-B12-02721-16	240.000	0.99631	0.613	0.905	0.905	0.910	1.775	1.784	3.040	1.468	pCi
LSC-A-022	ARS1-B12-02721-17	240.000	0.99585	22.455	1.280	1.280	3.603	2.510	7.063	3.008	1.452	pCi
LSC-A-022	ARS1-B12-02721-18	240.000	0.99570	-0.287	0.882	0.882	0.883	1.729	1.731	3.027	1.461	pCi
LSC-A-022	ARS1-B12-02721-19	240.000	0.99539	5.878	0.879	0.879	1.245	1.723	2.440	2.593	1.252	pCi
LSC-A-022	ARS1-B12-02721-20	240.000	0.99539	2.120	0.766	0.766	0.830	1.502	1.626	2.460	1.188	pCi
LSC-A-022	ARS1-B12-02721-21	240.000	0.99631	-0.311	0.846	0.846	0.847	1.658	1.661	2.906	1.403	pCi

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Initial_Mass_sample_g	Mass_Na2O2_added_g	Final_mass_electrolyzed_sample_NaOH_g	Mass_equivalent_NaOH_g	Final_Mass_Electrolyzed_sample_g	VolumeFactor_X	Enrichment_Factor_Y
LSC-A-022	ARS1-B12-02721-01	500.240	2.070	16.740	2.124	14.616	0.029	26.782
LSC-A-022	ARS1-B12-02721-02	503.500	2.080	16.290	2.134	14.156	0.028	27.791
LSC-A-022	ARS1-B12-02721-03	504.020	2.060	16.940	2.114	14.826	0.029	26.608
LSC-A-022	ARS1-B12-02721-04	501.320	2.000	16.690	2.052	14.638	0.029	26.799
LSC-A-022	ARS1-B12-02721-05	505.740	2.010	15.590	2.062	13.528	0.027	29.154
LSC-A-022	ARS1-B12-02721-06	502.170	2.020	15.150	2.073	13.077	0.026	29.914
LSC-A-022	ARS1-B12-02721-07	501.110	2.060	17.020	2.114	14.906	0.030	26.324
LSC-A-022	ARS1-B12-02721-08	503.330	2.020	15.290	2.073	13.217	0.026	29.675
LSC-A-022	ARS1-B12-02721-09	503.390	2.050	15.290	2.103	13.187	0.026	29.745
LSC-A-022	ARS1-B12-02721-10	504.760	2.080	16.850	2.134	14.716	0.029	26.838
LSC-A-022	ARS1-B12-02721-11	506.168	2.000	17.418	2.052	15.366	0.030	25.815
LSC-A-022	ARS1-B12-02721-12	502.780	2.030	16.510	2.083	14.427	0.029	27.251
LSC-A-022	ARS1-B12-02721-13	500.550	2.090	16.890	2.144	14.746	0.029	26.571
LSC-A-022	ARS1-B12-02721-14	503.310	2.000	14.320	2.052	12.268	0.024	31.878
LSC-A-022	ARS1-B12-02721-15	504.757	2.080	17.747	2.134	15.613	0.031	25.354
LSC-A-022	ARS1-B12-02721-16	501.163	2.070	16.900	2.124	14.776	0.029	26.550
LSC-A-022	ARS1-B12-02721-17	505.760	2.080	16.560	2.134	14.426	0.029	27.409
LSC-A-022	ARS1-B12-02721-18	501.020	2.000	16.800	2.052	14.748	0.029	26.591
LSC-A-022	ARS1-B12-02721-19	503.420	2.010	17.060	2.062	14.998	0.030	26.286
LSC-A-022	ARS1-B12-02721-20	502.930	2.050	16.100	2.103	13.997	0.028	28.064
LSC-A-022	ARS1-B12-02721-21	502.340	2.060	17.430	2.114	15.316	0.030	25.707

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Average_Sample_CPM	Bkg_CPM	tSIE	Detector_Eff_decimal	Aliquot	AliqUnits	Activity_reference_date	Start_Date_of_Count	Sample_Count_Duration_min
LSC-A-022	ARS1-B12-02721-01	4.839	1.107	378.070	0.246	0.01000	L	9/7/2012	12/4/2012	240.000
LSC-A-022	ARS1-B12-02721-02	4.791	1.107	377.910	0.246	0.01001	L	9/7/2012	12/4/2012	240.000
LSC-A-022	ARS1-B12-02721-03	1.094	1.107	407.720	0.259	0.01002	L	11/29/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-04	1.076	1.107	378.130	0.246	0.01001	L	11/1/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-05	1.277	1.107	395.320	0.253	0.01005	L	10/31/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-06	3.801	1.107	401.270	0.256	0.01001	L	10/31/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-07	1.319	1.107	410.590	0.261	0.01004	L	10/31/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-08	1.466	1.107	395.870	0.254	0.01005	L	11/6/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-09	1.351	1.107	351.170	0.236	0.01006	L	11/6/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-10	1.062	1.107	286.280	0.202	0.01000	L	11/5/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-11	1.818	1.107	354.310	0.237	0.01001	L	11/5/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-12	1.032	1.107	220.990	0.156	0.01004	L	11/7/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-13	1.275	1.107	402.670	0.257	0.01005	L	11/7/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-14	1.004	1.107	286.720	0.202	0.01001	L	11/13/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-15	1.161	1.107	290.870	0.205	0.01003	L	11/12/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-16	1.173	1.107	258.020	0.182	0.01005	L	11/12/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-17	3.550	1.107	251.930	0.178	0.01007	L	11/9/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-18	1.076	1.107	258.290	0.183	0.01008	L	11/9/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-19	1.849	1.107	308.770	0.217	0.01002	L	11/8/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-20	1.389	1.107	304.390	0.214	0.01003	L	11/8/2012	12/8/2012	240.000
LSC-A-022	ARS1-B12-02721-21	1.072	1.107	280.530	0.198	0.01002	L	11/14/2012	12/8/2012	240.000

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	AliquotReportUnits	UserID	ModDate
LSC-A-022	ARS1-B12-02721-01	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-02	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-03	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-04	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-05	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-06	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-07	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-08	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-09	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-10	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-11	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-12	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-13	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-14	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-15	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-16	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-17	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-18	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-19	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-20	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-21	L	AMRAD\RUSEY	12/10/2012

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\20121204_1437.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

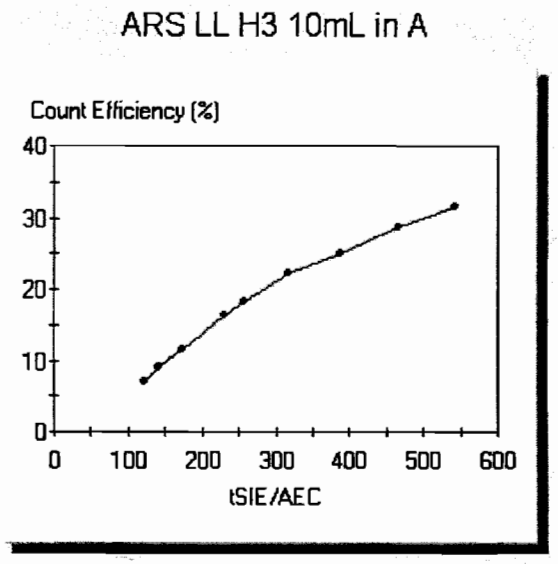
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
10	1	BACKGROUND	1.107	4.37	395.29	25.33	240.00	12/4/2012	2:45:58 PM	
10	2	B12-02721-01	4.839	19.68	378.07	24.59	240.00	12/4/2012	6:56:59 PM	
10	3	B12-02721-02	4.791	19.49	377.91	24.58	240.00	12/4/2012	11:07:59 PM	
10	4	B12-02721-03	1.094	4.22	407.72	25.92	240.00	12/5/2012	3:18:59 AM	
10	5	B12-02721-04	1.076	4.37	378.13	24.59	240.00	12/5/2012	7:29:54 AM	
10	6	B12-02721-05	1.277	5.04	395.32	25.33	240.00	12/5/2012	11:40:51 AM	
Missing vial 7.										
Missing vial 8.										
Missing vial 9.										
Missing vial 10.										
Missing vial 11.										
Missing vial 12.										
10	13	B12-02721-12	1.032	6.60	220.99	15.64	240.00	12/5/2012	3:52:07 PM	
10	14	B12-02721-13	1.275	4.96	402.67	25.68	240.00	12/5/2012	8:03:04 PM	
10	15	B12-02721-14	1.004	4.97	286.72	20.19	240.00	12/6/2012	12:14:02 AM	
10	16	B12-02721-15	1.161	5.67	290.87	20.47	240.00	12/6/2012	4:24:59 AM	
10	17	B12-02721-16	1.173	6.43	258.02	18.24	240.00	12/6/2012	8:35:55 AM	
10	18	B12-02721-17	3.550	19.91	251.93	17.83	240.00	12/6/2012	12:46:52 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\20121206_1649.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
   Quench Indicator: tSIE/AEC
   External Std Terminator (sec): 0.5 2s%
   Pre-Count Delay (min): 0.00
Quench Set:
   Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

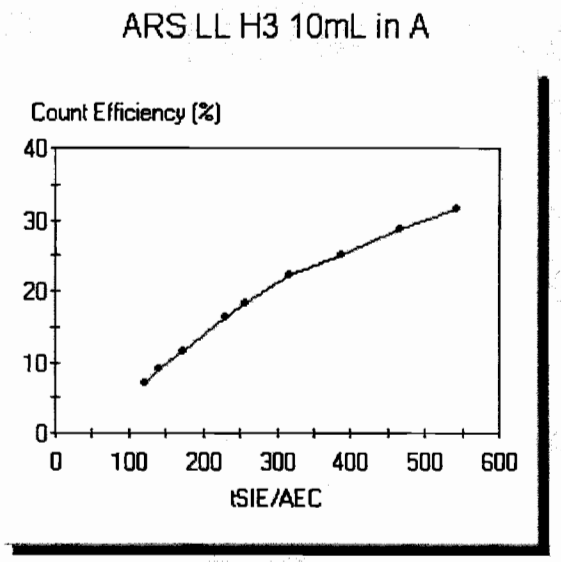
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	B12-02721-06	3.801	14.84	401.27	25.61	240.00	12/6/2012	4:58:25 PM	
2	2	B12-02721-07	1.319	5.06	410.59	26.06	240.00	12/6/2012	9:09:28 PM	
2	3	B12-02721-08	1.466	5.78	395.87	25.35	240.00	12/7/2012	1:20:23 AM	
2	4	B12-02721-09	1.351	5.73	351.17	23.55	240.00	12/7/2012	5:31:20 AM	
2	5	B12-02721-10	1.062	5.27	286.28	20.16	240.00	12/7/2012	9:42:17 AM	
2	6	B12-02721-11	1.818	7.68	354.31	23.67	240.00	12/7/2012	1:53:14 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\20121207_1755.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

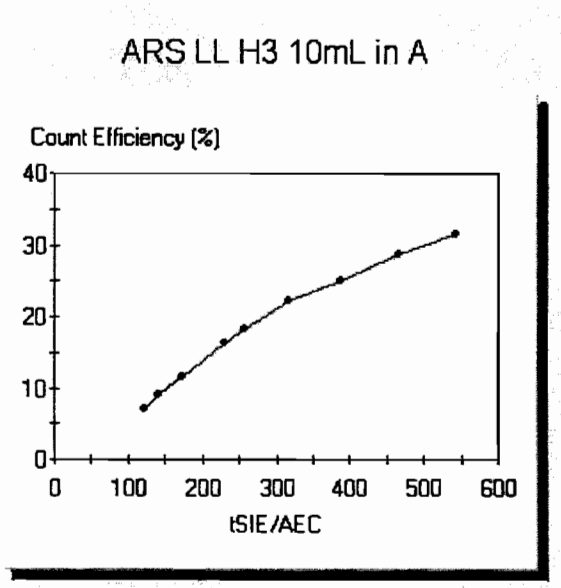
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nuc1 In A	Count Time	DATE	TIME	MESSAGES
10	1	B12-02721-18	1.076	5.89	258.29	18.25	240.00	12/7/2012	6:04:50 PM	
10	2	B12-02721-19	1.849	8.53	308.77	21.69	240.00	12/7/2012	10:15:50 PM	
10	3	B12-02721-20	1.389	6.50	304.39	21.39	240.00	12/8/2012	2:26:47 AM	
10	4	B12-02721-21	1.072	5.42	280.53	19.77	240.00	12/8/2012	6:37:44 AM	

ARS Batch Number: ARS1-B12 - 02721

Enter these Values for LCS			Report Name	Field Name on the Report
	Current ACT	5.6490	Standards Report	ACT at Date Above (dpm/g)
	NetWt	5.0530	LCS Report	NetWt
	Aliquot	0.5002	Tritium Enrichment Data	Gross Sample Added/1000

Enter these Values for LCSD			Report Name	Field Name on the Report
	Current ACT	5.6490	Standards Report	ACT at Date Above (dpm/g)
	NetWt	5.0520	LCS Report	NetWt
	Aliquot	0.5035	Tritium Enrichment Data	Gross Sample Added/1000

Expected Value Calculations

ARS Batch Number: ARS1-B11 - 02721

LCS

CALCULATED EXPECTED VALUE = 25.703

Range 20.563 - 30.844

LCSD

CALCULATED EXPECTED VALUE = 25.532

Range 20.425 - 30.638

Exit

AMRAD
AMERICAN RADIATION SERVICES, LLC

Standards Activity as of: 12/03/12 12:16

Active	Std ID	Isotope	PSCLT	Verification Date	Exp Date	Status	Ref Date	Ref ACT (dpm)	ACT at Date Above (dpm/g)	Halflife (days)	Parent ID	Expended Date	Comments
A	**S-0279**	H-3	**SL**	09/10/12	09/10/13	OK	09/07/12	5.7255E+00	**5.6493**	4.500E+03	**S-0237**		H3 LCS standard. Dilution performed as stated above by B Steffens. -B

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
11-21-12	0702	SNC-16	QA	QA	[illegible]
11-21-12	1136	Background	B12-02616	1417	[illegible]
↓	↓	B12-02616-01	↓	↓	[illegible]
↓	↓	B12-02616-02	↓	↓	[illegible]
↓	↓	B12-02616-03	↓	↓	[illegible]
↓	↓	B12-02616-04	↓	↓	[illegible]
↓	↓	B12-02616-05	↓	↓	[illegible]
↓	↓	B12-02616-06	↓	↓	[illegible]
↓	↓	B12-02616-07	↓	↓	[illegible]
↓	↓	B12-02616-08	↓	↓	[illegible]
↓	↓	B12-02616-09	↓	↓	[illegible]
↓	↓	B12-02616-10	↓	↓	[illegible]
11-21-12	1200	SNC-16	QA	QA	[illegible]
12-4-12	0732	SNC-16	QA	QA	[illegible]
12-4-12	1434	Background	B12-02721	1437	[illegible]
↓	↓	B12-02721-01	↓	↓	[illegible]
↓	↓	B12-02721-02	↓	↓	[illegible]
↓	↓	B12-02721-03	↓	↓	[illegible]
↓	↓	B12-02721-04	↓	↓	[illegible]
↓	↓	B12-02721-05	↓	↓	[illegible]

Reviewed By: [illegible] Date: 12-10-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-4-12	1434	B12-02721-06	B12-02721	1437	[illegible]
↓	↓	B12-02721-07	↓	↓	[illegible]
↓	↓	B12-02721-08	↓	↓	[illegible]
↓	↓	B12-02721-09	↓	↓	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
↓	↓	B12-02721-12	↓	↓	[illegible]
↓	↓	B12-02721-13	↓	↓	[illegible]
↓	↓	B12-02721-14	↓	↓	[illegible]
↓	↓	B12-02721-15	↓	↓	[illegible]
↓	↓	B12-02721-16	↓	↓	[illegible]
↓	↓	B12-02721-17	↓	↓	[illegible]
↓	↓	B12-02721-18	↓	↓	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]
12-4-12	1437	SNC-16	QA	QA	[illegible]
* 12-5-12	1604	B12-02721-06	B12-02721	1649	[illegible]
↓	↓	B12-02721-07	↓	↓	[illegible]
↓	↓	B12-02721-08	↓	↓	[illegible]

*Will count before SNC † 12-5-12

Reviewed By: [illegible] Date: 12-10-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-5-12	1604	B12-02721-09	B12-02721	1649	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
12-7-12	1026	B12-02721-18	B12-02721	1755	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]

12-10-12

Reviewed By: SDR Date: 12-10-12
Initials

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

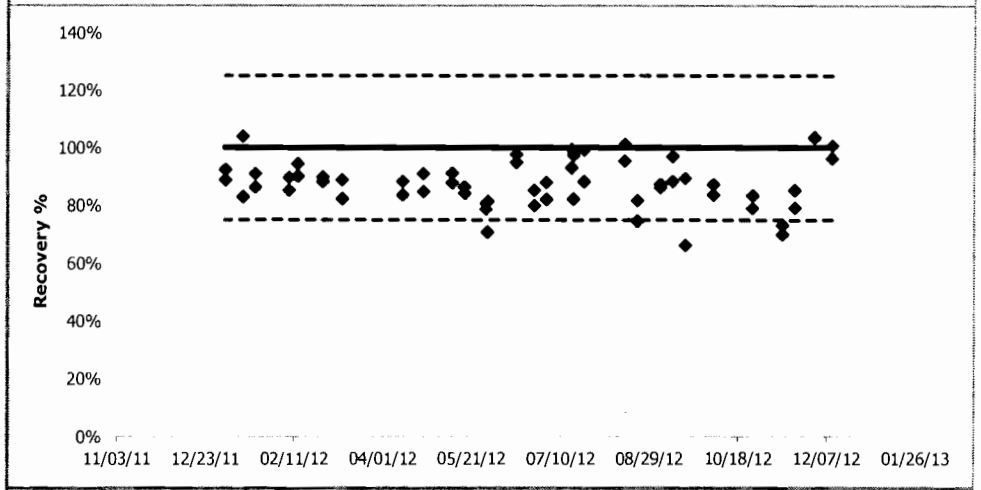
Low Level Tritium by Low Level Liquid Scintillation Counting

Control Charts

American Radiation Services
Baton Rouge Laboratory

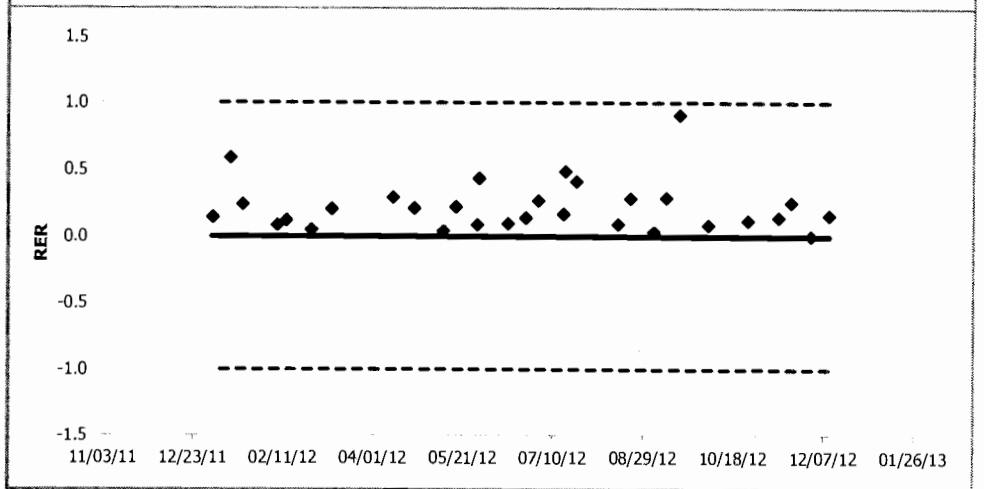
QC Chart

LLH-3 LCS



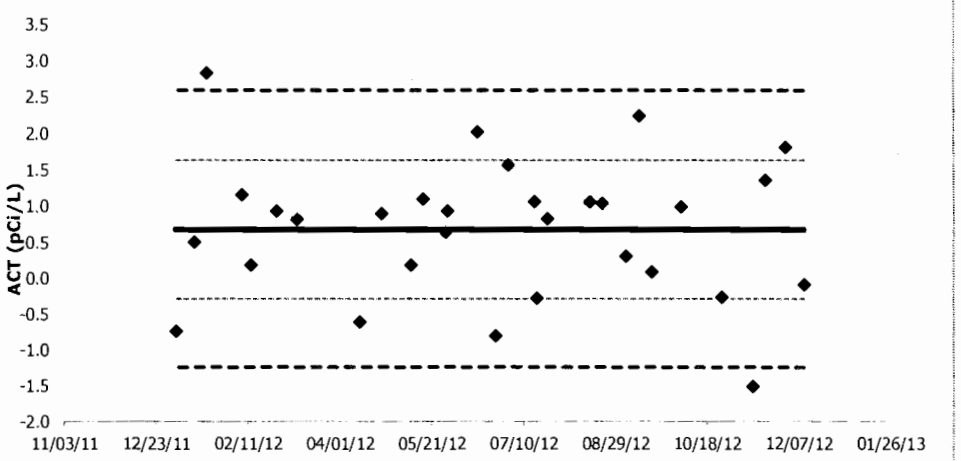
Average	STDEV	n	UCL	LCL
0.8778	0.0828	30	1.2500	0.7500

LLH-3 RER



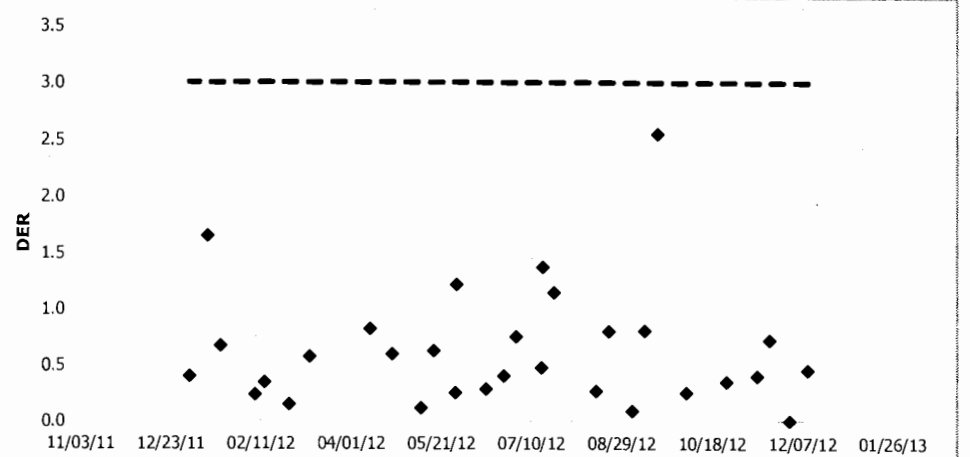
		n	UCL	LCL
		30	1.0000	-1.0000

LLH-3 Blank



Average	STDEV	n	UCL	LCL
0.6761	0.9576	30	2.5912	-1.2390

LLH-3 DER



		n	UCL	
		30	3.0000	

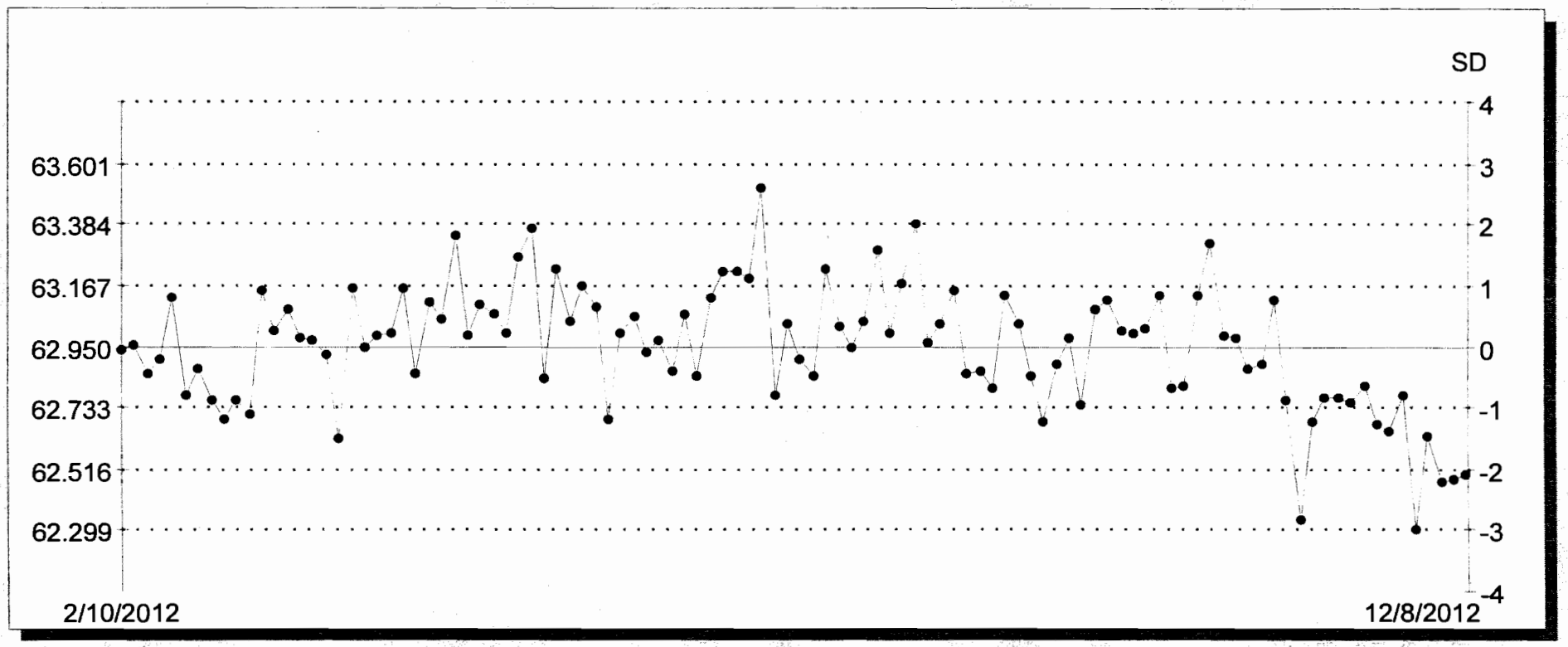
3H Efficiency
Total # pts : 5553
Valid # pts : 106
Mean : 62.95
SD : 0.22

Date	Value	Valid Pt
Feb 10, 2012	62.94	X
Feb 15, 2012	62.96	X
Feb 16, 2012	62.86	X
Feb 17, 2012	62.90	X
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X

Jun 30, 2012	62.97	X
Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X
Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 23, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X

Nov 13, 2012	62.76	X
Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X
Nov 18, 2012	62.68	X
Nov 19, 2012	62.65	X
Nov 19, 2012	62.78	X
Nov 20, 2012	62.30	X
Nov 21, 2012	62.63	X
Nov 23, 2012	62.47	X
Dec 04, 2012	62.48	X
Dec 08, 2012	62.49	X

3H Efficiency
Total # pts : 5553
Valid # pts : 106
Mean : 62.95
SD : 0.22



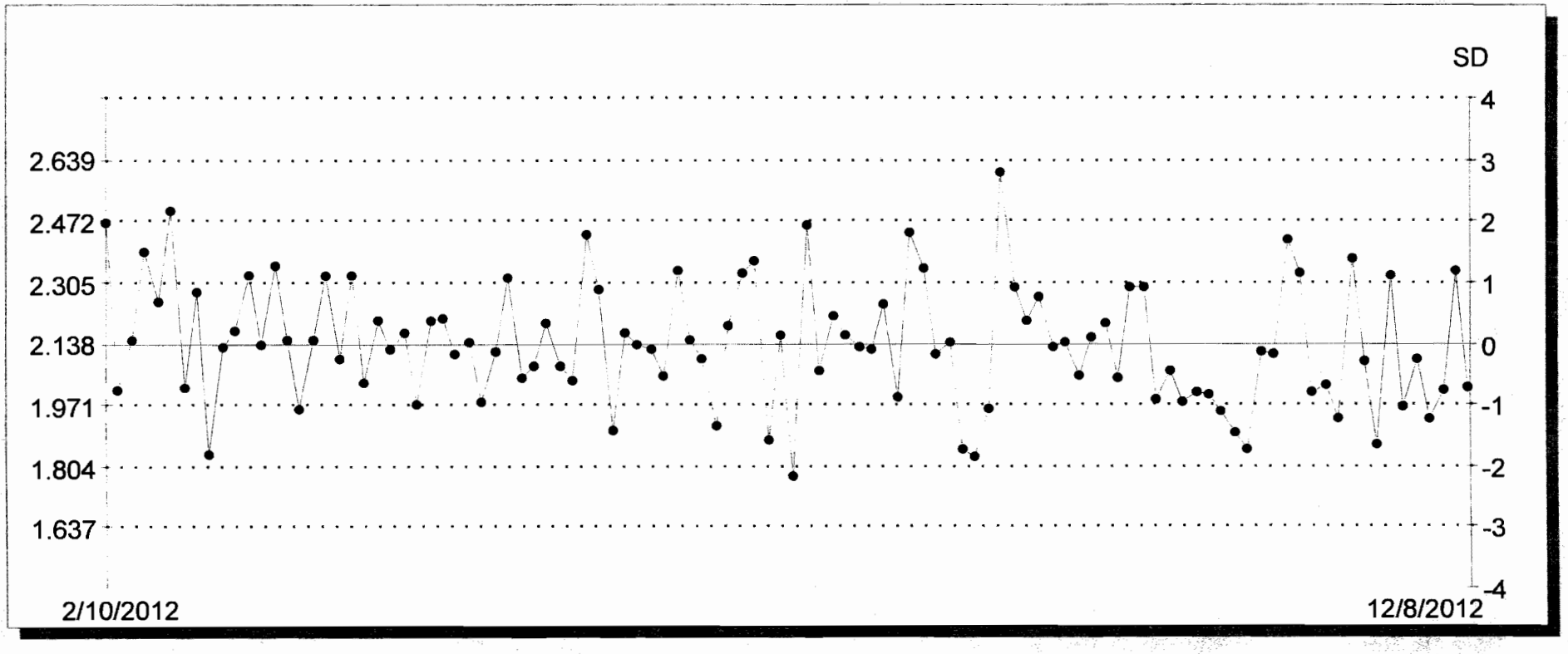
3H Background
Total # pts : 5479
Valid # pts : 106
Mean : 2.14
SD : 0.17

Date	Value	Valid Pt
Feb 10, 2012	2.47	X
Feb 15, 2012	2.01	X
Feb 16, 2012	2.15	X
Feb 17, 2012	2.39	X
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X

Jun 30, 2012	2.12	X
Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X
Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 23, 2012	2.19	X
Jul 26, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 09, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X

Nov 13, 2012	1.93	X
Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X
Nov 18, 2012	1.86	X
Nov 19, 2012	2.32	X
Nov 19, 2012	1.96	X
Nov 20, 2012	2.09	X
Nov 21, 2012	1.93	X
Nov 23, 2012	2.01	X
Dec 04, 2012	2.34	X
Dec 08, 2012	2.02	X

3H Background
Total # pts : 5479
Valid # pts : 106
Mean : 2.14
SD : 0.17



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium- Screening by Low Level Liquid Scintillation Counting

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Samples

Procedures: **ARS-060** **ARS-040** *Section 14.1 Tritium Screen in Clean Water without Distillation*

ARS File ID Numbers: ARS1-12-02305; 2306; 2307; 2309
ARS Batch ID: ARS1-B12-02720

	Sample ID:	COUNT TIME	CPMA	Background CPMA	Eff Nucl In A	Aliquot (grams)	ACTIVITY	units	MDA	Sample Must be analyzed as LSC-A-001
1	B12-02720-04	120	1.982	1.188	27.31	10.00	130.962	pCi/L	97.38927	YES, analyze by LSC-A-001.
2	B12-02720-05	120	1.362	1.188	27.33	10.02	28.621	pCi/L	97.12375	NO
3	B12-02720-06	120	1.378	1.188	27.43	10.00	31.201	pCi/L	96.96321	NO
4	B12-02720-07	120	1.343	1.188	27.22	10.03	25.573	pCi/L	97.41902	NO
5	B12-02720-08	120	1.422	1.188	27.31	10.01	38.557	pCi/L	97.29198	NO
6	B12-02720-09	120	1.600	1.188	27.58	10.04	67.022	pCi/L	96.05165	NO
7	B12-02720-10	120	1.724	1.188	27.09	10.04	88.771	pCi/L	97.78902	NO
8	B12-02720-11	120	1.450	1.188	27.2	10.01	43.346	pCi/L	97.68544	NO
9							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
10							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
11							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
12							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
13							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
14							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
15							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
16							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
17							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
18							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
19							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
20							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
21							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
22							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
23							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!

Per VIM, run all samples by LSC-A-022
SBA
11-19-12

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

ARS INTERNATIONAL

Analysis Batch ID **ARS1-B12-02720**

Method	ARS-054	Analysis	LSC-A-021	Matrix	AQ
Description	Low Level Tritium Screening				

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02720-01	LCS									
ARS1-B12-02720-02	LCSD									
ARS1-B12-02720-03	MBL									
ARS1-B12-02720-04	TRG				**ARS1-12-02305**	001	1	CASA-13-24210	STD	12/12/12
ARS1-B12-02720-05	TRG				**ARS1-12-02306**	001	1	CAMO-13-24245	STD	12/12/12
ARS1-B12-02720-06	TRG				**ARS1-12-02306**	002	1	CAMO-13-24246	STD	12/12/12
ARS1-B12-02720-07	TRG				**ARS1-12-02306**	003	1	CAMO-13-24249	STD	12/12/12
ARS1-B12-02720-08	TRG				**ARS1-12-02306**	004	1	CAMO-13-24250	STD	12/12/12
ARS1-B12-02720-09	TRG				**ARS1-12-02307**	001	1	CAMO-13-24253	STD	12/12/12
ARS1-B12-02720-10	TRG				**ARS1-12-02307**	002	1	CAMO-13-24228	STD	12/12/12
ARS1-B12-02720-11	TRG				**ARS1-12-02309**	001	1	CASA-13-24211	STD	12/12/12

126796
12-02305-001-1
WRAD

126797
12-02306-001-1
WRAD

126798
12-02306-002-1
WRAD

126799
12-02306-003-1
WRAD

126800
12-02306-004-1
WRAD

126801
12-02307-001-1
WRAD

126804
12-02307-002-1
WRAD

126805
12-02309-001-1
WRAD

ARS-054

51 of 81

ID_31001_054	ABatch	ABatchSampleID	ClientID	Aliquot1	AliquotUnits1	IC_ID1	Aliquot2	AliquotUnits2	IC_ID2	UserID	ModDate
11995	ARS1-B12-02720	ARS1-B12-02720-01		1	g					AMRAD\RUSEY	11/16/2012 13:10:45
11996	ARS1-B12-02720	ARS1-B12-02720-02		1	g					AMRAD\RUSEY	11/16/2012 13:10:45
11997	ARS1-B12-02720	ARS1-B12-02720-03		1	g					AMRAD\RUSEY	11/16/2012 13:10:45
11998	ARS1-B12-02720	ARS1-B12-02720-04	CASA-13-24210	10	g	126796				AMRAD\RUSEY	11/16/2012 13:10:45
11999	ARS1-B12-02720	ARS1-B12-02720-05	CAMO-13-24245	10.02	g	126797				AMRAD\RUSEY	11/16/2012 13:10:45
12000	ARS1-B12-02720	ARS1-B12-02720-06	CAMO-13-24246	10	g	126798				AMRAD\RUSEY	11/16/2012 13:10:45
12001	ARS1-B12-02720	ARS1-B12-02720-07	CAMO-13-24249	10.03	g	126799				AMRAD\RUSEY	11/16/2012 13:10:45
12002	ARS1-B12-02720	ARS1-B12-02720-08	CAMO-13-24250	10.01	g	126800				AMRAD\RUSEY	11/16/2012 13:10:45
12003	ARS1-B12-02720	ARS1-B12-02720-09	CAMO-13-24253	10.04	g	126801				AMRAD\RUSEY	11/16/2012 13:10:46
12004	ARS1-B12-02720	ARS1-B12-02720-10	CAMO-13-24228	10.04	g	126804				AMRAD\RUSEY	11/16/2012 13:10:46
12005	ARS1-B12-02720	ARS1-B12-02720-11	CASA-13-24211	10.01	g	126805				AMRAD\RUSEY	11/16/2012 13:10:46

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121117_0729
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121117_0729\20121117_0729.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121117_0729\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121117_0729\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
   Quench Indicator: tSIE/AEC
   External Std Terminator (sec): 0.5 2s%
   Pre-Count Delay (min): 0.00
Quench Set:
   Low Energy: ARS LL H3 10mL
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

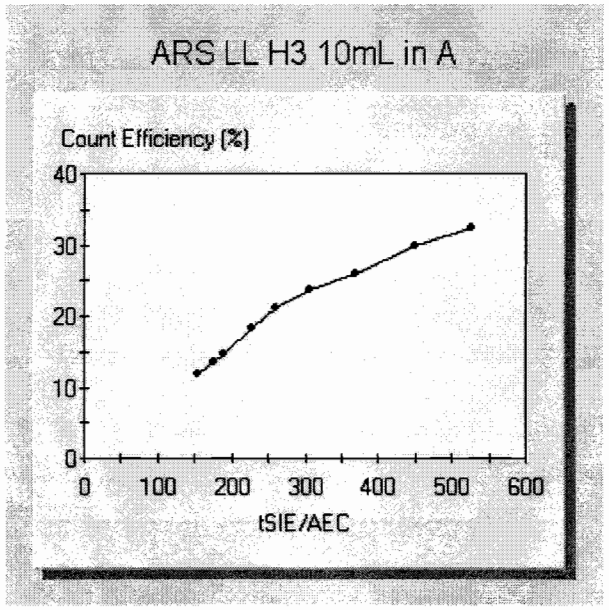
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/18/2011
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
526.29	32.47
450.16	29.90
370.15	25.92
306.68	23.60
260.68	20.99
228.69	18.21
189.46	14.53
177.14	13.64
155.73	11.73

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	BACKGROUND	1.188	4.61	365.54	25.76	120.00	11/17/2012	7:38:00 AM	
2	2	B12-02720-04	1.982	7.26	398.11	27.31	120.00	11/17/2012	9:47:57 AM	
2	3	B12-02720-05	1.362	4.98	398.46	27.33	120.00	11/17/2012	11:57:51 AM	
2	4	B12-02720-06	1.378	5.02	400.41	27.43	120.00	11/17/2012	2:07:44 PM	
2	5	B12-02720-07	1.343	4.93	396.35	27.22	120.00	11/17/2012	4:17:39 PM	
2	6	B12-02720-08	1.422	5.21	398.01	27.31	120.00	11/17/2012	6:27:33 PM	
2	7	B12-02720-09	1.600	5.80	403.48	27.58	120.00	11/17/2012	8:37:29 PM	
2	8	B12-02720-10	1.724	6.36	393.65	27.09	120.00	11/17/2012	10:47:23 PM	
2	9	B12-02720-11	1.450	5.33	395.94	27.20	120.00	11/18/2012	12:57:20 AM	

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
11-14-12	0802	B12-02676-06	B12-02676	0812	[illegible]
↓	↓	B12-02676-09	↓	↓	[illegible]
↓	↓	B12-02676-10	↓	↓	[illegible]
↓	↓	B12-02676-11	↓	↓	[illegible]
↓	↓	B12-02676-12	↓	↓	[illegible]
↓	↓	B12-02676-13	↓	↓	[illegible]
11-14-12	0814	SWC-16	QA	QA	[illegible]
11-14-12	1211	Background	B12-02566	0100	[illegible]
↓	↓	B12-02566-01	↓	↓	[illegible]
↓	↓	B12-02566-02	↓	↓	[illegible]
↓	↓	B12-02566-03	↓	↓	[illegible]
↓	↓	B12-02566-04	↓	↓	[illegible]
↓	↓	B12-02566-05	↓	↓	[illegible]
↓	↓	B12-02566-06	↓	↓	[illegible]
↓	↓	B12-02566-07	↓	↓	[illegible]
↓	↓	B12-02566-08	↓	↓	[illegible]
↓	↓	B12-02566-09	↓	↓	[illegible]
↓	↓	B12-02566-10	↓	↓	[illegible]
11-16-12	0904	B12-02566-04	B12-02566	2306	[illegible]
11-16-12	1317	Background	B12-0220	0729	[illegible]

Reviewed By: [illegible] Date: 12-12-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
11-16-12	1317	B12-02720-04	B12-02720	0729	DJG
↓	↓	B12-02720-05	↓	↓	DJG
↓	↓	B12-02720-06	↓	↓	DJG
↓	↓	B12-02720-07	↓	↓	DJG
↓	↓	B12-02720-08	↓	↓	DJG
↓	↓	B12-02720-09	↓	↓	DJG
↓	↓	B12-02720-10	↓	↓	DJG
↓	↓	B12-02720-11	↓	↓	DJG
11-16-12	1380	SWC-16	QA	QA	DJG

11-15-12

GE-13
56 of 83

Reviewed By: SKD Date: 12-12-12
Initials

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Control Charts

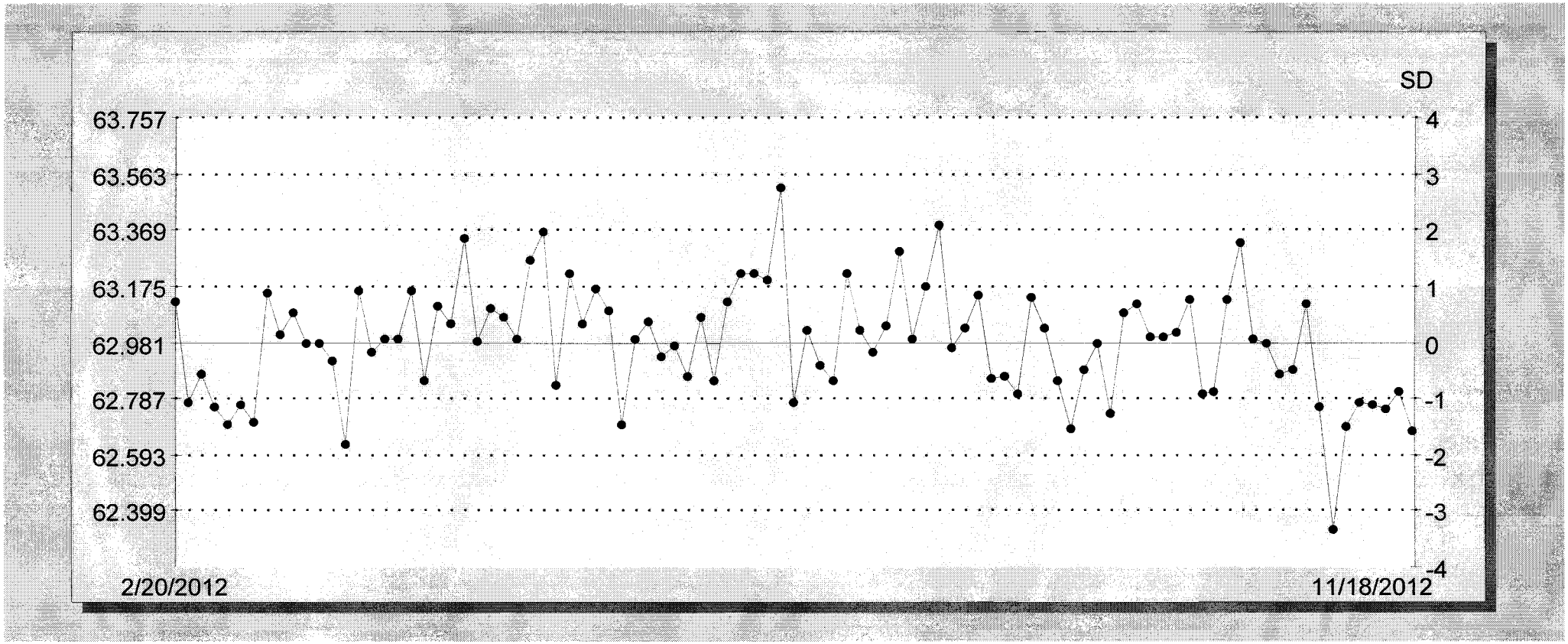
3H Efficiency
Total # pts : 5546
Valid # pts : 95
Mean : 62.98
SD : 0.19

Date	Value	Valid Pt
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X
Jun 30, 2012	62.97	X
Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X

Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 22, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X
Nov 12, 2012	62.77	X
Nov 13, 2012	62.76	X
Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X

3H Efficiency

Total # pts	: 5546
Valid # pts	: 95
Mean	: 62.98
SD	: 0.19

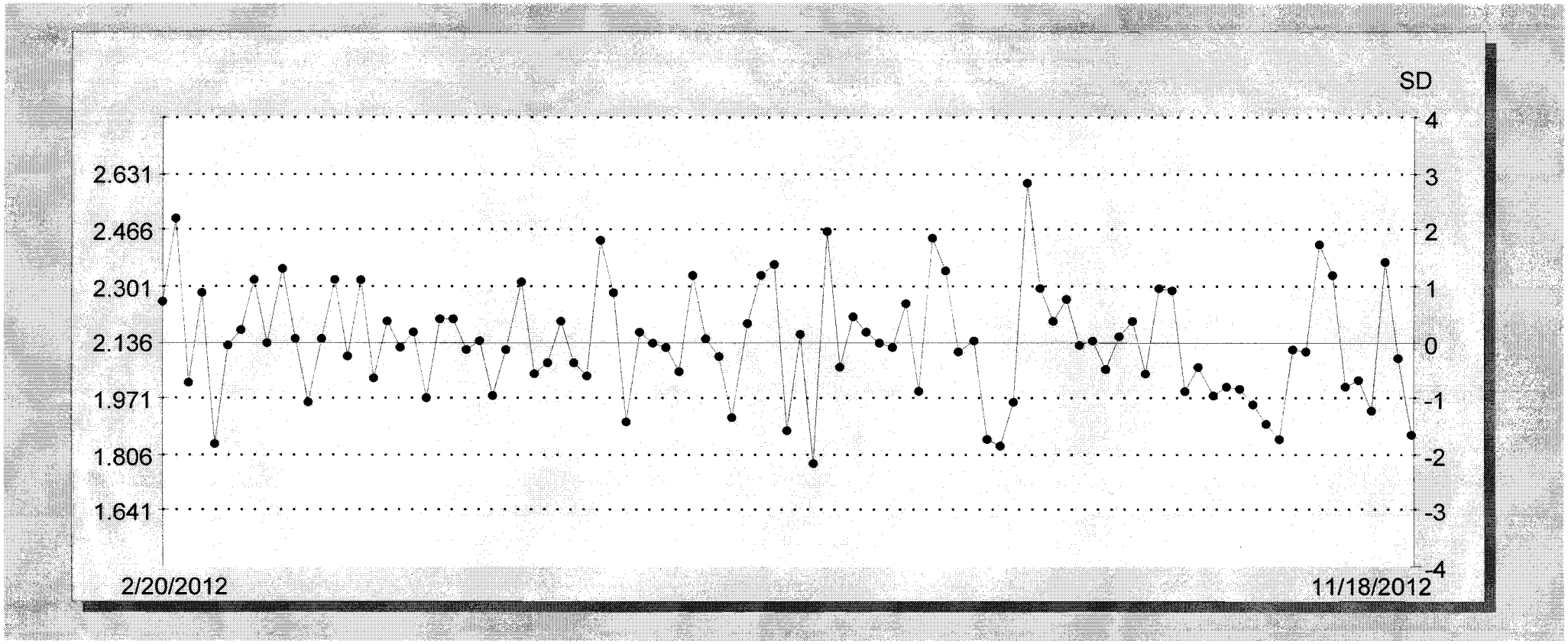


3H Background
Total # pts : 5472
Valid # pts : 95
Mean : 2.14
SD : 0.16

Date	Value	Valid Pt
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X
Jun 30, 2012	2.12	X
Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X

Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 22, 2012	2.19	X
Jul 26, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 09, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X
Nov 12, 2012	2.02	X
Nov 13, 2012	1.93	X
Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X

3H Background
Total # pts : 5472
Valid # pts : 95
Mean : 2.14
SD : 0.16



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Liquid Scintillation Counting

Calibration Information

ARS INTERNATIONAL

QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS

ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE: 9/10/2012 20:16 *date counted*
STANDARD REFERENCE #: S-0279

Principal Radionuclide		Half Life, Years		Half Life, Days
H-3	*ENTER -->*		*OR -->*	4.4998E+03
		1.232E+01		4.4998E+03

Radionuclide: H-3 Dilution Reference Date: 9/7/2012 10:40

Dilution Activity	2.58	pCi per gram ===> dpm/g	5.73
Verif. Date Decay Corrected	2.58	pCi per gram ===> dpm/g	5.72

Minimum of 3 Required

Trial ID	Sample Counts	Count Time (min)	Detector	Efficiency	Bkg. (cpm)	Net Weight	Decay Corrected Activity Result (dpm/g)	Decay Corrected Activity Result (pCi/g)
S-0279-V1	15.91	1	LSC	0.3302	6.49	5.019	5.68	2.56
S-0279-V2	16.21	1	LSC	0.3291	6.49	5.018	5.89	2.65
S-0279-V3	15.76	1	LSC	0.3290	6.49	5.018	5.62	2.53
S-0279-V4	15.62	1	LSC	0.3293	6.49	5.008	5.54	2.49
S-0279-V5	15.76	1	LSC	0.3280	6.49	5.018	5.63	2.54

	Average	5.67	2.55
	Two Sigma Uncertainty	0.26	0.12
10% Max *PASS*	Standard Deviation percent of known concentration	2.30%	2.30%
	Target Activity	5.72	2.58
5% Max *PASS*	% Diff	-0.91%	-0.91%

Verification Expiration Date: ###############

Prepared & Counted By: [signature] Date: 9/10/2012 20:16

Verified & Approved By: [signature] Date: 9-11-12 0817

QC Approval: [signature] Date: 9-11-12 0817

S-0279		
H-3	Verified	*9/10/12*
SL	**Expires**	**9/10/13**
Manufactuer	**NIST SRM 4927F**	
Sol Matrix	H2O	
Ref No	NIST SRM 4927F	
Tech	Unknown	
Parent ID	S-0237	

ARS INTERNATIONAL

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

H-3 Standard Verification

Verifier's Name: Brian Steffens **Date:** 9/7/2012

Pipettor ID: FJ40469
Pipettor ID: Auto-pipettor
Pipettor ID: na
Standard ID: S-0279
Standard ID: N/A

Standards brought up to ~5g with distilled dead water.
Standards made in glass vials.

15mL of Ultima Gold added to standard

	Weight of Standard
S-0279-V1	5.019 **g**
S-0279-V2	5.018 **g**
S-0279-V3	5.018 **g**
S-0279-V4	5.008 **g**
S-0279-V5	5.018 **g**

Balance ID: H1331122173560P

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931
Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\20120910_0931.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\H-3 Normal 3.lsa

Count Conditions-

Nuclide: H-3 Normal
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: UG STD H-3
Count Time (min): 120.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

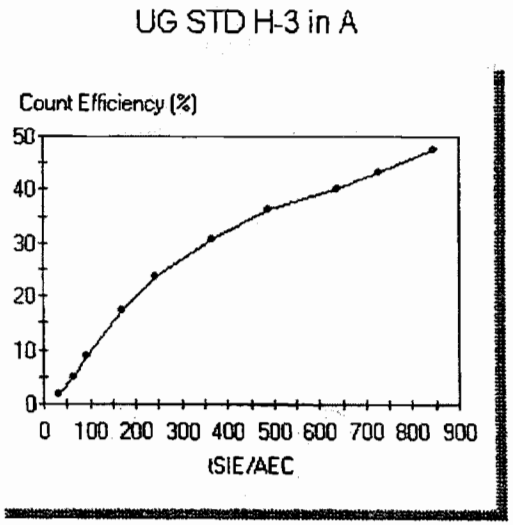
Half Life

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 06/27/2012
Date Modified:
UG STD H-3 in A

tSIE/AEC	Count Efficiency (%)
846.90	47.58
730.85	43.21
639.47	40.08
487.78	36.36
365.41	30.73
244.81	23.69
169.28	17.31
95.01	8.79
64.60	4.97
34.32	[illegible].64

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
54	1	BACKGROUND	6.49	19.81	409.74	32.77	120.00	9/10/2012	9:36:46 AM	
54	2	S-0279-V1	15.91	48.18	415.20	33.02	120.00	9/10/2012	11:44:40 AM	
54	3	S-0279-V2	16.21	49.25	412.72	32.91	120.00	9/10/2012	1:52:36 PM	
54	4	S-0279-V3	15.76	47.89	412.56	32.90	120.00	9/10/2012	4:00:32 PM	
54	5	S-0279-V4	15.62	47.44	413.22	32.93	120.00	9/10/2012	6:08:27 PM	
54	6	S-0279-V5	15.76	48.04	410.40	32.80	120.00	9/10/2012	8:16:20 PM	

STD ID: S-0279

ARS INTERNATIONAL

Add/Edit *Secondary Stds*

Planning

Planning Comments	Create a H3 LCS standard.
Target dpm/g (on dil. date)	5.5
Target Final volume mL	2000
Appx mass g of Parent Sol'n	3.606433954
Appx vol ml of Parent Sol'n	3.612937241
Expected Addition for Analysis g	5

Standards Preparation / Dilution

Secondary Solution #	S-0279
Dilution Date (New Ref Date)	09/07/2012 10:40
Ampoule, Empty (g)	
Ampoule /Solution Gross (g)	
Net Wt Removed (g)	
Transfer Container, empty (g)	13.144
Container Plus Solution (g)	16.89
Net Wt Transferred (g)	3.746
DPM Xferred on 09/07/2012 10:40	11425.69101
Diluent/matrix	DI H2O
Diluent Density Cont, empty (g)	
Test Mass of 5 ml of Diluent (g)	
Diluent Density Test - (g/mL)	
Dilution Empty Container Mass (g)	473.93
Dilution Full Cont g (if measured)	2469.52
Dilution Final Volume ml (if measured)	2000
Final Dilution Density (g/mL)	0.997795
Final Dilution Measured Mass g	1995.59

Comments	H3 LCS standard. Dilution performed as stated above by B Steffens. -BJS 9/7/12
Final Dilution dpm/g	5.725470166
Final Dil New Ref Date/Time	09/07/2012 10:40

Parent Standard Data

Parent Solution Reference #	NIST SRM 4927F			
Parent Solution #	S-0237			
Parent Principal Radionuclide	H-3	Half Life (Days)	4499.8000000	
Parent Reference Date	03/22/2010 10:10			
Parent Certified Act	3503.682716	Certl Act/Vol Units	dpm	g
Parent Cert Act Uncert 1 Sigma	0.0036			
Parent Sp. Gravity G/Ml	0.9982			
Parent Supplier	NIST SRM 4927F			
Parent Date Recvd	01/02/00			
Parent Received By	Unknown			
Parent Cert Exp Date				
Parent Matrix	H2O			
Certified dpm/g At Ref Date	3503.682716			
Certified dpm/g on 09/07/2012 10:40	3050.10438			
Parent Comments	Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Steffens. -BJS 3/22/10			
Parent Tech	Unknown			
Is_Primary	FALSE			
Is_LCS	TRUE			
Is_Tracer	FALSE			
Is_Calib	FALSE			

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Folder Duplicate

Report Compilation Checklist

ARS SDG:	12-02305	Client Name:	LANL	Sample Matrix:	AQ

LEVEL 1 COMPONENTS	1st Reviewer	
1) Cover Page Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
2) Technical Review Checklist(s) Complete and Accurate?	~~Yes~~ No N/A	
3) Case Narrative Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
4) Form 1s Present for all Samples and Tests?	~~Yes~~ No N/A	
5) Client Specific Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 2 COMPONENTS	1st Reviewer	
6) Batch Quality Control Report is Present and Accurate?	~~Yes~~ No N/A	
7) DQO Report is Present and Accurate?	~~Yes~~ No N/A	
8) Client Specific Batch QC Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 3 COMPONENTS	1st Reviewer	
9) Efficiencies are Present?	Yes No N/A	
10) Calibrations are Present?	Yes No N/A	
11) Backgrounds are Present?	Yes No N/A	
12) Spectrum Analysis is Present?	Yes No N/A	
13) Spectral Plots are Present?	Yes No N/A	
14) Plateaus are Present?	Yes No N/A	
15) Control Charts are Present?	Yes No N/A	
16) Other:	Yes No N/A	

LEVEL 4 COMPONENTS	1st Reviewer	
17) Preparation Raw Data Present, Signed and Complete?	Yes No N/A	
18) Instrument Raw Data Present and Complete?	Yes No N/A	
19) Calibration Certificates Present?	Yes No N/A	
20) Copies of Log Book Pages Present?	Yes No N/A	
21) Sample Receiving Documentation Present?	Yes No N/A	
22) LIMS Reports Present?	Yes No N/A	
23) Applicable Correspondence Present?	Yes No N/A	
24) Other:	Yes No N/A	

Report Generator Signature	Date	Management Review Signature	Date
SOh	12-12-12	[illegible]	12-12-12

LSC
Technical Review Checklist

ARS SDG ARS1-12-02305

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-B12-02721 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-022 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review			Verifier Review		
1) 100% of Manual Transcriptions Verified?	Yes	No	N/A	Yes	No	N/A
2) 100% of Manual Calculations Verified?	Yes	No	N/A	Yes	No	N/A
3) Blank Composition/Configuration Matches Calibration?	Yes	No	N/A	Yes	No	N/A
4) Deviations from procedure are documented and verified?	Yes	No	N/A	Yes	No	N/A
5) Appropriate Cocktail Selected?	Yes	No	N/A	Yes	No	N/A

6) Sample Prep Anomaly? ☑ **No** ☐ **Yes** (See Tech Notes) **NCR #** (If initiated): _____

Chemist Signature	Date	Verifier Review Signature	Date
[signature]	12-4-12	[signature]	12-4-12

B. ANALYSIS REVIEW

	Analyst Review			QA Officer Review		
1) Calibrations Valid and Current?	Yes	No	N/A	Yes	No	N/A
2) Backgrounds Valid and Current?	Yes	No	N/A	Yes	No	N/A
3) Source Checks Completed and Acceptable?	Yes	No	N/A	Yes	No	N/A

QA Officer Signature	Date
[signature]	12-12-12

	Analyst Review			Technicial Review		
4) Background Checks Complete and Acceptable?	Yes	No	N/A	Yes	No	N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes	No	N/A	Yes	No	N/A
6) Appropriate QC samples initiated at required frequency?	Yes	No	N/A	Yes	No	N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)						
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes	No	N/A	Yes	No	N/A
b) Spectra show no Evidence of Interferences?	Yes	No	N/A	Yes	No	N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes	No	N/A	Yes	No	N/A

7) Analysis Anomaly? ☑ **No** ☐ **Yes** (See Comments) **NCR #** (If initiated): _____

Analyst Signature	Date	Technicial Reviewer Signature	Date
[signature]	12-10-12	[signature]	12-10-12

Batch A: ARS1-B12-02721

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes ~~No~~ N/A	Yes ~~No~~ N/A
2) RDL Criteria are Met?	~~Yes~~ No N/A	~~Yes~~ No N/A
3) Method Blank Criterion Met?	~~Yes~~ No N/A	~~Yes~~ No N/A
4) LCS/LCD Criteria Met?	~~Yes~~ No N/A	~~Yes~~ No N/A
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	~~Yes~~ No N/A	~~Yes~~ No N/A
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No ~~N/A~~

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
SOR	12-12-12	VHM	12-12-12

GENERAL COMMENTS

LSC
Technical Review Checklist

ARS SDG ARS1-12-02305

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-B12-02720 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-021 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) Sample Prep Anomaly? ☐ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Chemist Signature: [signature] Date: 11-16-12 Verifier Review Signature: N/A Date: 11-16-12

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature: [signature] Date: 12-12-12

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) Analysis Anomaly? ☐ No ☐ Yes (See Comments) NCR # (If initiated): _____

Analyst Signature: [signature] Date: 11-19-12 Technicial Reviewer Signature: N/A Date: 11-16-12

Batch A: ARS1-B12-02720

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes No ~~N/A~~	Yes No ~~N/A~~
2) RDL Criteria are Met?	Yes No ~~N/A~~	Yes No ~~N/A~~
3) Method Blank Criterion Met?	Yes No ~~N/A~~	Yes No ~~N/A~~
4) LCS/LCD Criteria Met?	Yes No ~~N/A~~	Yes No ~~N/A~~
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	Yes No ~~N/A~~	Yes No ~~N/A~~
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No ~~N/A~~

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
[illegible]	12-12-12	[illegible]	12-12-12

GENERAL COMMENTS

DQO Report for SDG
ARS1-12-02305

77 of 1

Analysis Code	Group	Isotope	Activity Units	Aliquot Units	ProcedureNo	RDL	LCS_LL	LCS_UL	MS_LL	MS_UL	RadY_LL	RadY_UL	GravY_LL	GravY_LL	RER	RPD	DiltionReq	RoughPrepReq	BlankCorrectionMDA	BlankCorrectionAll	CountTimeReq	AliquotRequired
LSC-A-021	STD	H-3	pCi	L	ARS-054	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		
LSC-A-022	STD	Enriched H-3	pCi	L	ARS-040	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		

SDG Report - Samples and Containers

SDG Specific Data

SDG	ARS1-12-02305	TAT Days	28	Project Type	Environmental
Sample Count	1 Rpt Level 4	Date Received	11/15/2012	COC Number	2013-315
Client	Los Alamos National Laboratory	Client Deadline	12/15/2012	PO Number	63641-001-10
Client Code	114	Internal Deadline	12/14/2012	Job Number	
Profile Number	PN-00094	Lab Deadline	12/12/2012	Job Location	
Comments					

Samples and Containers (➔) Checked In Thus Far

FR	ClientID	Matrix	SampleStartDate	SampleEndDate	Disp	Hold	Arch	Storage	X	Units	Y	Units	Z	Units	Comments
001	CASA-13-24210	AQ	11/13/12 12:59 PM	11/13/12 12:59 PM	H	90	5	E3							
➔	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126698	1	1000.00				80	24		N	N/A				

SDG Report - Analysis Assignments

Temp SDG	ARS1-12-02305	Sample Count	1
Client	Los Alamos National Laboratory	Analysis Count	2-2

Samples Count Totals per Analysis

Analysis Code	Analysis Description	Samples Count
LSC-A-021	Low Level Tritium Screen in (Aqueous)	1
LSC-A-022	Low Level Tritium by Enrichment Process in (Aqueous [AQ])	1

Analyses Assigned Per Fraction

Fraction	Analysis Code	X = Assigned
001	LSC-A-021	X
001	LSC-A-022	X

ARS FILE TRACKING SHEET

SDG: ARS1-12-02305

Task	Date / Time	Initials
Date & Time Samples Received	11/15/12 10:30	cad
ICOC Initiated / Storage Location: E3	11/15/12 12:05	cad
Technical Checks Performed	See Batch	
Report Written / EDD Generated: _____/_____|_____ Date/Time Initials	12-12-12|11:05	SEH
Quality Assurance Checks Performed on Report	12-12-12	
Management Check Performed on Report	1423	ZHM
Preliminary Report Sent		
Report E-mailed		
Report Faxed		
Report Reviewed		
Report Mailed		
Invoice Completed Invoice #:_____		
Report Imaged		

SPECIAL REQUIREMENTS

Requirement	Yes	No
3 Hour Rush		✓
24 Hour Rush		✓
48 Hour Rush		✓
3 Day TAT		✓
5 Day TAT		✓

NOTES:

COMPANY NAME: LANL

SDG: ARS1-12-02305

SHIPPING CONTAINER

Good Condition	☑ Yes	☐ No
Radioactive	☐ Yes	☑ No
UN2910	☐ Yes	☑ No
Sec. Seals	☑ Yes	☐ No
Seals Intact	☑ Yes ☐ No	☐ N/A
Air Bill	☐ Yes	☑ No

COC PRESENT WITH SAMPLES

COC	☑ Yes	☐ No

SAMPLE CONTAINER(S)

Good Condition	☑ Yes	☐ No
Sec. Seals	☑ Yes	☐ No
Seal Intact	☑ Yes ☐ No	☐ N/A
Marked Radioactive	☐ Yes	☑ No

Samples Rcv 4 3

Matrix [AF , AQ , BI , FE , LT , SI , SO , UR , VG] (1)

External and Internal Surveys

Exposure Rate Meter:	M3 242801	Serial No.:	PR 264264	Calibration Due Date:	4-18-13
Count Rate Meter:	M2 154859	Serial No.:	PR 184559	Calibration Due Date:	4-18-13

Background Exposure Rate (µR/hr)	24	Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd)	28	µR/hr
Background Count Rate (cpm)	80	Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd)	80	cpm
		Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd)	80	cpm

Sample Label/Comments/Notes	pH Orig (pH ≤ 2 is Acceptable)	pH Final	Mark if Preserve	Acid Lot #	Weight(g) / Volume(mL)	µR/hr (Acceptance Limits <500 µR/hr)	cpm (Acceptance Limits <100 cpm/cm²)
* CASA-13-24210			☐		1000mL	24	80
			☐				
CAMO-13-24245			☐		1000 mL	24	80
-24246			☐		↓	24	80
-24249			☐		↓	24	90
-24250			☐		↓	24	80
			☐				
CAMO-13-24253			☐		1000mL	24	90
-24258			☐		↓	24	90
			☐				
WST54-13-24790			☐		2410g	26	90
			☐				
CASA-13-24211			☐		1000mL	24	80
			☐				
			☐				
			☐				
			☐				
			☐				
			☐				

Surveyors' Name: [signature]

Date/Time Surveyed: 11/15/12 1030

* This sample only in this SDG.

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-313

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Site Name: Los Alamos National Laboratory

Analysis Turnaround Time:

- 24 Hour - ☐
- Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3	Special Instructions:
CAMO-13-24245	Nov 12 2012	10:58	W	1	
CAMO-13-24246	Nov 12 2012	12:38	W	1	
CAMO-13-24249	Nov 9 2012	12:17	W	1	
CAMO-13-24250	Nov 9 2012	16:04	W	1	

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 11/14/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24245

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/12/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1058	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-44 S1		FIELD PREP:	UF	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P1A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 50 feet of a running diesel generator.

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 6.70 mg/L Oxidation-Reduction Potential 101.2 MV pH 7.78 SU

Specific Conductance 134 uS/cm Temperature 18.67 deg C Turbidity 0.43 NTU

COLLECTED BY (PRINT) W Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/13/12 0845	(Printed Name) K. Green (Signature)	11/13/12 8:45
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24246 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/12/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1238	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-44 S2		FIELD PREP:	UF	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P2A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 50 feet of a running diesel generator

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 7.14 mg/L Oxidation-Reduction Potential 119.1 MV pH 7.87 SU

Specific Conductance 144 uS/cm Temperature 19.03 deg C Turbidity 0.17 NTU

COLLECTED BY (PRINT) W Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/13/12 8:45	(Printed Name) K. Greene (Signature)	11/13/12 8:45
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24249 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/09/2012	FIELD MATRIX: WG		OK
TIME COLLECTED (HH:MM):		1217	MEDIA: UA		OK
PRS ID:		OK	SAMPLE TECH CODE: UA		GSI
LOCATION ID: R-50 S1			FIELD PREP: UF		OK
LOCATION TYPE: MON			FIELD QC TYPE: REG		
PORT: P1A			SAMPLE USAGE: INV		

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 75 feet of a running diesel generator.

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 5.55 mg/L Oxidation-Reduction Potential 81.5 MV pH 8.04 SU

Specific Conductance 185 uS/cm Temperature 18.06 deg C Turbidity 0.63 NTU

COLLECTED BY (PRINT) W Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/09/2012 1650	(Printed Name) S Sherwood (Signature) Sheri Sherwood	11/09/2012 1650
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24250 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/09/2012	FIELD MATRIX: WG		OK
TIME COLLECTED (HH:MM):		1604	MEDIA: UA		OK
PRS ID:		OK	SAMPLE TECH CODE: UA		GSP
LOCATION ID: R-50 S2			FIELD PREP: UF		OK
LOCATION TYPE: MON			FIELD QC TYPE: REG		
PORT: P2A			SAMPLE USAGE: INV		

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE		
	WSP-GrossA/B	1 LITER POLY	1	NONE		
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 75 feet of a running diesel generator

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 7.04 mg/L Oxidation-Reduction Potential 74.0 MV pH 8.13 SU

Specific Conductance 139 uS/cm Temperature 18.57 deg C Turbidity 1.24 NTU

COLLECTED BY (PRINT) D Fellenz

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/09/12 1650	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	11/09/12 1650
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**
(Printed Name) (Signature)		(Printed Name) (Signature)	

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-313

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
ARS1-12-02306	Generic:Low_Level_Tritium	2				
ARS1-12-02306	Generic:Low_Level_Tritium	2				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
ARS1-12-02306	Generic:Low_Level_Tritium	ARS1-B12-02721	ARS1-B12-02721	4					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
Generic:Low_Level_Tritium	RAD							
LCS	ARS1-B12-02721-01	LCS	0	0	1	0		
Generic:Low_Level_Tritium	RAD	CAMO-13-24245	ARS1-B12-02721-15	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	CAMO-13-24246	ARS1-B12-02721-16	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	CAMO-13-24249	ARS1-B12-02721-17	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	CAMO-13-24250	ARS1-B12-02721-18	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	LCSD	ARS1-B12-02721-02	LCSD	0	0	1	0
Generic:Low_Level_Tritium	RAD	MB	ARS1-B12-02721-03	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

No.

Any samples affected by the presence of contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

Data Validation Report for: Chain Of Custody No. 2013-313

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1	1						

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

No.

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

LCS Sample ID	LCSD Sample ID	Analytical Method	Parameter Name	Lab Lot ID	Analysis Date	Sample Matrix	LCS Recovery	LCSD Recovery	Upper Limit	Lower Limit	Lower Reject Limit
ARS1-B12-02721-01	ARS1-B12-02721-02	Generic:Low_Level_Tritium	Tritium	ARS1-B12-02721	12/4/2012	W	25.875	24.604	120	80	10

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-44 S1	2013-313	CAMO-13-24245	REG	INIT	RAD	Generic:Low_Level_Tritium	Tritium	U	U	R5	N
R-44 S2	2013-313	CAMO-13-24246	REG	INIT	RAD	Generic:Low_Level_Tritium	Tritium	U	U	R5	N
R-50 S1	2013-313	CAMO-13-24249	REG	INIT	RAD	Generic:Low_Level_Tritium	Tritium		J-	R12a	Y
R-50 S2	2013-313	CAMO-13-24250	REG	INIT	RAD	Generic:Low_Level_Tritium	Tritium	U	U	R5	N

Reason Code	Description
R12a	The LCS percent recovery was <the LAL but >10%. Follow the external laboratory limits located within the associated data package.
R5	Analyte is not detected because the amount reported is less than the MDC.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24245	R-44 S1	REG	Generic:Low_Level_Tritium	0	1
CAMO-13-24246	R-44 S2	REG	Generic:Low_Level_Tritium	0	1

Upper Reject Limit	RPD	RPD Limit
	5.03576	

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
0.469	pCi/L	0.469	pCi/L	2.843	0.847	W	11/12/2012		ARS1-B12-02721	VAL	Y
0.613	pCi/L	0.613	pCi/L	3.04	0.91	W	11/12/2012		ARS1-B12-02721	VAL	Y
22.455	pCi/L	22.455	pCi/L	3.008	3.603	W	11/9/2012		ARS1-B12-02721	VAL	Y
-0.287	pCi/L	-0.287	pCi/L	3.027	0.883	W	11/9/2012		ARS1-B12-02721	VAL	Y

CAMO-13-24249	R-50 S1	REG	Generic:Low_Level_Tritium	0	1
CAMO-13-24250	R-50 S2	REG	Generic:Low_Level_Tritium	0	1

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Request Number: 2013-313

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-313

Original COC

American Radiation Services - Primary

1726 Wooddale Court

Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-313

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐

7 Day - ☐

14 Day - ☐

21 Day - ☐

28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3
CAMO-13-24245	Nov 12 2012	10:58	W	1
CAMO-13-24246	Nov 12 2012	12:38	W	1
CAMO-13-24249	Nov 9 2012	12:17	W	1
CAMO-13-24250	Nov 9 2012	16:04	W	1

Special Instructions:

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 11/14/12 3:00	Received by:	11/15/12 1030
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-313

Case Narrative

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

December 12, 2012

LANL
Keith Greene
PO Box 1663 MS M992
Los Alamos, NM 87545

Request Number: **2013-313**
LANL Sample ID: **CAMO-13-24245; CAMO-13-24246; CAMO-13-24249; CAMO-13-24250.**

Dear Mr. Greene;

On November 15, 2012, ARS International received four (4) water samples to be analyzed for Low Level Tritium.

The samples underwent enrichment and were counted using the appropriate counting equipment and QA/QC for this type of analysis. Results of the analysis and QA/QC are attached in the data package.

The client and QA/QC samples were counted with a count time sufficient to meet quality control parameters for counting equipment and were within acceptance criteria and statistical sound detection limits.

If you have any questions please do not hesitate to call at 225.381.2991 or email LANL@amrad.com.

Sincerely,

Eugene Mulligan

Laboratory Management
ARS International

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

COVER PAGE

PROJECT SAMPLE IDENTIFICATION CROSS-REFERENCE TO ARS SAMPLE LABORATORY IDs

Subcontract (LANL Agreement Number) 63641-001-10

Request Number	LANL PROJECT SAMPLE ID NUMBER	American Radiation Services SAMPLE ID NUMBER(S)
2013-313	CAMO-13-24245	ARS1-12-02306-001
2013-313	CAMO-13-24246	ARS1-12-02306-002
2013-313	CAMO-13-24249	ARS1-12-02306-003
2013-313	CAMO-13-24250	ARS1-12-02306-004

ANALYTICAL METHODS

Tritium analyses were performed using **ARS-040 Tritium Assay in Water Samples Using Electrolytic Enrichment.**

ANALYTICAL RESULTS

The result data that are flagged with "U" indicate that the activity is below the MDC.

American Radiation Services Project Manager/Laboratory Director's Comments:

"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

"I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the LANL specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."

Eugene Mulligan	Laboratory Management, ARS International	12-12-12
Signature	**Title**	**Date**

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02306	**Request or PO Number:**	2013-313
Client Sample ID:	CAMO-13-24245	**ARS Sample ID:**	ARS1-12-02306-001
Sample Collection Date:	11/12/12	**Date Received:**	11/15/12
Sample Matrix:	Aqueous	**Report Date:**	12/12/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	0.469	0.847	2.843	1.372	U	pCi/L	ARS-040	12/06/12 06:25	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02306	**Request or PO Number:**	2013-313
Client Sample ID:	CAMO-13-24246	**ARS Sample ID:**	ARS1-12-02306-002
Sample Collection Date:	11/12/12	**Date Received:**	11/15/12
Sample Matrix:	Aqueous	**Report Date:**	12/12/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	0.613	0.910	3.040	1.468	U	pCi/L	ARS-040	12/06/12 10:36	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02306	**Request or PO Number:**	2013-313
Client Sample ID:	CAMO-13-24249	**ARS Sample ID:**	ARS1-12-02306-003
Sample Collection Date:	11/09/12	**Date Received:**	11/15/12
Sample Matrix:	Aqueous	**Report Date:**	12/12/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	22.455	3.603	3.008	1.452		pCi/L	ARS-040	12/06/12 14:47	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02306	**Request or PO Number:**	2013-313
Client Sample ID:	CAMO-13-24250	**ARS Sample ID:**	ARS1-12-02306-004
Sample Collection Date:	11/09/12	**Date Received:**	11/15/12
Sample Matrix:	Aqueous	**Report Date:**	12/12/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	-0.287	0.883	3.027	1.461	U	pCi/L	ARS-040	12/07/12 20:05	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

QC Results Report

Sample Delivery Group: ARS1-12-02306
Date Received: 11/15/2012

Laboratory Control Sample Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Percent Recovery (%)	LCS Acceptance Range
ARS1-B12-02721	LCS	H3	25.875	4.032	2.269	25.703		pCi/L	ARS-040	12/4/12 18:56	RJU	101	80%-120%

Blank Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician
ARS1-B12-02721	MBL	H3	-0.085	0.625	2.135	NA	U	pCi/L	ARS-040	12/4/12 18:56	RJU

Sample RER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	RER	RER AcceptanceRange
ARS1-B12-02721	LCSD	H3	25.875	4.032	24.604	3.836		pCi/L	ARS-040	12/4/12 18:56	RJU	0.16	< 1

Sample DER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	DER	DER AcceptanceRange
ARS1-B12-02721	LCSD	H3	25.875	4.032	24.604	3.836		pCi/L	ARS-040	12/4/12 18:56	RJU	0.46	< 3

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of ARS International.

LELAP Certificate# 01949 NELAP Certificate # E87558

QC Evaluation

EPA Method: ARS-040
Batch ID: ARS1-B12-02721
SDG's: ARS1-12-02261;2262;2263;2264;2305;2306;2307;2309

LCS	25.8750	**CSU (2s)**	7.9020
LCSD	24.6040	**CSU-D (2s)**	7.5190

DER = abs(LSC-LSCD) / sqr((2s CSU/2)^2)+((2s CSU-D/2)^2) *at 1 sigma* = **< 3**

DER 1.271 / 5.453828 = 0.233047 **< 3**

% RPD= ABS(LCS - LSCD) / (LCS+LSCD)/2 * 100 = **< 25%**

%RPD 1.271 / 25.2395 *100 = 5.035757 **< 25%**

The *RPD* shall be less than 25% or other client-applied criteria

RER= abs((LCS-LCSD)) / (CSU)+(CSD) *at 2 sigma* = **<1** ***<--LANL Requirement***

RER = 1.271 / 15.4210 0.082420077 **<1**

Blank Information

	Act	CSU(2s)	MDA	Act>MDA
AM-241				
U-234				
U-235				
U-238				
Pu-238				
Pu-239/240				
Th-228				
Th-230				
Th-232				
H3	-0.085	1.225	2.135	
Ra-226				
Ra-228				
Total U				
Pb-210				
Po-209				
Sr-90				
TC-99				
NI-63				

*MDA should be below RDL
*Blank activity must be below MDA
*Blank activity must be < 1.65*CSU (DOE only)

ACT = -0.085
CSU = 1.225
Is ACT<1.65*CSU? YES

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

ARS INTERNATIONAL

Analysis Batch ID **ARS1-B12-02721**

Method **ARS-040** **Analysis** **LSC-A-022** **Matrix** **AQ**

Description **Low Level Tritium by Electrolytic Enrichment**

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02721-01	LCS	B-14793								
ARS1-B12-02721-02	LCSD	B-14794								
ARS1-B12-02721-03	MBL									
ARS1-B12-02721-04	TRG				**ARS1-12-02261**	001	1	CAMO-13-24279	STD	11/29/12
ARS1-B12-02721-05	TRG				**ARS1-12-02262**	001	1	CAMO-13-24241	STD	12/06/12
ARS1-B12-02721-06	TRG				**ARS1-12-02262**	002	1	CAMO-13-24242	STD	12/06/12
ARS1-B12-02721-07	TRG				**ARS1-12-02262**	003	1	CAMO-13-24225	STD	12/06/12
ARS1-B12-02721-08	TRG				**ARS1-12-02262**	004	1	CAMO-13-24247	STD	12/06/12
ARS1-B12-02721-09	TRG				**ARS1-12-02262**	005	1	CAMO-13-24248	STD	12/06/12
ARS1-B12-02721-10	TRG				**ARS1-12-02263**	001	1	CAMO-13-24276	STD	12/06/12
ARS1-B12-02721-11	TRG				**ARS1-12-02264**	001	1	CASA-13-24209	STD	12/06/12
ARS1-B12-02721-12	TRG				**ARS1-12-02264**	002	1	CASA-13-24213	STD	12/06/12
ARS1-B12-02721-13	TRG				**ARS1-12-02264**	003	1	CASA-13-24214	STD	12/06/12
ARS1-B12-02721-14	TRG				**ARS1-12-02305**	001	1	CASA-13-24210	STD	12/12/12
ARS1-B12-02721-15	TRG				**ARS1-12-02306**	001	1	CAMO-13-24245	STD	12/12/12
ARS1-B12-02721-16	TRG				**ARS1-12-02306**	002	1	CAMO-13-24246	STD	12/12/12
ARS1-B12-02721-17	TRG				**ARS1-12-02306**	003	1	CAMO-13-24249	STD	12/12/12
ARS1-B12-02721-18	TRG				**ARS1-12-02306**	004	1	CAMO-13-24250	STD	12/12/12
ARS1-B12-02721-19	TRG				**ARS1-12-02307**	001	1	CAMO-13-24253	STD	12/12/12
ARS1-B12-02721-20	TRG				**ARS1-12-02307**	002	1	CAMO-13-24228	STD	12/12/12
ARS1-B12-02721-21	TRG				**ARS1-12-02309**	001	1	CASA-13-24211	STD	12/12/12

127700
12-02261-001-1
WRAD

127702
12-02262-001-1
WRAD

127704
12-02262-002-1
WRAD

127706
12-02262-003-1
WRAD

127708
12-02262-004-1
WRAD

127710
12-02262-005-1
WRAD

127712
12-02263-001-1
WRAD

127714
12-02264-001-1
WRAD

127716
12-02264-002-1
WRAD

127718
12-02264-003-1
WRAD

127720
12-02305-001-1
WRAD

127722
12-02306-001-1
WRAD

127724
12-02306-002-1
WRAD

127726
12-02306-003-1
WRAD

127728
12-02306-004-1
WRAD

127730
12-02307-001-1
WRAD

127732
12-02307-002-1
WRAD

127734
12-02309-001-1
WRAD

American Radiation Services
Baton Rouge Laboratory

LCS Report
Analytical Batch: ARS1-B12-02721

BlindID	ABatch	ABatchSampleID	BlindGroup	StdID	Isotope	ExpectedAddition	ExpectedValue	EmptyWt	GrossWt	NetWt	UserID	ModDate	ExpectedValue_CT	MidPointCountDate	KnownValue
B-14793	ARS1-B12-02721	ARS1-B12-02721-01	B-H3	S-0279	H-3	5	2.552560129	13.098	18.151	5.053	AMRAD\BSTEFFENS	11/13/2012			
B-14794	ARS1-B12-02721	ARS1-B12-02721-02	B-H3	S-0279	H-3	5	2.552560129	13.14	18.192	5.052	AMRAD\BSTEFFENS	11/13/2012			

17 0084

ID_131001_040	ABatch	AnalysisCode	ABatchSampleID	ClientID	IC_ID	S01_1_EnrichCellNo	S01_2_TareCell	S01_3_TareResv	S02_GrossWtResv	S03_1_WtNa2O2	C_GrossSampleAdded
444	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-01			4	327.7	200.9	701.14	2.07	500.24
445	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-02			33	336.25	215.3	718.8	2.08	503.5
446	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-03			74	328.56	197.95	701.97	2.06	504.02
447	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-04	CAMO-13-24279		61	335.51	213.55	714.87	2	501.32
448	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-05	CAMO-13-24241		64	331.04	209.03	714.77	2.01	505.74
449	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-06	CAMO-13-24242		68	334.63	204.08	706.25	2.02	502.17
450	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-07	CAMO-13-24225		29	335.72	206.2	707.31	2.06	501.11
451	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-08	CAMO-13-24247		55	331.14	208.66	711.99	2.02	503.33
452	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-09	CAMO-13-24248		84	336.66	197.55	700.94	2.05	503.39
453	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-10	CAMO-13-24276		89	340.12	203.22	707.98	2.08	504.76
454	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-11	CASA-13-24209		97	332.94	202.132	708.3	2	506.168
455	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-12	CASA-13-24213		3	332.17	214.84	717.62	2.03	502.78
456	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-13	CASA-13-24214		16	329.44	217.7	718.25	2.09	500.55
457	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-14	CASA-13-24210		26	337.76	213.12	716.43	2	503.31
458	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-15	CAMO-13-24245		44	331.35	214.173	718.93	2.08	504.757
459	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-16	CAMO-13-24246		50	329.91	216.33	717.493	2.07	501.163
460	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-17	CAMO-13-24249		31	334.66	204.09	709.85	2.08	505.76
461	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-18	CAMO-13-24250		8	332.1	204.54	705.56	2	501.02
462	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-19	CAMO-13-24253		87	334.14	207.46	710.88	2.01	503.42
463	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-20	CAMO-13-24228		94	337.21	197.78	700.71	2.05	502.93
464	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-21	CASA-13-24211		99	336.65	206.9	709.24	2.06	502.34

12-4-12

S04_1_ElectrolSD	S04_2_StartAmp	S04_3_StartBathC	S05_1_ElectrolED	S05_2_EndBathC	S05_3_EndCellWt	C_GrossSmplRec	C_EnrichmentF	S06_TareWt	S07_GrossWt	C_RecoveredWa
11/16/2012 15:00:00	5	1.8	11/30/2012 14:58:00	2	545.34	16.74	29.88291517	117.45	130.16	12.71
11/16/2012 15:00:00	5	1.8	11/30/2012 15:00:00	2	567.84	16.29	30.90853284	117.71	129.56	11.85
11/16/2012 15:00:00	5	1.8	11/29/2012 07:51:00	1.8	543.45	16.94	29.75324675	101.5	114.12	12.62
11/16/2012 15:00:00	5	1.8	11/29/2012 07:53:00	1.8	565.75	16.69	30.03714799	108.55	121.28	12.73
11/16/2012 15:00:00	5	1.8	11/30/2012 15:01:00	2	555.66	15.59	32.44002566	104.53	115.28	10.75
11/16/2012 15:00:00	5	1.8	12/03/2012 12:24:00	1.9	553.86	15.15	33.14653465	102.66	112.87	10.21
11/16/2012 15:00:00	5	1.8	11/29/2012 13:10:00	2	558.94	17.02	29.44242068	116.99	128.81	11.82
11/16/2012 15:00:00	5	1.8	11/30/2012 15:03:00	2	555.09	15.29	32.91890124	110.03	121.82	11.79
11/16/2012 15:00:00	5	1.8	11/30/2012 15:05:00	2	549.5	15.29	32.92282538	109.95	120.14	10.19
11/16/2012 15:00:00	5	1.8	11/30/2012 15:06:00	2	560.19	16.85	29.95608309	96.23	110.02	13.79
11/16/2012 15:00:00	5	1.8	11/30/2012 15:07:00	2	552.49	17.418	29.06005282	107.55	120.29	12.74
11/16/2012 15:00:00	5	1.8	11/29/2012 13:08:00	2	563.52	16.51	30.45305875	117.92	129.06	11.14
11/16/2012 15:00:00	5	1.8	12/04/2012 07:37:00	2.1	564.03	16.89	29.63587922	105.46	120.29	14.83
11/16/2012 15:00:00	5	1.8	12/04/2012 07:39:00	2.1	565.2	14.32	35.14734637	101.94	114.75	12.81
11/16/2012 15:00:00	5	1.8	12/04/2012 07:42:00	2.1	563.27	17.747	28.44182115	116.81	128.38	11.57
11/16/2012 15:00:00	5	1.8	12/04/2012 07:45:00	2.1	563.14	16.9	29.65461538	109.51	121.45	11.94
11/16/2012 15:00:00	5	1.8	12/04/2012 11:41:00	2.1	555.31	16.56	30.5410628	111.9	124.2	12.3
11/16/2012 15:00:00	5	1.8	11/29/2012 07:56:00	1.8	553.44	16.8	29.82261905	105.48	117.84	12.36
11/16/2012 15:00:00	5	1.8	11/29/2012 07:58:00	1.8	558.66	17.06	29.5087925	112	125.02	13.02
11/16/2012 15:00:00	5	1.8	11/29/2012 13:05:00	1.9	551.09	16.1	31.2378882	115.1	127.71	12.61
11/16/2012 15:00:00	5	1.8	11/29/2012 13:03:00	1.9	560.98	17.43	28.82042456	104.78	117.5	12.72

12-4-12

19 of 84

S08_TearWtLSCVial	S09_VialPlusSmpl	C_NetSample	S10_1_WtVislSmplDrWatFill	C_NetDeadWaterAdded	C_TareWtBFCocktail	S10_2_GrossWtVSC	C_NetWtCocktailAdded	UserID	ModDate
6.44	16.44	10	0	0	16.44	27.34	10.9	AMRAD\RUSEY	12/03/2012 12:16:52
6.44	16.45	10.01	0	0	16.45	27.43	10.98	AMRAD\RUSEY	12/03/2012 12:18:50
6.51	16.53	10.02	0	0	16.53	27.02	10.49	AMRAD\RUSEY	11/29/2012 14:42:42
6.53	16.54	10.01	0	0	16.54	26.83	10.29	AMRAD\RUSEY	11/29/2012 14:44:17
6.45	16.5	10.05	0	0	16.5	26.92	10.42	AMRAD\RUSEY	12/03/2012 12:20:31
6.53	16.54	10.01	0	0	16.54	26.86	10.32	AMRAD\RUSEY	12/03/2012 14:37:15
6.38	16.42	10.04	0	0	16.42	27.17	10.75	AMRAD\RUSEY	11/29/2012 15:39:24
6.59	16.64	10.05	0	0	16.64	26.96	10.32	AMRAD\RUSEY	12/03/2012 12:23:43
6.47	16.53	10.06	0	0	16.53	26.85	10.32	AMRAD\RUSEY	12/03/2012 14:39:07
6.54	16.54	10	0	0	16.54	26.89	10.35	AMRAD\RUSEY	12/03/2012 14:41:26
6.68	16.69	10.01	0	0	16.69	26.99	10.3	AMRAD\RUSEY	12/03/2012 14:43:02
6.52	16.56	10.04	0	0	16.56	26.84	10.28	AMRAD\RUSEY	11/29/2012 15:42:09
6.64	16.69	10.05	0	0	16.69	26.89	10.2	AMRAD\RUSEY	12/04/2012 10:57:08
6.38	16.39	10.01	0	0	16.39	26.6	10.21	AMRAD\RUSEY	12/04/2012 10:59:05
6.61	16.64	10.03	0	0	16.64	26.99	10.35	AMRAD\RUSEY	12/04/2012 11:01:07
6.49	16.54	10.05	0	0	16.54	26.84	10.3	AMRAD\RUSEY	12/04/2012 11:02:49
6.46	16.53	10.07	0	0	16.53	26.79	10.26	AMRAD\RUSEY	12/04/2012 13:55:27
6.5	16.58	10.08	0	0	16.58	26.89	10.31	AMRAD\RUSEY	11/29/2012 14:45:59
6.56	16.58	10.02	0	0	16.58	26.94	10.36	AMRAD\RUSEY	11/29/2012 14:47:45
6.46	16.49	10.03	0	0	16.49	26.79	10.3	AMRAD\RUSEY	11/29/2012 15:43:57
6.57	16.59	10.02	0	0	16.59	26.89	10.3	AMRAD\RUSEY	11/29/2012 15:45:48

12-4-12

AMRAD
AMERICAN RADIATION SERVICES, LLC

LSC Instrument Data Transfer Report

\\Packard3170\Results\H3 Low Level\Low Level H3_3\

Batch Sample ID	Non-BKG Samples Transferred	Samples Eligible To Save	
ARS1-B12-02721	21	21	LSC 1

LIMS Batch Sample ID	LSC P#	LSC PID	LSC S#	LSC SMPL_ID	LSC Count Date	LSC CPMA	LSC tSIE	LSC EFF	LSC Count Dur	Analysis Batch	LIMS SDG	LIMS Run
BKG	10		1	BACKGROUND	12/04/12 14:45	1.11	395.29	25.3300	240.00	ARS1-B12-02721		
ARS1-B12-02721-01	10		2	B12-02721-01	12/04/12 18:56	4.84	378.07	24.5900	240.00	ARS1-B12-02721		
ARS1-B12-02721-02	10		3	B12-02721-02	12/04/12 23:07	4.79	377.91	24.5800	240.00	ARS1-B12-02721		
ARS1-B12-02721-03	10		4	B12-02721-03	12/05/12 03:18	1.09	407.72	25.9200	240.00	ARS1-B12-02721		
ARS1-B12-02721-04	10		5	B12-02721-04	12/05/12 07:29	1.08	378.13	24.5900	240.00	ARS1-B12-02721	ARS1-12-02261	1
ARS1-B12-02721-05	10		6	B12-02721-05	12/05/12 11:40	1.28	395.32	25.3300	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-06	2		1	B12-02721-06	12/06/12 16:58	3.80	401.27	25.6100	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-07	2		2	B12-02721-07	12/06/12 21:09	1.32	410.59	26.0600	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-08	2		3	B12-02721-08	12/07/12 01:20	1.47	395.87	25.3500	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-09	2		4	B12-02721-09	12/07/12 05:31	1.35	351.17	23.5500	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-10	2		5	B12-02721-10	12/07/12 09:42	1.06	286.28	20.1600	240.00	ARS1-B12-02721	ARS1-12-02263	1
ARS1-B12-02721-11	2		6	B12-02721-11	12/07/12 13:53	1.82	354.31	23.6700	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-12	10		13	B12-02721-12	12/05/12 15:52	1.03	220.99	15.6400	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-13	10		14	B12-02721-13	12/05/12 20:03	1.28	402.67	25.6800	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-14	10		15	B12-02721-14	12/06/12 00:14	1.00	286.72	20.1900	240.00	ARS1-B12-02721	ARS1-12-02305	1
ARS1-B12-02721-15	10		16	B12-02721-15	12/06/12 04:24	1.16	290.87	20.4700	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-16	10		17	B12-02721-16	12/06/12 08:35	1.17	258.02	18.2400	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-17	10		18	B12-02721-17	12/06/12 12:46	3.55	251.93	17.8300	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-18	10		1	B12-02721-18	12/07/12 18:04	1.08	258.29	18.2500	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-19	10		2	B12-02721-19	12/07/12 22:15	1.85	308.77	21.6900	240.00	ARS1-B12-02721	ARS1-12-02307	1
ARS1-B12-02721-20	10		3	B12-02721-20	12/08/12 02:26	1.39	304.39	21.3900	240.00	ARS1-B12-02721	ARS1-12-02307	1
ARS1-B12-02721-21	10		4	B12-02721-21	12/08/12 06:37	1.07	280.53	19.7700	240.00	ARS1-B12-02721	ARS1-12-02309	1

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Total_Bkg_Count_Duration_min	DF	Sample_Activity_Conc	Standard_Counting_Uncertainty	CU_1	CSU_1	CU_1_96	CSU_1_96	MDC	DLC	ActivityReportUnits
LSC-A-022	ARS1-B12-02721-01	240.000	0.98654	25.875	1.091	1.091	4.032	2.139	7.902	2.269	1.095	pCi
LSC-A-022	ARS1-B12-02721-02	240.000	0.98638	24.604	1.047	1.047	3.836	2.052	7.519	2.186	1.055	pCi
LSC-A-022	ARS1-B12-02721-03	240.000	0.99908	-0.085	0.625	0.625	0.625	1.225	1.225	2.135	1.031	pCi
LSC-A-022	ARS1-B12-02721-04	240.000	0.99478	-0.213	0.655	0.655	0.655	1.283	1.285	2.247	1.085	pCi
LSC-A-022	ARS1-B12-02721-05	240.000	0.99462	1.037	0.608	0.608	0.628	1.192	1.230	1.997	0.964	pCi
LSC-A-022	ARS1-B12-02721-06	240.000	0.99447	15.912	0.845	0.845	2.532	1.656	4.963	1.933	0.933	pCi
LSC-A-022	ARS1-B12-02721-07	240.000	0.99432	1.394	0.661	0.661	0.694	1.296	1.359	2.153	1.039	pCi
LSC-A-022	ARS1-B12-02721-08	240.000	0.99524	2.149	0.620	0.620	0.699	1.215	1.369	1.959	0.946	pCi
LSC-A-022	ARS1-B12-02721-09	240.000	0.99524	1.567	0.650	0.650	0.691	1.274	1.355	2.102	1.015	pCi
LSC-A-022	ARS1-B12-02721-10	240.000	0.99508	-0.376	0.795	0.795	0.797	1.559	1.563	2.738	1.322	pCi
LSC-A-022	ARS1-B12-02721-11	240.000	0.99508	5.262	0.817	0.817	1.136	1.601	2.227	2.422	1.169	pCi
LSC-A-022	ARS1-B12-02721-12	240.000	0.99570	-0.793	0.998	0.998	1.005	1.956	1.970	3.460	1.670	pCi
LSC-A-022	ARS1-B12-02721-13	240.000	0.99554	1.108	0.657	0.657	0.678	1.288	1.329	2.159	1.042	pCi
LSC-A-022	ARS1-B12-02721-14	240.000	0.99646	-0.723	0.658	0.658	0.667	1.290	1.307	2.296	1.109	pCi
LSC-A-022	ARS1-B12-02721-15	240.000	0.99631	0.469	0.844	0.844	0.847	1.655	1.661	2.843	1.372	pCi
LSC-A-022	ARS1-B12-02721-16	240.000	0.99631	0.613	0.905	0.905	0.910	1.775	1.784	3.040	1.468	pCi
LSC-A-022	ARS1-B12-02721-17	240.000	0.99585	22.455	1.280	1.280	3.603	2.510	7.063	3.008	1.452	pCi
LSC-A-022	ARS1-B12-02721-18	240.000	0.99570	-0.287	0.882	0.882	0.883	1.729	1.731	3.027	1.461	pCi
LSC-A-022	ARS1-B12-02721-19	240.000	0.99539	5.878	0.879	0.879	1.245	1.723	2.440	2.593	1.252	pCi
LSC-A-022	ARS1-B12-02721-20	240.000	0.99539	2.120	0.766	0.766	0.830	1.502	1.626	2.460	1.188	pCi
LSC-A-022	ARS1-B12-02721-21	240.000	0.99631	-0.311	0.846	0.846	0.847	1.658	1.661	2.906	1.403	pCi

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Initial_Mass_sample_g	Mass_Na2O2_added_g	Final_mass_electrolyzed_sample_NaOH_g	Mass_equivalent_NaOH_g	Final_Mass_Electrolyzed_sample_g	VolumeFactor_X	Enrichment_Factor_Y
LSC-A-022	ARS1-B12-02721-01	500.240	2.070	16.740	2.124	14.616	0.029	26.782
LSC-A-022	ARS1-B12-02721-02	503.500	2.080	16.290	2.134	14.156	0.028	27.791
LSC-A-022	ARS1-B12-02721-03	504.020	2.060	16.940	2.114	14.826	0.029	26.608
LSC-A-022	ARS1-B12-02721-04	501.320	2.000	16.690	2.052	14.638	0.029	26.799
LSC-A-022	ARS1-B12-02721-05	505.740	2.010	15.590	2.062	13.528	0.027	29.154
LSC-A-022	ARS1-B12-02721-06	502.170	2.020	15.150	2.073	13.077	0.026	29.914
LSC-A-022	ARS1-B12-02721-07	501.110	2.060	17.020	2.114	14.906	0.030	26.324
LSC-A-022	ARS1-B12-02721-08	503.330	2.020	15.290	2.073	13.217	0.026	29.675
LSC-A-022	ARS1-B12-02721-09	503.390	2.050	15.290	2.103	13.187	0.026	29.745
LSC-A-022	ARS1-B12-02721-10	504.760	2.080	16.850	2.134	14.716	0.029	26.838
LSC-A-022	ARS1-B12-02721-11	506.168	2.000	17.418	2.052	15.366	0.030	25.815
LSC-A-022	ARS1-B12-02721-12	502.780	2.030	16.510	2.083	14.427	0.029	27.251
LSC-A-022	ARS1-B12-02721-13	500.550	2.090	16.890	2.144	14.746	0.029	26.571
LSC-A-022	ARS1-B12-02721-14	503.310	2.000	14.320	2.052	12.268	0.024	31.878
LSC-A-022	ARS1-B12-02721-15	504.757	2.080	17.747	2.134	15.613	0.031	25.354
LSC-A-022	ARS1-B12-02721-16	501.163	2.070	16.900	2.124	14.776	0.029	26.550
LSC-A-022	ARS1-B12-02721-17	505.760	2.080	16.560	2.134	14.426	0.029	27.409
LSC-A-022	ARS1-B12-02721-18	501.020	2.000	16.800	2.052	14.748	0.029	26.591
LSC-A-022	ARS1-B12-02721-19	503.420	2.010	17.060	2.062	14.998	0.030	26.286
LSC-A-022	ARS1-B12-02721-20	502.930	2.050	16.100	2.103	13.997	0.028	28.064
LSC-A-022	ARS1-B12-02721-21	502.340	2.060	17.430	2.114	15.316	0.030	25.707

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Average_Sample_CPM	Bkg_CPM	tSIE	Detector_Eff_decimal	Aliquot	AliqUnits	Activity_reference_date	Start_Date_of_Count	Sample_Count_Duration_min
LSC-A-022	ARS1-B12-02721-01	4.839	1.107	378.070	0.246	0.01000	L	9/7/2012	12/4/2012	240.000
LSC-A-022	ARS1-B12-02721-02	4.791	1.107	377.910	0.246	0.01001	L	9/7/2012	12/4/2012	240.000
LSC-A-022	ARS1-B12-02721-03	1.094	1.107	407.720	0.259	0.01002	L	11/29/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-04	1.076	1.107	378.130	0.246	0.01001	L	11/1/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-05	1.277	1.107	395.320	0.253	0.01005	L	10/31/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-06	3.801	1.107	401.270	0.256	0.01001	L	10/31/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-07	1.319	1.107	410.590	0.261	0.01004	L	10/31/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-08	1.466	1.107	395.870	0.254	0.01005	L	11/6/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-09	1.351	1.107	351.170	0.236	0.01006	L	11/6/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-10	1.062	1.107	286.280	0.202	0.01000	L	11/5/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-11	1.818	1.107	354.310	0.237	0.01001	L	11/5/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-12	1.032	1.107	220.990	0.156	0.01004	L	11/7/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-13	1.275	1.107	402.670	0.257	0.01005	L	11/7/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-14	1.004	1.107	286.720	0.202	0.01001	L	11/13/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-15	1.161	1.107	290.870	0.205	0.01003	L	11/12/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-16	1.173	1.107	258.020	0.182	0.01005	L	11/12/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-17	3.550	1.107	251.930	0.178	0.01007	L	11/9/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-18	1.076	1.107	258.290	0.183	0.01008	L	11/9/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-19	1.849	1.107	308.770	0.217	0.01002	L	11/8/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-20	1.389	1.107	304.390	0.214	0.01003	L	11/8/2012	12/8/2012	240.000
LSC-A-022	ARS1-B12-02721-21	1.072	1.107	280.530	0.198	0.01002	L	11/14/2012	12/8/2012	240.000

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	AliquotReportUnits	UserID	ModDate
LSC-A-022	ARS1-B12-02721-01	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-02	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-03	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-04	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-05	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-06	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-07	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-08	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-09	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-10	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-11	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-12	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-13	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-14	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-15	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-16	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-17	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-18	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-19	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-20	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-21	L	AMRAD\RUSEY	12/10/2012

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\20121204_1437.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

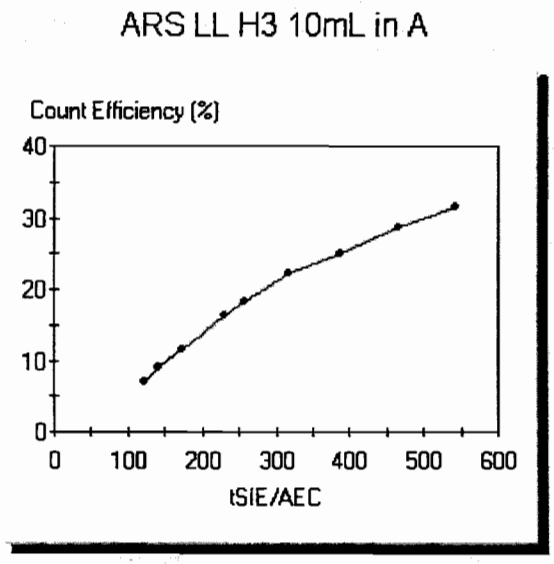
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
10	1	BACKGROUND	1.107	4.37	395.29	25.33	240.00	12/4/2012	2:45:58 PM	
10	2	B12-02721-01	4.839	19.68	378.07	24.59	240.00	12/4/2012	6:56:59 PM	
10	3	B12-02721-02	4.791	19.49	377.91	24.58	240.00	12/4/2012	11:07:59 PM	
10	4	B12-02721-03	1.094	4.22	407.72	25.92	240.00	12/5/2012	3:18:59 AM	
10	5	B12-02721-04	1.076	4.37	378.13	24.59	240.00	12/5/2012	7:29:54 AM	
10	6	B12-02721-05	1.277	5.04	395.32	25.33	240.00	12/5/2012	11:40:51 AM	
Missing vial 7.										
Missing vial 8.										
Missing vial 9.										
Missing vial 10.										
Missing vial 11.										
Missing vial 12.										
10	13	B12-02721-12	1.032	6.60	220.99	15.64	240.00	12/5/2012	3:52:07 PM	
10	14	B12-02721-13	1.275	4.96	402.67	25.68	240.00	12/5/2012	8:03:04 PM	
10	15	B12-02721-14	1.004	4.97	286.72	20.19	240.00	12/6/2012	12:14:02 AM	
10	16	B12-02721-15	1.161	5.67	290.87	20.47	240.00	12/6/2012	4:24:59 AM	
10	17	B12-02721-16	1.173	6.43	258.02	18.24	240.00	12/6/2012	8:35:55 AM	
10	18	B12-02721-17	3.550	19.91	251.93	17.83	240.00	12/6/2012	12:46:52 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\20121206_1649.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

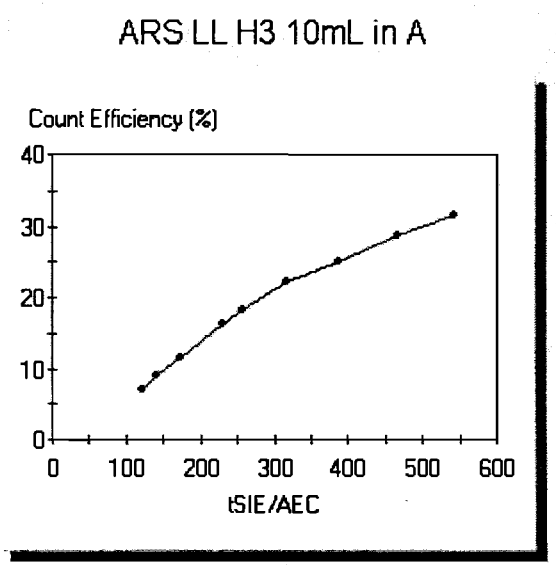
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	B12-02721-06	3.801	14.84	401.27	25.61	240.00	12/6/2012	4:58:25 PM	
2	2	B12-02721-07	1.319	5.06	410.59	26.06	240.00	12/6/2012	9:09:28 PM	
2	3	B12-02721-08	1.466	5.78	395.87	25.35	240.00	12/7/2012	1:20:23 AM	
2	4	B12-02721-09	1.351	5.73	351.17	23.55	240.00	12/7/2012	5:31:20 AM	
2	5	B12-02721-10	1.062	5.27	286.28	20.16	240.00	12/7/2012	9:42:17 AM	
2	6	B12-02721-11	1.818	7.68	354.31	23.67	240.00	12/7/2012	1:53:14 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\20121207_1755.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

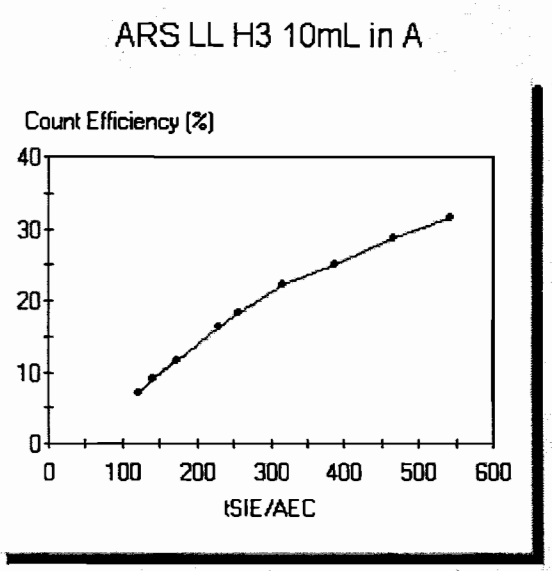
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
10	1	B12-02721-18	1.076	5.89	258.29	18.25	240.00	12/7/2012	6:04:50 PM	
10	2	B12-02721-19	1.849	8.53	308.77	21.69	240.00	12/7/2012	10:15:50 PM	
10	3	B12-02721-20	1.389	6.50	304.39	21.39	240.00	12/8/2012	2:26:47 AM	
10	4	B12-02721-21	1.072	5.42	280.53	19.77	240.00	12/8/2012	6:37:44 AM	

ARS Batch Number: ARS1-B12 - 02721

Enter these Values for LCS			Report Name	Field Name on the Report
	Current ACT	5.6490	Standards Report	ACT at Date Above (dpm/g)
	NetWt	5.0530	LCS Report	NetWt
	Aliquot	0.5002	Tritium Enrichment Data	Gross Sample Added/1000

Enter these Values for LCSD			Report Name	Field Name on the Report
	Current ACT	5.6490	Standards Report	ACT at Date Above (dpm/g)
	NetWt	5.0520	LCS Report	NetWt
	Aliquot	0.5035	Tritium Enrichment Data	Gross Sample Added/1000

Expected Value Calculations

ARS Batch Number: ARS1-B11 - 02721

LCS	**CALCULATED EXPECTED VALUE**	=	25.703			
			Range	20.563	-	30.844
LCSD	**CALCULATED EXPECTED VALUE**	=	25.532			
			Range	20.425	-	30.638

Exit

AMRAD
AMERICAN RADIATION SERVICES, LLC

Standards Activity as of: 12/03/12 12:16

Active	Std ID	Isotope	PSCLT	Verification Date	Exp Date	Status	Ref Date	Ref ACT (dpm)	ACT at Date Above (dpm/g)	Halflife (days)	Parent ID	Expended Date	Comments
A	**S-0279**	H-3	**SL**	09/10/12	09/10/13	OK	09/07/12	5.7255E+00	**5.6493**	4.500E+03	**S-0237**		H3 LCS standard. Dilution performed as stated above by B Steffens. -B

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
11-21-12	0702	SNC-16	QA	QA	[illegible]
11-21-12	1136	Background	B12 02616	1417	[illegible]
↓	↓	B12-02616-01	↓	↓	[illegible]
↓	↓	B12-02616-02	↓	↓	[illegible]
↓	↓	B12-02616-03	↓	↓	[illegible]
↓	↓	B12-02616-04	↓	↓	[illegible]
↓	↓	B12-02616-05	↓	↓	[illegible]
↓	↓	B12-02616-06	↓	↓	[illegible]
↓	↓	B12-02616-07	↓	↓	[illegible]
↓	↓	B12-02616-08	↓	↓	[illegible]
↓	↓	B12-02616-09	↓	↓	[illegible]
↓	↓	B12-02616-10	↓	↓	[illegible]
11-21-12	1200	SNC-16	QA	QA	[illegible]
12-4-12	0732	SNC-16	QA	QA	[illegible]
12-4-12	1434	Background	B12-02721	1437	[illegible]
↓	↓	B12-02721-01	↓	↓	[illegible]
↓	↓	B12-02721-02	↓	↓	[illegible]
↓	↓	B12-02721-03	↓	↓	[illegible]
↓	↓	B12-02721-04	↓	↓	[illegible]
↓	↓	B12-02721-05	↓	↓	[illegible]

Reviewed By: [illegible] Date: 12-10-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-4-12	1434	B12-02721-06	B12-02721	1437	[illegible]
↓	↓	B12-02721-07	↓	↓	[illegible]
↓	↓	B12-02721-08	↓	↓	[illegible]
↓	↓	B12-02721-09	↓	↓	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
↓	↓	B12-02721-12	↓	↓	[illegible]
↓	↓	B12-02721-13	↓	↓	[illegible]
↓	↓	B12-02721-14	↓	↓	[illegible]
↓	↓	B12-02721-15	↓	↓	[illegible]
↓	↓	B12-02721-16	↓	↓	[illegible]
↓	↓	B12-02721-17	↓	↓	[illegible]
↓	↓	B12-02721-18	↓	↓	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]
12-4-12	1437	SNC-16	QA	QA	[illegible]
* 12-5-12	1604	B12-02721-06	B12-02721	1649	[illegible]
↓	↓	B12-02721-07	↓	↓	[illegible]
↓	↓	B12-02721-08	↓	↓	[illegible]

* Will count before SNC † 12-5-12

Reviewed By: [illegible] Date: 12-10-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-5-12	1104	B12-02721-09	B12-02721	1649	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
12-7-12	1026	B12-02721-18	B12-02721	1755	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]

12-10-12

Reviewed By: SDR Date: 12-10-12
Initials

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

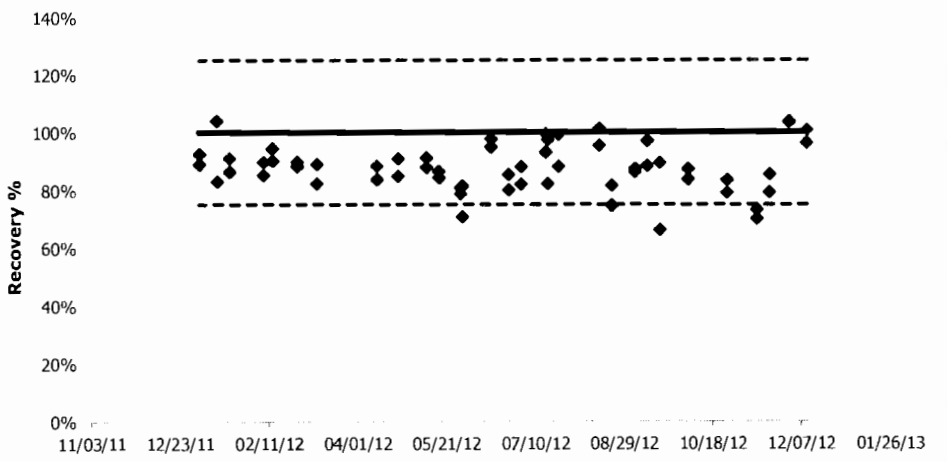
Low Level Tritium by Low Level Liquid Scintillation Counting

Control Charts

American Radiation Services
Baton Rouge Laboratory

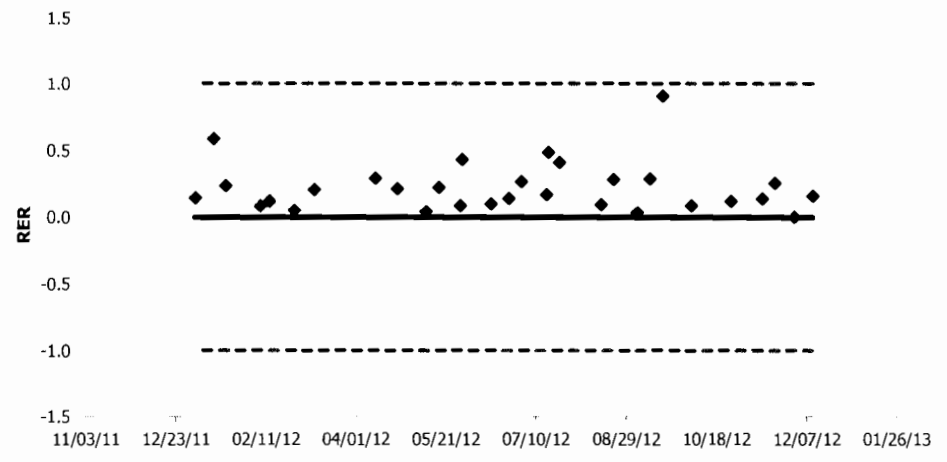
QC Chart

LLH-3 LCS



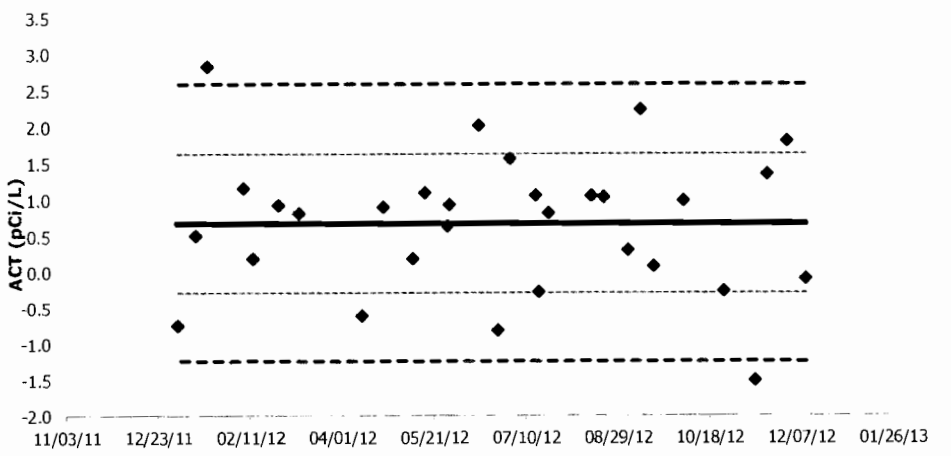
Average	STDEV	n	UCL	LCL
0.8778	0.0828	30	1.2500	0.7500

LLH-3 RER



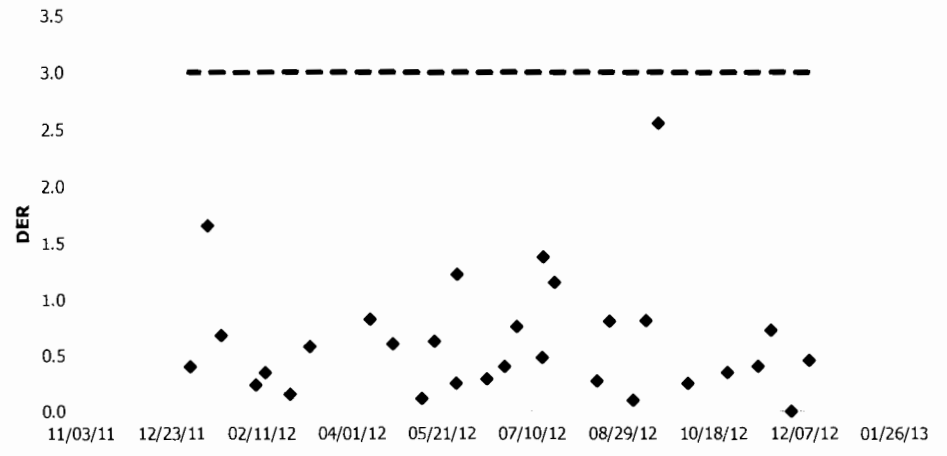
		n	UCL	LCL
		30	1.0000	-1.0000

LLH-3 Blank



Average	STDEV	n	UCL	LCL
0.6761	0.9576	30	2.5912	-1.2390

LLH-3 DER



		n	UCL	
		30	3.0000	

3H Efficiency
Total # pts : 5553
Valid # pts : 106
Mean : 62.95
SD : 0.22

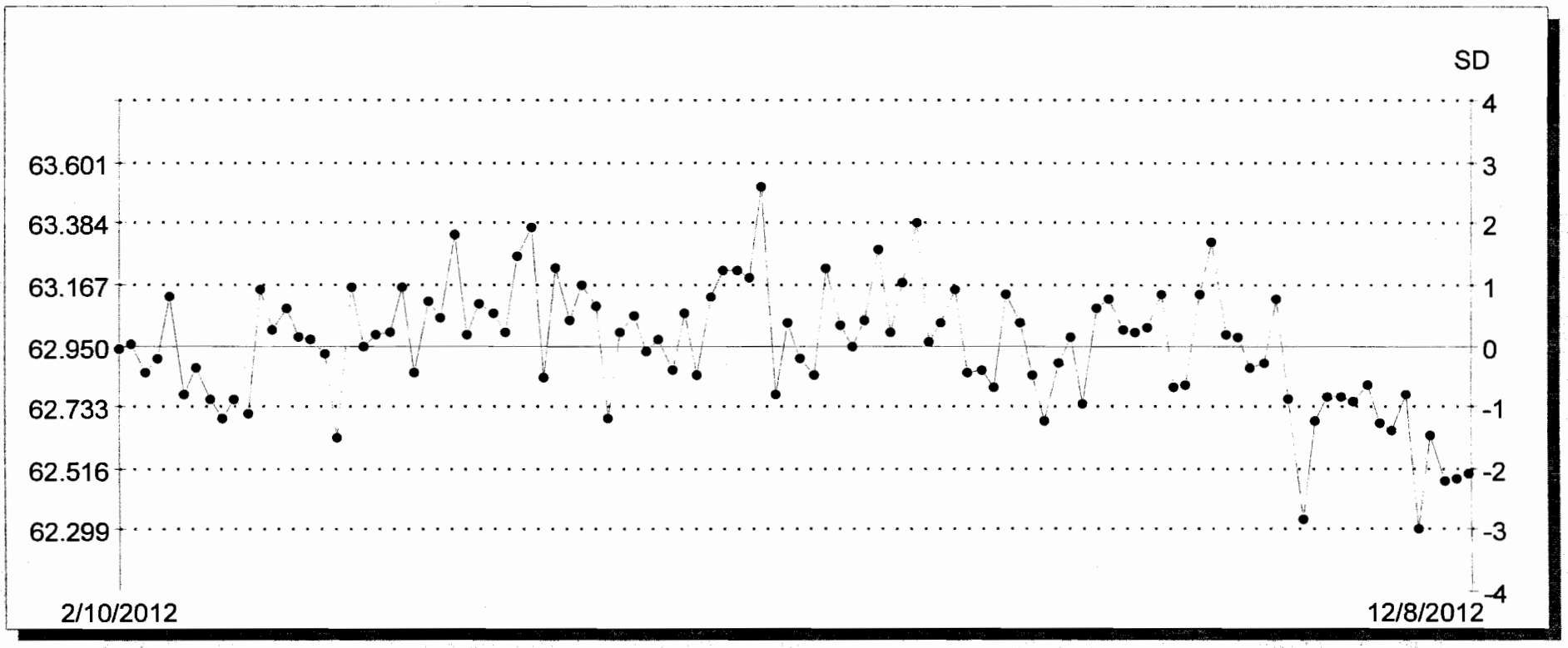
Date	Value	Valid Pt
Feb 10, 2012	62.94	X
Feb 15, 2012	62.96	X
Feb 16, 2012	62.86	X
Feb 17, 2012	62.90	X
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X

Jun 30, 2012	62.97	X
Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X
Jul 15, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 22, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X

Nov 13, 2012	62.76	X
Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X
Nov 18, 2012	62.68	X
Nov 19, 2012	62.65	X
Nov 19, 2012	62.78	X
Nov 20, 2012	62.30	X
Nov 21, 2012	62.63	X
Nov 23, 2012	62.47	X
Dec 04, 2012	62.48	X
Dec 08, 2012	62.49	X

49084

3H Efficiency
Total # pts : 5553
Valid # pts : 106
Mean : 62.95
SD : 0.22



3H Background

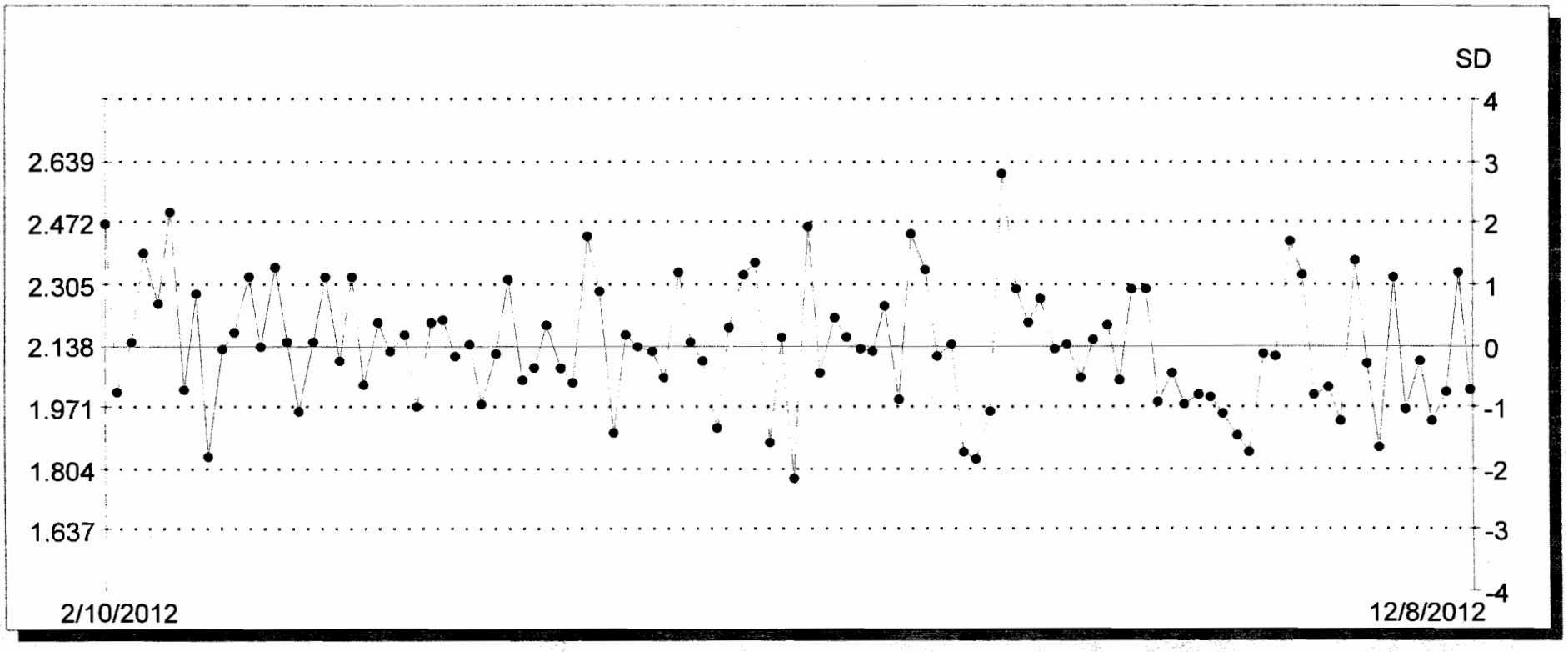
Total # pts : 5479
Valid # pts : 106
Mean : 2.14
SD : 0.17

Date	Value	Valid Pt
Feb 10, 2012	2.47	X
Feb 15, 2012	2.01	X
Feb 16, 2012	2.15	X
Feb 17, 2012	2.39	X
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X

Jun 30, 2012	2.12	X
Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X
Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 22, 2012	2.19	X
Jul 26, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 09, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X

Nov 13, 2012	1.93	X
Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X
Nov 18, 2012	1.86	X
Nov 19, 2012	2.32	X
Nov 19, 2012	1.96	X
Nov 20, 2012	2.09	X
Nov 21, 2012	1.93	X
Nov 23, 2012	2.01	X
Dec 04, 2012	2.34	X
Dec 08, 2012	2.02	X

3H Background
Total # pts : 5479
Valid # pts : 106
Mean : 2.14
SD : 0.17



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium- Screening by Low Level Liquid Scintillation Counting

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting Samples

Procedures: **ARS-060** **ARS-040** *Section 14.1 Tritium Screen in Clean Water without Distillation*

ARS File ID Numbers: ARS1-12-02305; 2306; 2307; 2309
ARS Batch ID: ARS1-B12-02720

	Sample ID:	COUNT TIME	CPMA	Background CPMA	Eff Nucl In A	Aliquot (grams)	ACTIVITY	units	MDA	Sample Must be analyzed as LSC-A-001
1	B12-02720-04	120	1.982	1.188	27.31	10.00	130.962	pCi/L	97.38927	YES, analyze by LSC-A-001.
2	B12-02720-05	120	1.362	1.188	27.33	10.02	28.621	pCi/L	97.12375	NO
3	B12-02720-06	120	1.378	1.188	27.43	10.00	31.201	pCi/L	96.96321	NO
4	B12-02720-07	120	1.343	1.188	27.22	10.03	25.573	pCi/L	97.41902	NO
5	B12-02720-08	120	1.422	1.188	27.31	10.01	38.557	pCi/L	97.29198	NO
6	B12-02720-09	120	1.600	1.188	27.58	10.04	67.022	pCi/L	96.05165	NO
7	B12-02720-10	120	1.724	1.188	27.09	10.04	88.771	pCi/L	97.78902	NO
8	B12-02720-11	120	1.450	1.188	27.2	10.01	43.346	pCi/L	97.68544	NO
9							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
10							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
11							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
12							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
13							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
14							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
15							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
16							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
17							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
18							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
19							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
20							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
21							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
22							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
23							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!

Per VIM, run all samples by LSC-A-022
SAA
11-19-12

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

ARS INTERNATIONAL

Analysis Batch ID **ARS1-B12-02720**

Method **ARS-054** **Analysis** **LSC-A-021** **Matrix** **AQ**

Description **Low Level Tritium Screening**

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02720-01	LCS									
ARS1-B12-02720-02	LCSD									
ARS1-B12-02720-03	MBL									
ARS1-B12-02720-04	TRG				**ARS1-12-02305**	001	1	CASA-13-24210	STD	12/12/12
ARS1-B12-02720-05	TRG				**ARS1-12-02306**	001	1	CAMO-13-24245	STD	12/12/12
ARS1-B12-02720-06	TRG				**ARS1-12-02306**	002	1	CAMO-13-24246	STD	12/12/12
ARS1-B12-02720-07	TRG				**ARS1-12-02306**	003	1	CAMO-13-24249	STD	12/12/12
ARS1-B12-02720-08	TRG				**ARS1-12-02306**	004	1	CAMO-13-24250	STD	12/12/12
ARS1-B12-02720-09	TRG				**ARS1-12-02307**	001	1	CAMO-13-24253	STD	12/12/12
ARS1-B12-02720-10	TRG				**ARS1-12-02307**	002	1	CAMO-13-24228	STD	12/12/12
ARS1-B12-02720-11	TRG				**ARS1-12-02309**	001	1	CASA-13-24211	STD	12/12/12

126796
12-02305-001-1
WRAD

126797
12-02306-001-1
WRAD

126798
12-02306-002-1
WRAD

126799
12-02306-003-1
WRAD

126800
12-02306-004-1
WRAD

126801
12-02307-001-1
WRAD

126804
12-02307-002-1
WRAD

126805
12-02309-001-1
WRAD

ARS-054

54 of 54

ID_11001_054	ABatch	ABatchSampleID	ClientID	Aliquot1	AliquotUnits1	IC_ID1	Aliquot2	AliquotUnits2	IC_ID2	UserID	ModDate
11995	ARS1-B12-02720	ARS1-B12-02720-01		1	g					AMRAD\RUSEY	11/16/2012 13:10:45
11996	ARS1-B12-02720	ARS1-B12-02720-02		1	g					AMRAD\RUSEY	11/16/2012 13:10:45
11997	ARS1-B12-02720	ARS1-B12-02720-03		1	g					AMRAD\RUSEY	11/16/2012 13:10:45
11998	ARS1-B12-02720	ARS1-B12-02720-04	CASA-13-24210	10	g	126796				AMRAD\RUSEY	11/16/2012 13:10:45
11999	ARS1-B12-02720	ARS1-B12-02720-05	CAMO-13-24245	10.02	g	126797				AMRAD\RUSEY	11/16/2012 13:10:45
12000	ARS1-B12-02720	ARS1-B12-02720-06	CAMO-13-24246	10	g	126798				AMRAD\RUSEY	11/16/2012 13:10:45
12001	ARS1-B12-02720	ARS1-B12-02720-07	CAMO-13-24249	10.03	g	126799				AMRAD\RUSEY	11/16/2012 13:10:45
12002	ARS1-B12-02720	ARS1-B12-02720-08	CAMO-13-24250	10.01	g	126800				AMRAD\RUSEY	11/16/2012 13:10:45
12003	ARS1-B12-02720	ARS1-B12-02720-09	CAMO-13-24253	10.04	g	126801				AMRAD\RUSEY	11/16/2012 13:10:46
12004	ARS1-B12-02720	ARS1-B12-02720-10	CAMO-13-24228	10.04	g	126804				AMRAD\RUSEY	11/16/2012 13:10:46
12005	ARS1-B12-02720	ARS1-B12-02720-11	CASA-13-24211	10.01	g	126805				AMRAD\RUSEY	11/16/2012 13:10:46

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121117_0729
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121117_0729\20121117_0729.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121117_0729\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121117_0729\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

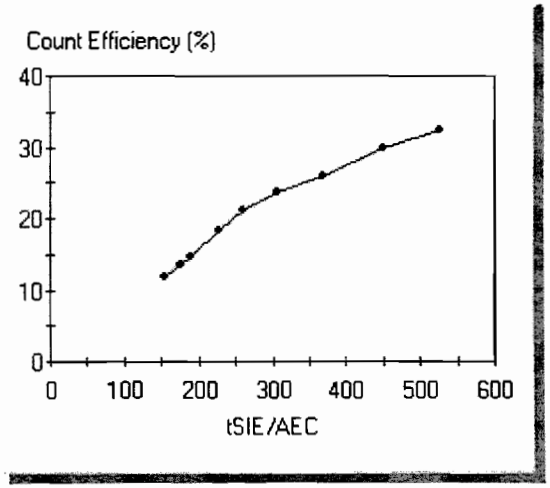
Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data

ARS LL H3 10mL in A



Date Acquired: 11/18/2011
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
526.29	32.47
450.16	29.90
370.15	25.92
306.68	23.60
260.68	20.99
228.69	18.21
189.46	14.53
177.14	13.64
155.73	11.73

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	BACKGROUND	1.188	4.61	365.54	25.76	120.00	11/17/2012	7:38:00 AM	
2	2	B12-02720-04	1.982	7.26	398.11	27.31	120.00	11/17/2012	9:47:57 AM	
2	3	B12-02720-05	1.362	4.98	398.46	27.33	120.00	11/17/2012	11:57:51 AM	
2	4	B12-02720-06	1.378	5.02	400.41	27.43	120.00	11/17/2012	2:07:44 PM	
2	5	B12-02720-07	1.343	4.93	396.35	27.22	120.00	11/17/2012	4:17:39 PM	
2	6	B12-02720-08	1.422	5.21	398.01	27.31	120.00	11/17/2012	6:27:33 PM	
2	7	B12-02720-09	1.600	5.80	403.48	27.58	120.00	11/17/2012	8:37:29 PM	
2	8	B12-02720-10	1.724	6.36	393.65	27.09	120.00	11/17/2012	10:47:23 PM	
2	9	B12-02720-11	1.450	5.33	395.94	27.20	120.00	11/18/2012	12:57:20 AM	

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
11-14-12	0803	B12-0276-056	[illegible]	0512	[illegible]
↓	↓	B12-0276-09	↓	↓	[illegible]
↓	↓	B12-0276-[illegible]	↓	↓	[illegible]
↓	↓	B12-0276-[illegible]	↓	↓	[illegible]
↓	↓	B12-0276-12	↓	↓	[illegible]
↓	↓	B12-0276-[illegible]	↓	↓	[illegible]
11-14-12	[illegible]	SOC 10	[illegible]	0[illegible]7	[illegible]
11-14-12	1[illegible]	Background	B12-[illegible]	0[illegible]0	[illegible]
↓	↓	B12-0256-[illegible]	↓	↓	[illegible]
↓	↓	B12-0256-[illegible]	↓	↓	[illegible]
↓	↓	B12-0256-[illegible]	↓	↓	[illegible]
↓	↓	B12-0256-[illegible]	↓	↓	[illegible]
↓	↓	B12-0256-[illegible]	↓	↓	[illegible]
↓	↓	B12-0256-[illegible]	↓	↓	[illegible]
↓	↓	B12-0256-[illegible]	↓	↓	[illegible]
↓	↓	B12-0256-[illegible]	↓	↓	[illegible]
↓	↓	B12-0256-[illegible]	↓	↓	[illegible]
↓	↓	B12-0256-10	↓	↓	[illegible]
11-16-12	0904	B12-0256-[illegible]	B12-0256	2306	[illegible]
11-16-12	1317	Background	B12-0272	0129	[illegible]

Reviewed By: [illegible] Date: 12-12-12
Initials

Beta Liquid Scintillation Counter Log Book

hnician nitials	Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials

Page 49 of 200
Cl 13
59 of 84

Reviewed By: SDR Date: 12-12-12
Initials

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Control Charts

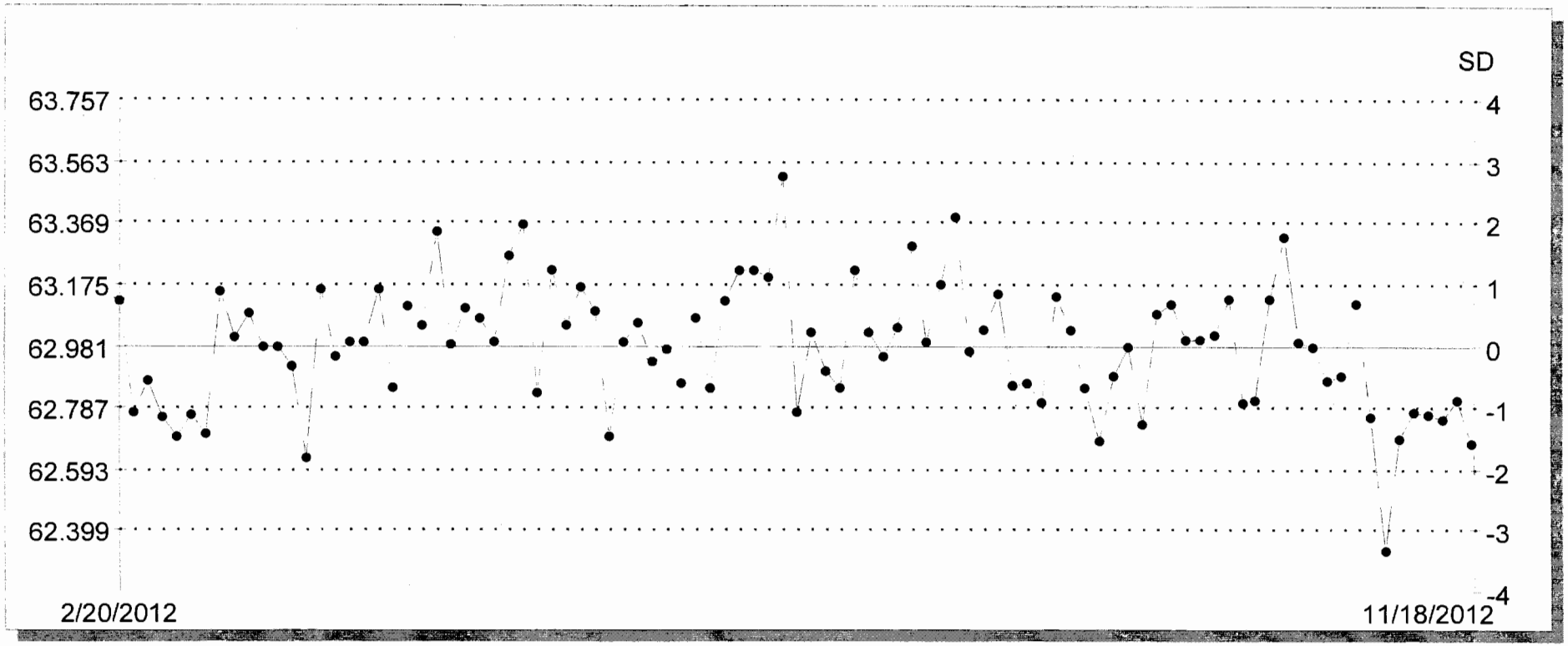
3H Efficiency
Total # pts : 5546
Valid # pts : 95
Mean : 62.98
SD : 0.19

Date	Value	Valid Pt
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X
Jun 30, 2012	62.97	X
Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X

Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 22, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X
Nov 12, 2012	62.77	X
Nov 13, 2012	62.76	X
Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X

3H Efficiency

Total # pts	: 5546
Valid # pts	: 95
Mean	: 62.98
SD	: 0.19

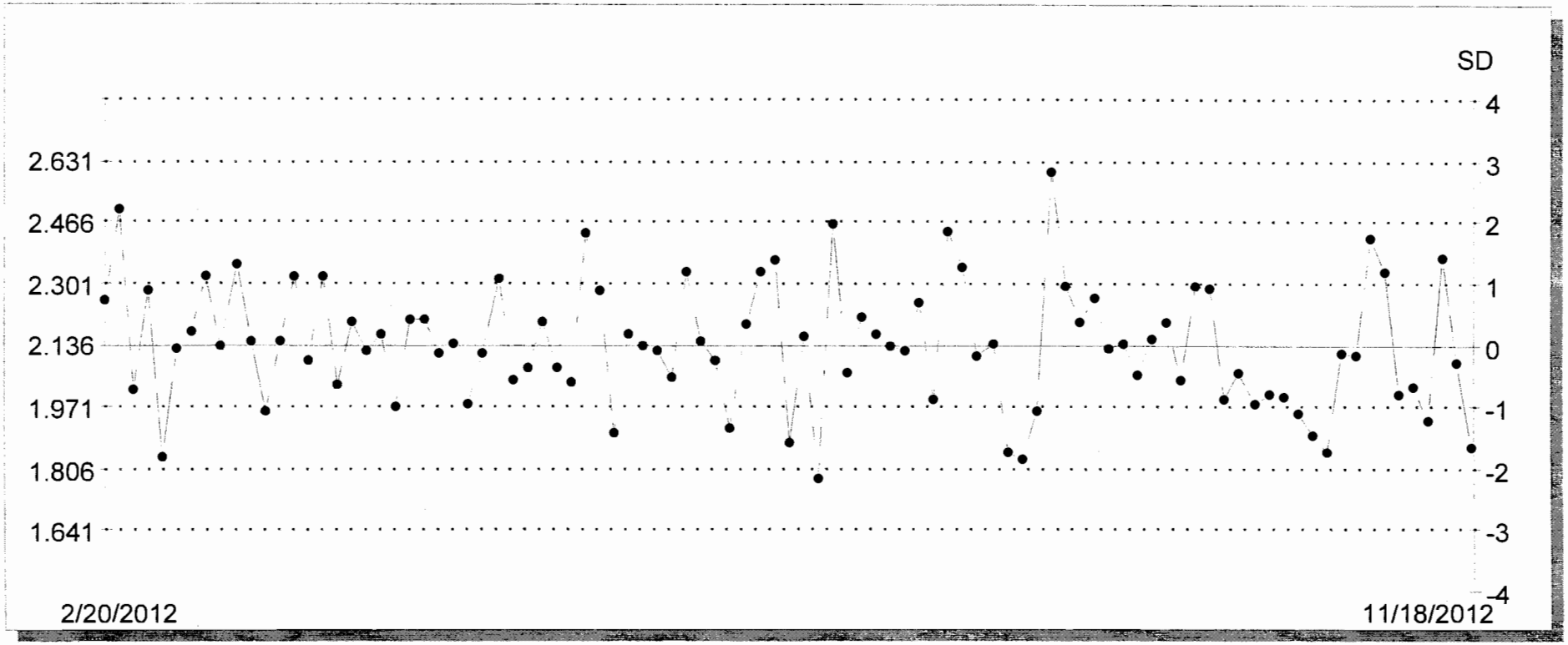


3H Background
Total # pts : 5472
Valid # pts : 95
Mean : 2.14
SD : 0.16

Date	Value	Valid Pt
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X
Jun 30, 2012	2.12	X
Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X

Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 22, 2012	2.19	X
Jul 26, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 08, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X
Nov 12, 2012	2.02	X
Nov 13, 2012	1.93	X
Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X

3H Background
Total # pts : 5472
Valid # pts : 95
Mean : 2.14
SD : 0.16



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Liquid Scintillation Counting

Calibration Information

ARS INTERNATIONAL

QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS

ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE: 9/10/2012 20:16 *date counted*
STANDARD REFERENCE #: S-0279

Principal Radionuclide		Half Life, Years		Half Life, Days
H-3	*ENTER -->*		*OR -->*	4.4998E+03
		1.232E+01		4.4998E+03

Radionuclide: H-3 Dilution Reference Date: 9/7/2012 10:40

Dilution Activity	2.58	pCi per gram ===> dpm/g	5.73
Verif. Date Decay Corrected	2.58	pCi per gram ===> dpm/g	5.72

Minimum of 3 Required

Trial ID	Sample Counts	Count Time (min)	Detector	Efficiency	Bkg. (cpm)	Net Weight	Decay Corrected Activity Result (dpm/g)	Decay Corrected Activity Result (pCi/g)
S-0279-V1	15.91	1	LSC	0.3302	6.49	5.019	5.68	2.56
S-0279-V2	16.21	1	LSC	0.3291	6.49	5.018	5.89	2.65
S-0279-V3	15.76	1	LSC	0.3290	6.49	5.018	5.62	2.53
S-0279-V4	15.62	1	LSC	0.3293	6.49	5.008	5.54	2.49
S-0279-V5	15.76	1	LSC	0.3280	6.49	5.018	5.63	2.54

	Average	5.67	2.55
	Two Sigma Uncertainty	0.26	0.12
10% Max *PASS*	Standard Deviation percent of known concentration	2.30%	2.30%
	Target Activity	5.72	2.58
5% Max *PASS*	% Diff	-0.91%	-0.91%

Verification Expiration Date: ##############

Prepared & Counted By: [signature] Date: 9/10/2012 20:16

Verified & Approved By: [signature] Date: 9-11-12 0817

QC Approval: [signature] Date: 9-11-12 0817

S-0279		
H-3	Verified	*9/10/12*
SL	**Expires**	**9/10/13**
Manufactuer	**NIST SRM 4927F**	
Sol Matrix	H2O	
Ref No	NIST SRM 4927F	
Tech	Unknown	
Parent ID	S-0237	

ARS INTERNATIONAL

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

H-3 Standard Verification

Verifier's Name: Brian Steffens **Date:** 9/7/2012

Pipettor ID: FJ40469

Pipettor ID: Auto-pipettor

Pipettor ID: na

Standard ID: S-0279

Standard ID: N/A

Standards brought up to ~5g with distilled dead water.
Standards made in glass vials.

15mL of Ultima Gold added to standard

	Weight of Standard
S-0279-V1	5.019 **g**
S-0279-V2	5.018 **g**
S-0279-V3	5.018 **g**
S-0279-V4	5.008 **g**
S-0279-V5	5.018 **g**

Balance ID: H1331122173560P

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931
Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\20120910_0931.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\H-3 Normal 3.lsa

Count Conditions-

Nuclide: H-3 Normal
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: UG STD H-3
Count Time (min): 120.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

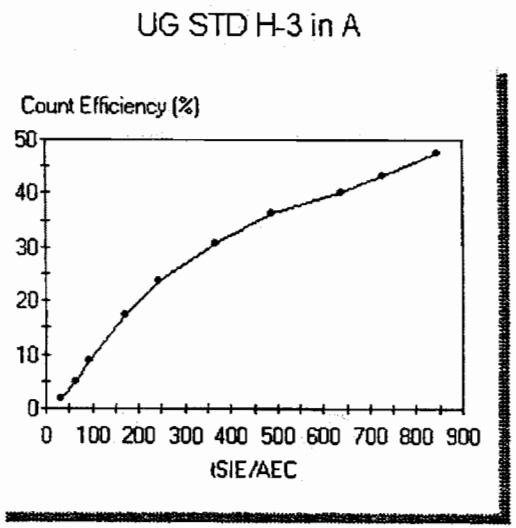
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life

Half Life Correction: Off
Regions Half Life Units Reference Date Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 06/27/2012
Date Modified:
UG STD H-3 in A

tSIE/AEC	Count Efficiency (%)
846.90	47.58
730.85	43.21
639.47	40.08
487.78	36.36
365.41	30.73
244.81	23.69
169.28	17.31
95.01	8.79
64.60	4.97
34.32	.64

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
54	1	BACKGROUND	6.49	19.81	409.74	32.77	120.00	9/10/2012	9:36:46 AM	
54	2	S-0279-V1	15.91	48.18	415.20	33.02	120.00	9/10/2012	11:44:40 AM	
54	3	S-0279-V2	16.21	49.25	412.72	32.91	120.00	9/10/2012	1:52:36 PM	
54	4	S-0279-V3	15.76	47.89	412.56	32.90	120.00	9/10/2012	4:00:32 PM	
54	5	S-0279-V4	15.62	47.44	413.22	32.93	120.00	9/10/2012	6:08:27 PM	
54	6	S-0279-V5	15.76	48.04	410.40	32.80	120.00	9/10/2012	8:16:20 PM	

STD ID: S-0279

ARS INTERNATIONAL

Add/Edit *Secondary Stds*

Planning

Planning Comments	Create a H3 LCS standard.
Target dpm/g (on dil. date)	5.5
Target Final volume mL	2000
Appx mass g of Parent Sol'n	3.606433954
Appx vol ml of Parent Sol'n	3.612937241
Expected Addition for Analysis g	5

Standards Preparation / Dilution

Secondary Solution #	S-0279
Dilution Date (New Ref Date)	09/07/2012 10:40
Ampoule, Empty (g)	
Ampoule /Solution Gross (g)	
Net Wt Removed (g)	
Transfer Container, empty (g)	13.144
Container Plus Solution (g)	16.89
Net Wt Transferred (g)	3.746
DPM Xferred on 09/07/2012 10:40	11425.69101
Diluent/matrix	DI H2O
Diluent Density Cont, empty (g)	
Test Mass of 5 ml of Diluent (g)	
Diluent Density Test - (g/mL)	
Dilution Empty Container Mass (g)	473.93
Dilution Full Cont g (If measured)	2469.52
Dilution Final Volume ml (If measured)	2000
Final Dilution Density (g/mL)	0.997795
Final Dilution Measured Mass g	1995.59

Comments: H3 LCS standard. Dilution performed as stated above by B Steffens. -BJS 9/7/12

Final Dilution dpm/g	5.725470166
Final Dil New Ref Date/Time	09/07/2012 10:40

Parent Standard Data

Parent Solution Reference #	NIST SRM 4927F			
Parent Solution #	S-0237			
Parent Principal Radionuclide	H-3	Half Life (Days)	4499.8000000	
Parent Reference Date	03/22/2010 10:10			
Parent Certified Act	3503.682716	Certi Act/Vol Units	dpm	g
Parent Cert Act Uncert 1 Sigma	0.0036			
Parent Sp. Gravity G/Ml	0.9982			
Parent Supplier	NIST SRM 4927F			
Parent Date Recvd	01/02/00			
Parent Received By	Unknown			
Parent Cert Exp Date				
Parent Matrix	H2O			
Certified dpm/g At Ref Date	3503.682716			
Certified dpm/g on 09/07/2012 10:40	3050.10438			
Parent Comments	Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Steffens. -BJS 3/22/10			
Parent Tech	Unknown			
Is_Primary	FALSE			
Is_LCS	TRUE			
Is_Tracer	FALSE			
Is_Calib	FALSE			

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Folder Duplicate

Report Compilation Checklist

ARS SDG: 12-02306 **Client Name:** LANL **Sample Matrix:** AQ

LEVEL 1 COMPONENTS	1st Reviewer	
1) Cover Page Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
2) Technical Review Checklist(s) Complete and Accurate?	~~Yes~~ No N/A	
3) Case Narrative Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
4) Form 1s Present for all Samples and Tests?	~~Yes~~ No N/A	
5) Client Specific Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 2 COMPONENTS	1st Reviewer	
6) Batch Quality Control Report is Present and Accurate?	~~Yes~~ No N/A	
7) DQO Report is Present and Accurate?	~~Yes~~ No N/A	
8) Client Specific Batch QC Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 3 COMPONENTS	1st Reviewer	
9) Efficiencies are Present?	Yes No N/A	
10) Calibrations are Present?	Yes No N/A	
11) Backgrounds are Present?	Yes No N/A	
12) Spectrum Analysis is Present?	Yes No N/A	
13) Spectral Plots are Present?	Yes No N/A	
14) Plateaus are Present?	Yes No N/A	
15) Control Charts are Present?	Yes No N/A	
16) Other:	Yes No N/A	

LEVEL 4 COMPONENTS	1st Reviewer	
17) Preparation Raw Data Present, Signed and Complete?	Yes No N/A	
18) Instrument Raw Data Present and Complete?	Yes No N/A	
19) Calibration Certificates Present?	Yes No N/A	
20) Copies of Log Book Pages Present?	Yes No N/A	
21) Sample Receiving Documentation Present?	Yes No N/A	
22) LIMS Reports Present?	Yes No N/A	
23) Applicable Correspondence Present?	Yes No N/A	
24) Other:	Yes No N/A	

SDh 12-12-12
Report Generator Signature **Date**

MM 12-13-12
Management Review Signature **Date**

LSC
Technical Review Checklist

ARS SDG ARS1-12-02306

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-B12-02720 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-021 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) Sample Prep Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Chemist Signature 11-16-12 Date N/A Verifier Review Signature Date

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature 12-13-12 Date

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) NCR # (If initiated): _____

Analyst Signature 11-19-12 Date N/A Technicial Reviewer Signature Date

Batch A: ARS1-B12-02720

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes No ~~N/A~~	Yes No ~~N/A~~
2) RDL Criteria are Met?	Yes No ~~N/A~~	Yes No ~~N/A~~
3) Method Blank Criterion Met?	Yes No ~~N/A~~	Yes No ~~N/A~~
4) LCS/LCD Criteria Met?	Yes No ~~N/A~~	Yes No ~~N/A~~
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	Yes No ~~N/A~~	Yes No ~~N/A~~
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No ~~N/A~~

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
SDh	12-12-12	[illegible]	12-13-12

GENERAL COMMENTS

LSC
Technical Review Checklist

ARS SDG ARS1-12-02306

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-B12-02721 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-022 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) Sample Prep Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Chemist Signature 12-4-12 Date Verifier Review Signature 12-4-12 Date

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature 12-13-12 Date

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) NCR # (If initiated): _____

Analyst Signature 12-10-12 Date Technicial Reviewer Signature 12-10-12 Date

Batch A: ARS1-B12-02721

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes ~~No~~ N/A	Yes ~~No~~ N/A
2) RDL Criteria are Met?	~~Yes~~ No N/A	~~Yes~~ No N/A
3) Method Blank Criterion Met?	~~Yes~~ No N/A	~~Yes~~ No N/A
4) LCS/LCD Criteria Met?	~~Yes~~ No N/A	~~Yes~~ No N/A
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	~~Yes~~ No N/A	~~Yes~~ No N/A
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No ~~N/A~~

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
SDL	12-12-12	[illegible]	12-13-12

GENERAL COMMENTS

DQO Report for SDG
ARS1-12-02306

Analysis Code	Group	Isotope	Activity Units	Aliquot Units	ProcedureNo	RDL	LCS_LL	LCS_UL	MS_LL	MS_UL	RadY_LL	RadY_UL	GravY_LL	GravY_LL	RER	RPD	DiltionReq	RoughPrepReq	BlankCorrectionMDA	BlankCorrectionAll	CountTimeReq	AliquotRequired
LSC-A-021	STD	H-3	pCi	L	ARS-054	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		
LSC-A-022	STD	Enriched H-3	pCi	L	ARS-040	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		

SDG Report - Samples and Containers

SDG Specific Data

SDG	ARS1-12-02306	TAT Days	28	Project Type	Environmental
Sample Count	4 Rpt Level 4	Date Received	11/15/2012	COC Number	2013-313
Client	Los Alamos National Laboratory	Client Deadline	12/15/2012	PO Number	63641-001-10
Client Code	114	Internal Deadline	12/14/2012	Job Number	
Profile Number	PN-00094	Lab Deadline	12/12/2012	Job Location	
Comments					

Samples and Containers (➔) Checked In Thus Far

FR	ClientID	Matrix	SampleStartDate	SampleEndDate	Disp	Hold	Arch	Storage	X	Units	Y	Units	Z	Units	Comments
001	CAMO-13-24245	AQ	11/12/12 10:58 AM	11/12/12 10:58 AM	H	90	5	E3							
➔	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126699	1	1000.00				80	24		N	N/A				
002	CAMO-13-24246	AQ	11/12/12 12:38 PM	11/12/12 12:38 PM	H	90	5	E3							
➔	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126700	1	1000.00				80	24		N	N/A				
003	CAMO-13-24249	AQ	11/09/12 12:17 PM	11/09/12 12:17 PM	H	90	5	E3							
➔	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126701	1	1000.00				90	24		Y	N/A				
004	CAMO-13-24250	AQ	11/09/12 04:04 PM	11/09/12 04:04 PM	H	90	5	E3							
➔	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126702	1	1000.00				80	24		N	N/A				

SDG Report - Analysis Assignments

Temp SDG	ARS1-12-02306	Sample Count	4
Client	Los Alamos National Laboratory	Analysis Count	2-8

Samples Count Totals per Analysis

Analysis Code	Analysis Description	Samples Count
LSC-A-021	Low Level Tritium Screen in (Aqueous)	4
LSC-A-022	Low Level Tritium by Enrichment Process in (Aqueous [AQ])	4

Analyses Assigned Per Fraction

Fraction	Analysis Code	X = Assigned
001	LSC-A-021	X
001	LSC-A-022	X
002	LSC-A-021	X
002	LSC-A-022	X
003	LSC-A-021	X
003	LSC-A-022	X
004	LSC-A-021	X
004	LSC-A-022	X

ARS FILE TRACKING SHEET

SDG: ARS1-12-02306

Task	Date / Time	Initials
Date & Time Samples Received	11/15/12 10:30	cad
ICOC Initiated / Storage Location: E3	11/15/12 12:12	cad
Technical Checks Performed	See Batch	
Report Written / EDD Generated: _____/_____|_____ Date/Time Initials	12-12-12/1407	SAA
Quality Assurance Checks Performed on Report	12-13-12	ZMM
Management Check Performed on Report	1311	
Preliminary Report Sent		
Report E-mailed		
Report Faxed		
Report Reviewed		
Report Mailed		
Invoice Completed Invoice #:_____		
Report Imaged		

SPECIAL REQUIREMENTS

Requirement	Yes	No
3 Hour Rush		✓
24 Hour Rush		✓
48 Hour Rush		✓
3 Day TAT		✓
5 Day TAT		✓

NOTES:

COMPANY NAME: LANL

SDG: ARS1-12-02306

SHIPPING CONTAINER

- Good Condition ☑ Yes ☐ No
- Radioactive ☐ Yes ☑ No
- UN2910 ☐ Yes ☐ No
- Sec. Seals ☑ Yes ☐ No
  - Seals Intact ☑ Yes ☐ No ☐ N/A
- Air Bill ☐ Yes ☑ No

COC PRESENT WITH SAMPLES

- COC ☑ Yes ☐ No

SAMPLE CONTAINER(S)

- Good Condition ☑ Yes ☐ No
- Sec. Seals ☑ Yes ☐ No
  - Seal Intact ☑ Yes ☐ No ☐ N/A
- Marked Radioactive ☐ Yes ☑ No
- # Samples Rcv 9 3
- Matrix [AF , AQ , BI , FE , LT , SI , SO , UR , VG]

External and Internal Surveys

Exposure Rate Meter:	M3 242861	Serial No.:	PR 264264	Calibration Due Date:	4-18-13
Count Rate Meter:	M2 154859	Serial No.:	PR 184559	Calibration Due Date:	4-18-13
Background Exposure Rate (µR/hr)	24	Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd)	28 µR/hr		
Background Count Rate (cpm)	80	Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd)	80 cpm		
		Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd)	80 cpm		

Sample Label/Comments/Notes	pH Orig (pH ≤ 2 is Acceptable)	pH Final	Mark if Preserve	Acid Lot #	Weight(g) / Volume(mL)	µR/hr (Acceptance Limits <500 µR/hr)	cpm (Acceptance Limits <100 cpm/cm²)
CASH-13-24210			☐		1000mL	24	80
			☐				
CAMO-13-24245			☐		1000 mL	24	80
-24246			☐		↓	24	80
-24249			☐			24	90
-24250			☐		↓	24	80
			☐				
CAMO-13-24253			☐		1000mL	24	90
-24228			☐		↓	24	90
			☐				
WST54-13-24790			☐		2410g	26	90
			☐				
CASA-13-24211			☐		1000mL	24	80
			☐				
			☐				
			☐				
			☐				
			☐				
			☐				

11/15/12

Surveyors' Name: [signature]

Date/Time Surveyed: 11/15/12 1030

* these samples only in this SDG.

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-312

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

- 24 Hour - ☐
- Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CASA-13-24210	Nov 13 2012	12:59	W			1			1	1	
CASA-13-24218	Nov 13 2012	12:59	W	1	1		1	1			

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 11/14/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24210 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/13/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1259	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-35a	↓	FIELD PREP:	UF	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Sampled ~~do~~ as 11/13/12 operated from diesel generator ~40'

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 4.90 mg/L Oxidation-Reduction Potential 169.8 MV pH 8.08 SU

Specific Conductance 241 uS/cm Temperature 22.66 deg C Turbidity 1.88 NTU

COLLECTED BY (PRINT) D. Woody

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Andrew Stocker	11/13/12 1355	(Printed Name) S. Sherwood	11/13/12 1355
(Signature) Andrew Stocker		(Signature) Sheri Sherwood	
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24218 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/13/2012	FIELD MATRIX:	WG	gr
TIME COLLECTED (HH:MM):		1259	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-35a	↓	FIELD PREP:	F	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
↓	WSP-GENINORG	1 LITER POLY	1	ICE	↓	↓
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS:

LOCATION COMMENTS: refer to CASA-13-24210

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) D. Woody

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Andrew Stryker (Signature)	11/13/12 1355	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	11/13/12 1355
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-312

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
315267	EPA:120.1	1				
315267	EPA:150.1	1				
315267	EPA:160.1	1				
315267	EPA:245.2	1				
315267	EPA:300.0	1				
315267	EPA:310.1	1				
315267	EPA:350.1	1				
315267	EPA:351.2	1				
315267	EPA:353.2	1				
315267	EPA:365.4	1				
315267	EPA:900	1				
315267	EPA:901.1	1				
315267	EPA:905.0	1				
315267	HASL-300:AM-241	1				
315267	HASL-300:ISOPU	1				
315267	HASL-300:ISOU	1				
315267	SM:A2340B	1				
315267	SW-846:6010B	1				
315267	SW-846:6020	1				
315267	SW-846:6850	1				
315267	SW-846:9060	1				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
315267	EPA:120.1	1267060	1267060	1							
315267	EPA:150.1	1264084	1264084	1							
315267	EPA:160.1	1264080	1264080	1					1		
315267	EPA:245.2	1266834	1266827	1					1	1	
315267	EPA:300.0	1264118	1264118	1					1		
315267	EPA:310.1	1265667	1265667	1					2	1	
315267	EPA:350.1	1265956	1265955	1					1	1	1
315267	EPA:351.2	1265958	1265957	1					1	1	
315267	EPA:353.2	1263016	1263016	1					1		
315267	EPA:365.4	1263579	1263578	1					1	1	1
315267	EPA:900	1268150	1268150	1					1	1	1
315267	EPA:901.1	1264174	1264174	1					1		
315267	EPA:905.0	1264650	1264650	1					1	1	
315267	HASL-300:AM-241	1263626	1263626	1					1		
315267	HASL-300:ISOPU	1263628	1263628	1					1		
315267	HASL-300:ISOU	1263630	1263630	1					1		
315267	SM:A2340B	1270131	1270131	1							
315267	SW-846:6010B	1264954	1264953	1					1	1	
315267	SW-846:6020	1264956	1264955	1					1	1	
315267	SW-846:6850	1265809	1265808	1					1	2	2
315267	SW-846:9060	1262822	1262822	1					1		

2. Distribution Of Analytes In EDD.

Data Validation Report for: Chain Of Custody No. 2013-312

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		2				1			
		1				1			
		1				1			
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1							
		1				1			

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CASA-13-24218	315267002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CASA-13-24219	1202788865	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202788867	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24218	1202781923	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24218	315267002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202781924	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CASA-13-24218	1202781912	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CASA-13-24218	315267002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202781913	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202781910	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24281	1202788351	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24281	1202788352	MS	0	0	1	0
EPA:245.2	INORGANIC	CASA-13-24218	315267002	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202788350	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202788349	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CASA-13-24218	1202781991	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CASA-13-24218	315267002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202781993	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202781990	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CASA-13-24218	1202785460	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CASA-13-24218	1202785461	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CASA-13-24218	315267002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202785453	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202792015	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202785452	MB	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202792014	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	1202786154	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	1202786155	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	1202786156	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	315267002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202786157	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202786153	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24210	1202786159	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24210	1202786161	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24210	315267001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202786165	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202786158	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24266	1202780694	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CASA-13-24218	315267002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202779484	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202779479	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	SWWS46-13-24772	1202782515	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	1202786124	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	1202786125	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	1202786126	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	315267002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202780727	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202780723	MB	1	0	0	0
EPA:900	RAD	CAMO-13-24249	1202791496	DUP	2	0	0	0
EPA:900	RAD	CAMO-13-24249	1202791497	MS	0	0	2	0
EPA:900	RAD	CAMO-13-24249	1202791498	MSD	0	0	2	0
EPA:900	RAD	CASA-13-24210	315267001	REG	2	0	0	0
EPA:900	RAD	LCS	1202791499	LCS	0	0	2	0
EPA:900	RAD	MB	1202791495	MB	2	0	0	0

EPA:901.1	RAD	CASA-13-24210	315267001	REG	5	0	0	0
EPA:901.1	RAD	CASA-13-24212	1202782105	DUP	6	0	0	0
EPA:901.1	RAD	LCS	1202782106	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202782104	MB	6	0	0	0
EPA:905.0	RAD	CASA-13-24206	1202783219	DUP	1	0	0	0
EPA:905.0	RAD	CASA-13-24206	1202783220	MS	0	0	1	0
EPA:905.0	RAD	CASA-13-24210	315267001	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202783221	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202783218	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24245	1202780817	DUP	1	0	0	0
HASL-300:AM-241	RAD	CASA-13-24210	315267001	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202780818	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202780816	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24245	1202780820	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CASA-13-24210	315267001	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202780821	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202780819	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24245	1202780829	DUP	3	0	0	0
HASL-300:ISOU	RAD	CASA-13-24210	315267001	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202780830	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202780828	MB	3	0	0	0
SM:A2340B	INORGANIC	CASA-13-24218	315267002	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAPA-13-24782	1202783824	DUP	22	0	0	0
SW-846:6010B	INORGANIC	CAPA-13-24782	1202783825	MS	0	0	22	0
SW-846:6010B	INORGANIC	CASA-13-24218	315267002	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202783823	LCS	0	0	22	0
SW-846:6010B	INORGANIC	MB	1202783822	MB	22	0	0	0
SW-846:6020	INORGANIC	CASA-13-24218	1202783829	DUP	13	0	0	0
SW-846:6020	INORGANIC	CASA-13-24218	1202783830	MS	0	0	13	0
SW-846:6020	INORGANIC	CASA-13-24218	315267002	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202783828	LCS	0	0	13	0
SW-846:6020	INORGANIC	MB	1202783827	MB	13	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24268	1202785742	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24268	1202785743	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24218	315267002	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202785741	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202785740	MB	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	WST50-12-23903	1202785744	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	WST50-12-23903	1202785745	MSD	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24245	1202778961	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CASA-13-24210	315267001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202778963	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202778960	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202788349	METHOD BLANK	EPA:245.2	W	Mercury	-0.081	J	ug/L	0.2

Any samples affected by the presence of contaminants in blanks?

Field Sample ID	Blank Field Sample ID	Blank Lab Sample ID	Blank Type	Analytical Method	Parameter Name	Units	Blank Result	Sample Result	Lab Qualifier	Detect Limit	Detected
CASA-13-24218	MB	1202788349	METHOD BLANK	EPA:245.2	Mercury	ug/L	-0.081	0.067	U	0.2	N

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CASA-13-24218	1202786155	1202786156	EPA:350.1	Ammonia as Nitrogen	1265955	11/27/2012	W	93.1	110	110	90
CASA-13-24218	1202786155	1202786156	EPA:350.1	Ammonia as Nitrogen	1265955	11/27/2012	W	93.1	110	110	90
CASA-13-24210	1202786161		EPA:351.2	Total Kjeldahl Nitrogen	1265957	12/7/2012	W	88.1		110	90
CASA-13-24210	1202786161		EPA:351.2	Total Kjeldahl Nitrogen	1265957	12/7/2012	W	88.1		110	90

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-35a	2013-312	CASA-13-24210	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N

Correction Factor (ND)	Correction Factor (J)	Use Factors
5		Y

Rejection Limit	RPD	RPD Limit
10	15.9	15
10	15.9	15
10		
10		

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
-0.00381	pCi/L	-0.00381	pCi/L	0.0217	0.00762	W	11/13/2012		1263626	VAL	Y

R-35a	2013-312	CASA-13-24210	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-35a	2013-312	CASA-13-24210	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-35a	2013-312	CASA-13-24210	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-35a	2013-312	CASA-13-24210	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-35a	2013-312	CASA-13-24210	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-35a	2013-312	CASA-13-24210	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-35a	2013-312	CASA-13-24210	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-35a	2013-312	CASA-13-24210	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-35a	2013-312	CASA-13-24210	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-35a	2013-312	CASA-13-24210	REG	INIT	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	U	UJ	I6a	N
R-35a	2013-312	CASA-13-24210	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N

Reason Code	Description
I6a	The associated matrix spike recovery was below the lower acceptance limit (LAL) but >10%. Follow the external laboratory limits located within the associated data package.
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CASA-13-24210	R-35a	REG	EPA:351.2	0	1
CASA-13-24210	R-35a	REG	EPA:900	0	2
CASA-13-24210	R-35a	REG	EPA:901.1	0	5
CASA-13-24210	R-35a	REG	EPA:905.0	0	1
CASA-13-24210	R-35a	REG	HASL-300:AM-241	0	1
CASA-13-24210	R-35a	REG	HASL-300:ISOPU	0	2
CASA-13-24210	R-35a	REG	HASL-300:ISOU	0	3
CASA-13-24210	R-35a	REG	SW-846:9060	0	1
CASA-13-24218	R-35a	REG	EPA:120.1	0	1
CASA-13-24218	R-35a	REG	EPA:150.1	0	1
CASA-13-24218	R-35a	REG	EPA:160.1	0	1
CASA-13-24218	R-35a	REG	EPA:245.2	0	1
CASA-13-24218	R-35a	REG	EPA:300.0	0	4
CASA-13-24218	R-35a	REG	EPA:310.1	0	2
CASA-13-24218	R-35a	REG	EPA:350.1	0	1
CASA-13-24218	R-35a	REG	EPA:353.2	0	1
CASA-13-24218	R-35a	REG	EPA:365.4	0	1
CASA-13-24218	R-35a	REG	SM:A2340B	0	1
CASA-13-24218	R-35a	REG	SW-846:6010B	0	17
CASA-13-24218	R-35a	REG	SW-846:6020	0	11
CASA-13-24218	R-35a	REG	SW-846:6850	0	1

-1.28	pCi/L	-1.28	pCi/L	5.25	1.56	W	11/13/2012		1264174	VAL	Y
1.75	pCi/L	1.75	pCi/L	5.3	1.25	W	11/13/2012		1264174	VAL	Y
1.22	pCi/L	1.22	pCi/L	2.04	0.69	W	11/13/2012		1268150	VAL	Y
-3.15	pCi/L	-3.15	pCi/L	9.64	2.81	W	11/13/2012		1264174	VAL	Y
-0.00916	pCi/L	-0.00916	pCi/L	0.022	0.00857	W	11/13/2012		1263628	VAL	Y
0.00687	pCi/L	0.00687	pCi/L	0.0366	0.00606	W	11/13/2012		1263628	VAL	Y
-15.7	pCi/L	-15.7	pCi/L	71.3	19.5	W	11/13/2012		1264174	VAL	Y
-1.18	pCi/L	-1.18	pCi/L	5.13	1.5	W	11/13/2012		1264174	VAL	Y
0.458	pCi/L	0.458	pCi/L	0.482	0.154	W	11/13/2012		1264650	VAL	Y
0.033	mg/L	0.033	mg/L			W	11/13/2012		1265958	VAL	Y
0.00983	pCi/L	0.00983	pCi/L	0.0384	0.00867	W	11/13/2012		1263630	VAL	Y

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

December 12, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 315267
SDG: 2013-312

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 15, 2012, and analyzed for General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-312
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 315267
SDG: 2013-312

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....8

Perchlorates by LCMSMS Analysis.....10

Case Narrative.....11

Sample Data Summary.....17

Quality Control Summary.....19

Quality Control Data.....22

Miscellaneous.....28

Metals Analysis.....30

Case Narrative.....31

Sample Data Summary.....37

Quality Control Summary.....41

General Chem Analysis.....55

Case Narrative.....56

Sample Data Summary.....84

Quality Control Summary.....89

Miscellaneous.....94

Radiological Analysis.....98

Sample Data Summary.....110

Quality Control Data.....113

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 315267
SDG # : 2013-312

December 12, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 15, 2012 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
315267001	CASA-13-24210
315267002	CASA-13-24218

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Hope Taylor for
Valerie Davis
Project Manager

List of current GEL Certifications as of 12 December 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

315267

COC/Lab Request #: 2013-312

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CASA-13-24210	Nov 13 2012	12:59	W			1			1	1
CASA-13-24218	Nov 13 2012	12:59	W	1	1		1	1		

Special Instructions:

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 11/14/12 3:00	Received by:	11/15/12 0900
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/AR/COC/Work Order:** 2013-312
Received By: H. Taylor	**Date Received:** 111512

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0CPM
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			✓	Sample ID's, containers affected and observed pH: CASA-13-24210 If Preservation added, Lot#: LC8022
6	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
7	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			
14	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 5462 9832 5333-4 ✓ ✓ 5344-4

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials HT Date 111612 Page 1 of 1

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 14NOV12
ACTWGT: 35.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

4

FedEx Express

2 of 2
MPS# 0263 5462 9832 5344
Mstr# 5462 9832 5333

THU - 15 NOV A1
PRIORITY OVERNIGHT
0201

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 14NOV12
ACTWGT: 43.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

4

FedEx Express

1 of 2
TRK# 0201 5462 9832 5333
MASTER

THU - 15 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC/MSMS
ARS International (ARSL)
SDG 2013-312

Method/Analysis Information

Procedure:	**Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method:	SW846 6850 Modified
Prep Method:	SW846 6850 Modified
Analytical Batch Number:	1265809
Prep Batch Number:	1265808

Sample Analysis

Sample ID	Client ID
315267002	CASA-13-24218
1202785746	Interference Check Sample (ICS)
1202785740	Method Blank (MB)
1202785741	Laboratory Control Sample (LCS)
1202785742	315450004(CAMO-13-24268) Matrix Spike (MS)
1202785743	315450004(CAMO-13-24268) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 9.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

ICV Requirements
All associated initial calibration verification standards (ICV) met the acceptance criteria.

CCB Requirements
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

CCV Requirements
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

Low Level Standard (CRI) Requirements
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Interference Check Sample (ICS)
The interference check sample (ICS) met all recovery acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Client sample 315450004 (CAMO-13-24268) from SDG 2013-334 was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
A low recovery for Perchlorate-101 was observed in MS (1202785742). The acceptance range is 75-125%. This may be the result of the background concentration or matrix effect present in the parent sample, 315450004 (CAMO-13-24268), and the need to dilute all at a 1:10 dilution prior to analysis.

Matrix Spike Duplicate (MSD) Recovery Statement
A negative recovery for Perchlorate-101 was observed in MSD (1202785743). The acceptance range is 75-125%. This may be the result of the background concentration or matrix effect present in the parent sample, 315450004 (CAMO-13-24268), and the need to dilute all at a 1:10 dilution prior to analysis.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits.

Retention Time Standard Area Acceptance
The retention time standard areas were within the required acceptance criteria for all samples and QC.

Retention Time
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
QC samples 1202785742 (CAMO-13-24268MS) and 1202785743 (CAMO-13-24268MSD) were diluted to bring the over range concentrations within the calibration range.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG.

Miscellaneous Information

Data Exception (DER) Documentation
Data Exception Report 1146217 was generated for this SDG.

A low recovery for Perchlorate-101 was observed in MS (1202785742). The acceptance range is 75-125%. This may be the result of the background concentration or matrix effect present in the parent sample, 315450004 (CAMO-13-24268), and the need to dilute all at a 1:10 dilution prior to analysis.

A negative recovery for Perchlorate-101 was observed in MSD (1202785743). The acceptance range is 75-125%. This may be the result of the background concentration or matrix effect present in the parent sample, 315450004 (CAMO-13-24268), and the need to dilute all at a 1:10 dilution prior to analysis.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

Additional Comments
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples.

Please see the isotope ratio criteria in the Miscellaneous Section.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-312 GEL Work Order: 315267

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 06 DEC 2012 **Title: Group Leader**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24218

Date Received: 15-NOV-12

GEL Job No (SDG): 2013-312

GEL Sample ID: 315267002

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.420	ug/L		1	28-NOV-12 15:19	per1128015a
	Perchlorate Isotope Ratio			3.11			1	28-NOV-12 15:19	per1128015a
14797-73-0	Perchlorate-101	.05	.2	0.431	ug/L		1	28-NOV-12 15:19	per1128015a
	Perchlorate-O(18)			0.521	ug/L		1	28-NOV-12 15:19	per1128015a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2013-312

Extract Batch Code: 1265808

Date Filtered: 27-NOV-12

Matrix: WATER

Sample ID: 1202785741

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.195	ug/L	97.3		85 - 115
Perchlorate Isotope Ratio		3.2				-
Perchlorate-101	0.200	.195	ug/L	97.3		85 - 115
Perchlorate-O(18)		.492	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2013-312

Extract Batch Code: 1265808

Date Extracted: 27-NOV-12

GEL MS/PS ID: 1202785742

Client ID: CAMO-13-24268

GEL MSD/PSD ID: 1202785743

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Recovery Limit
Perchlorate	0.200	6.13	ug/L	6.31	90.5		6.37	121		.968		30	75 - 125
Perchlorate Isotope Ratio	0	3.05		3.14			3.2			2.03			-
Perchlorate-101	0.200	6.29	ug/L	6.30	4.99	*	6.23	-28.4	*	1.07		30	75 - 125
Perchlorate-O(18)	0	4.99	ug/L	5.05			5.06			.136			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 27-NOV-12

GEL Job No (SDG): 2013-312

GEL Sample ID: 1202785740

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	28-NOV-12 14:44	per1128012a
	Perchlorate Isotope Ratio						1	28-NOV-12 14:44	per1128012a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	28-NOV-12 14:44	per1128012a
	Perchlorate-O(18)			0.500	ug/L		1	28-NOV-12 14:44	per1128012a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 27-NOV-12

GEL Job No (SDG): 2013-312

GEL Sample ID: 1202785741

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.195	ug/L	J	1	28-NOV-12 14:56	per1128013a
	Perchlorate Isotope Ratio			3.2			1	28-NOV-12 14:56	per1128013a
14797-73-0	Perchlorate-101	.05	.2	0.195	ug/L	J	1	28-NOV-12 14:56	per1128013a
	Perchlorate-O(18)			0.492	ug/L		1	28-NOV-12 14:56	per1128013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2013-312

GEL Sample ID: 1202785746

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.198	ug/L	J	1	28-NOV-12 15:08	per1128014a
	Perchlorate Isotope Ratio			3.07			1	28-NOV-12 15:08	per1128014a
14797-73-0	Perchlorate-101	.05	.2	0.206	ug/L		1	28-NOV-12 15:08	per1128014a
	Perchlorate-O(18)			0.522	ug/L		1	28-NOV-12 15:08	per1128014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24268MS

Date Received: 17-NOV-12

GEL Job No (SDG): 2013-312

GEL Sample ID: 1202785742

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	6.31	ug/L		10	30-NOV-12 14:22	per1130013a
	Perchlorate Isotope Ratio			3.14			10	30-NOV-12 14:22	per1130013a
14797-73-0	Perchlorate-101	.5	2	6.30	ug/L		10	30-NOV-12 14:22	per1130013a
	Perchlorate-O(18)			5.05	ug/L		10	30-NOV-12 14:22	per1130013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1265808

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24268MSD

Date Received: 17-NOV-12

GEL Job No (SDG): 2013-312

GEL Sample ID: 1202785743

Date Filtered: 27-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	6.37	ug/L		10	30-NOV-12 14:33	per1130014a
	Perchlorate Isotope Ratio			3.2			10	30-NOV-12 14:33	per1130014a
14797-73-0	Perchlorate-101	.5	2	6.23	ug/L		10	30-NOV-12 14:33	per1130014a
	Perchlorate-O(18)			5.06	ug/L		10	30-NOV-12 14:33	per1130014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
05-DEC-12	Federal	Others	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LC-MS/MS	SW846-6850 Modified	Liquid	ARSL001
Batch ID:	**Sample Numbers:**		
1265809	See below		

Potentially affected work order(s)(SDG): 315267(2013-312),315285(2013-311),315351(2013-321),315352(2013-322),315450(2013-334)

Application Issues:

Failed Recovery for MS/PS

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Spike recoveries outside the acceptance range of 75-125% were observed for MS (1202785744) and MSD (1202785745). Please see the Form 3 in the data package for a complete list of recoveries. 2. Low recovery for Perchlorate-101 was observed in MS (1202785742). The acceptance range is 75-125%. 3. A negative recovery for Perchlorate-101 was observed in MSD (1202785743). The acceptance range is 75-125%.	1. The outliers observed in the matrix spikes may be the result of the background concentration present in the parent sample, 315285003, and the need to dilute all at a 1:250 dilution prior to analysis. 2. & 3. The outliers observed in the matrix spikes may be the result of the background concentration present in the parent sample, 315450004, and the need to dilute all at a 1:10 dilution prior to analysis.

Originator's Name:

Charles Wilson 05-DEC-12

Data Validator/Group Leader:

Michael Penny 05-DEC-12

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-312

Sample Analysis

Sample ID	Client ID
315267002	CASA-13-24218
1202783822	Method Blank (MB) **ICP**
1202783823	Laboratory Control Sample (LCS)
1202783826	315453014(CAPA-13-24782L) Serial Dilution (SD)
1202783824	315453014(CAPA-13-24782D) Sample Duplicate (DUP)
1202783825	315453014(CAPA-13-24782S) Matrix Spike (MS)
1202783827	Method Blank (MB) **ICP-MS**
1202783828	Laboratory Control Sample (LCS)
1202783831	315267002(CASA-13-24218L) Serial Dilution (SD)
1202783829	315267002(CASA-13-24218D) Sample Duplicate (DUP)
1202783830	315267002(CASA-13-24218S) Matrix Spike (MS)
1202788349	Method Blank (MB) **CVAA**
1202788350	Laboratory Control Sample (LCS)
1202788353	315353002(CAMO-13-24281L) Serial Dilution (SD)
1202788351	315353002(CAMO-13-24281D) Sample Duplicate (DUP)
1202788352	315353002(CAMO-13-24281S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1264954, 1264956, 1266834 and 1270131
Prep Batch :	1264953, 1264955 and 1266827
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 8
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B
Prep Method :	SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 315453014 (CAPA-13-24782)-ICP, 315267002 (CASA-13-24218)-ICP-MS and 315353002 (CAMO-13-24281)-CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral

element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instruments. Dilutions were required for this SDG in order to minimize tin suppression due to matrix interferences.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Nick Cole A. Elmore **Date:** 12.12.12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-312 GEL Work Order: 315267

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by Nick-Cole A. Elmore 12-12-12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-312 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 315267002 **BASIS:** As Received **DATE COLLECTED** 13-NOV-12

CLIENT ID: CASA-13-24218 **LEVEL:** Low **DATE RECEIVED** 15-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/30/12 08:53	113012W1-4	1266834

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-312 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 315267002 **BASIS:** As Received **DATE COLLECTED** 13-NOV-12

CLIENT ID: CASA-13-24218 **LEVEL:** Low **DATE RECEIVED** 15-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	12/05/12 14:29	120512A-1	1264954
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	SKJ	12/05/12 04:40	121204-3	1264956
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	SKJ	12/05/12 04:40	121204-3	1264956
7440-39-3	Barium	361	ug/L		1	5	5	1	P	HSC	12/05/12 14:29	120512A-1	1264954
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	12/05/12 14:29	120512A-1	1264954
7440-42-8	Boron	39.7	ug/L	J	15	50	50	1	P	HSC	12/05/12 14:29	120512A-1	1264954
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	SKJ	12/05/12 04:40	121204-3	1264956
7440-70-2	Calcium	22300	ug/L		50	200	200	1	P	HSC	12/05/12 14:29	120512A-1	1264954
7440-47-3	Chromium	6.25	ug/L	J	2	10	10	1	MS	SKJ	12/05/12 04:40	121204-3	1264956
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	12/05/12 14:29	120512A-1	1264954
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	12/05/12 14:29	120512A-1	1264954
7439-89-6	Iron	48.2	ug/L	J	30	100	100	1	P	HSC	12/05/12 14:29	120512A-1	1264954
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	SKJ	12/05/12 04:40	121204-3	1264956
7439-95-4	Magnesium	6080	ug/L		110	300	300	1	P	HSC	12/05/12 14:29	120512A-1	1264954
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	12/05/12 14:29	120512A-1	1264954
7439-98-7	Molybdenum	1.36	ug/L		0.165	0.5	0.5	1	MS	SKJ	12/05/12 04:40	121204-3	1264956
7440-02-0	Nickel	14.9	ug/L		0.5	2	2	1	MS	SKJ	12/05/12 04:40	121204-3	1264956
7440-09-7	Potassium	4030	ug/L		50	150	150	1	P	HSC	12/05/12 14:29	120512A-1	1264954
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	SKJ	12/05/12 04:40	121204-3	1264956
7631-86-9	Silica	81900	ug/L		53	213	213	1	P	HSC	12/05/12 14:29	120512A-1	1264954
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	SKJ	12/05/12 04:40	121204-3	1264956
7440-23-5	Sodium	18800	ug/L		100	300	300	1	P	HSC	12/05/12 14:29	120512A-1	1264954
7440-24-6	Strontium	181	ug/L		1	5	5	1	P	HSC	12/05/12 14:29	120512A-1	1264954
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	SKJ	12/05/12 04:40	121204-3	1264956
7440-31-5	Tin	50	ug/L	U	12.5	50	50	5	P	HSC	12/06/12 13:23	120612A-2	1264954
7440-61-1	Uranium	0.693	ug/L		0.067	0.2	0.2	1	MS	SKJ	12/05/12 04:40	121204-3	1264956
7440-62-2	Vanadium	17.5	ug/L		1	5	5	1	P	HSC	12/05/12 14:29	120512A-1	1264954
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	12/05/12 14:29	120512A-1	1264954

METALS

INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-312 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 315267002 **BASIS:** As Received **DATE COLLECTED** 13-NOV-12

CLIENT ID: CASA-13-24218 **LEVEL:** Low **DATE RECEIVED** 15-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	80.6	mg/L		0.453	1.24	1.24	1		BCD1	12/12/12 16:21		1270131

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1264954	1264953	SW846 3005A	50	mL	50	mL	11/26/12	MTM1
1264956	1264955	SW846 3005A	50	mL	50	mL	11/26/12	MTM1
1266834	1266827	EPA 245.1/245.2 Prep	20	mL	20	mL	11/29/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−312

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202783822								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	50	ug/L	+/−150	U	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202783827								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202788349								
	Mercury	−0.081	ug/L	+/−0.2	J	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−312 **Client ID** CAPA−13−24782S

Contract: LANL00110 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315453014 **Spike ID:** 1202783825

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5430		68	U	5000	108		P
Barium	ug/L	75−125	526		1	U	500	105		P
Beryllium	ug/L	75−125	528		1	U	500	106		P
Boron	ug/L	75−125	521		15	U	500	104		P
Calcium	ug/L	75−125	5310		53.2	J	5000	105		P
Cobalt	ug/L	75−125	521		1	U	500	104		P
Copper	ug/L	75−125	529		3	U	500	106		P
Iron	ug/L	75−125	5440		30	U	5000	108		P
Magnesium	ug/L	75−125	5500		110	U	5000	110		P
Manganese	ug/L	75−125	531		2.59	J	500	106		P
Potassium	ug/L	75−125	5380		50	U	5000	108		P
Silica	ug/L	75−125	11100		98.8	J	10700	103		P
Sodium	ug/L	75−125	6000		140	J	5000	117		P
Strontium	ug/L	75−125	540		1	U	500	108		P
Tin	ug/L	75−125	521		2.5	U	500	104		P
Vanadium	ug/L	75−125	531		1	U	500	106		P
Zinc	ug/L	75−125	504		3.3	U	500	101		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−312 **Client ID** CASA−13−24218S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315267002 **Spike ID:** 1202783830

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	200		1	U	200	99.6		MS
Arsenic	ug/L	75−125	76.1		1.7	U	80	95		MS
Cadmium	ug/L	75−125	10.2		0.11	U	10	102		MS
Chromium	ug/L	75−125	50.9		6.25	J	50	89.4		MS
Lead	ug/L	75−125	40.7		0.5	U	40	102		MS
Molybdenum	ug/L	75−125	50.7		1.36		50	98.6		MS
Nickel	ug/L	75−125	60.1		14.9		50	90.4		MS
Selenium	ug/L	75−125	19.6		1.5	U	20	97.4		MS
Silver	ug/L	75−125	51.2		0.2	U	50	102		MS
Thallium	ug/L	75−125	94.4		0.45	U	100	94.4		MS
Uranium	ug/L	75−125	51.3		0.693		50	101		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−312 **Client ID** CAMO−13−24281S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315353002 **Spike ID:** 1202788352

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.11		0.067	U	2	106		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−312 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAPA−13−24782D

Matrix: LIQUID **Level:** Low

Sample ID: 315453014 **Duplicate ID:** 1202783824 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L		1	U	1	U			P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	15	U			P
Calcium	ug/L	+/−200	53.2	J	54.3	J	2.11		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L		3	U	3	U			P
Iron	ug/L		30	U	30	U			P
Magnesium	ug/L		110	U	110	U			P
Manganese	ug/L	+/−10	2.59	J	2.87	J	10.2		P
Potassium	ug/L		50	U	50	U			P
Silica	ug/L	+/−213	98.8	J	149	J	40.3		P
Sodium	ug/L	+/−300	140	J	191	J	31.1		P
Strontium	ug/L		1	U	1	U			P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L		1	U	1	U			P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−312 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CASA−13−24218D

Matrix: LIQUID **Level:** Low

Sample ID: 315267002 **Duplicate ID:** 1202783829 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	6.25	J	5.64	J	10.2		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.36		1.28		6.21		MS
Nickel	ug/L	+/−20%	14.9		13.8		7.97		MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.693		0.637		8.42		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−312 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24281D

Matrix: LIQUID **Level:** Low

Sample ID: 315353002 **Duplicate ID:** 1202788351 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−312

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783823								
	Aluminum	ug/L	5000	5180		104	80−120	P
	Barium	ug/L	500	508		102	80−120	P
	Beryllium	ug/L	500	514		103	80−120	P
	Boron	ug/L	500	505		101	80−120	P
	Calcium	ug/L	5000	5100		102	80−120	P
	Cobalt	ug/L	500	499		99.8	80−120	P
	Copper	ug/L	500	516		103	80−120	P
	Iron	ug/L	5000	5250		105	80−120	P
	Magnesium	ug/L	5000	5280		106	80−120	P
	Manganese	ug/L	500	515		103	80−120	P
	Potassium	ug/L	5000	5150		103	80−120	P
	Silica	ug/L	10700	10600		98.8	80−120	P
	Sodium	ug/L	5000	5540		111	80−120	P
	Strontium	ug/L	500	519		104	80−120	P
	Tin	ug/L	500	502		100	80−120	P
	Vanadium	ug/L	500	517		103	80−120	P
	Zinc	ug/L	500	491		98.3	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−312

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783828								
	Antimony	ug/L	50	50.2		100	80−120	MS
	Arsenic	ug/L	50	48.4		96.9	80−120	MS
	Cadmium	ug/L	50	50.6		101	80−120	MS
	Chromium	ug/L	50	50.3		101	80−120	MS
	Lead	ug/L	50	52.5		105	80−120	MS
	Molybdenum	ug/L	50	48.5		97	80−120	MS
	Nickel	ug/L	50	52.4		105	80−120	MS
	Selenium	ug/L	50	49.3		98.6	80−120	MS
	Silver	ug/L	50	52.4		105	80−120	MS
	Thallium	ug/L	50	50.6		101	80−120	MS
	Uranium	ug/L	50	51.5		103	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−312

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202788350								
	Mercury	ug/L	2	2.09		104	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−312 **Client ID** CAPA−13−24782L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315453014 **Serial Dilution ID:** 1202783826

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	1	U	5	U				P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	53.2	J	250	U	100			P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	110	U	550	U				P
Manganese	2.59	J	10	U	100			P
Potassium	50	U	250	U				P
Silica	98.8	J	265	U	100			P
Sodium	140	J	500	U	100			P
Strontium	1	U	5	U				P
Tin	2.5	U	12.5	U				P
Vanadium	1	U	5	U				P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−312 **Client ID** CASA−13−24218L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315267002 **Serial Dilution ID:** 1202783831

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	6.25	J	10	U	100			MS
Lead	.5	U	12.6					MS
Molybdenum	1.36		2.34	J	71.4			MS
Nickel	14.9		15		.779			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.693		.64	J	7.65			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−312 **Client ID** CAMO−13−24281L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315353002 **Serial Dilution ID:** 1202788353

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-312

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1262822 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
315267001	CASA-13-24210
1202778960	Method Blank (MB)
1202778961	315160001(CAMO-13-24245) Sample Duplicate (DUP)
1202778962	315160001(CAMO-13-24245) Post Spike (PS)
1202778963	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315160001 (CAMO-13-24245).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202778961 (CAMO-13-24245).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages

electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1267060	**Method:**	EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
315267002	CASA-13-24218
1202788865	315351002(CASA-13-24219) Sample Duplicate (DUP)
1202788867	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315351002 (CASA-13-24219).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1264084 **Method:** EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
315267002	CASA-13-24218
1202781923	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202781924	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following sample from this sample group was received by the lab outside of the method specified holding time: 315267002 (CASA-13-24218).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1141339 315267002 (CASA-13-24218).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1264118	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
315267002	CASA-13-24218
1202781990	Method Blank (MB)
1202781991	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202781992	315267002(CASA-13-24218) Post Spike (PS)
1202781993	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202781991 (CASA-13-24218), 1202781992 (CASA-13-24218) and 315267002 (CASA-13-24218).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1265956	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1265955	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
315267002	CASA-13-24218
1202786153	Method Blank (MB)
1202786154	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202786155	315267002(CASA-13-24218) Matrix Spike (MS)
1202786156	315267002(CASA-13-24218) Matrix Spike Duplicate (MSD)
1202786157	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The relative percent difference (RPD) between the Spike and Spike Duplicate was outside of the required acceptance limits. However, both the Spike and Spike Duplicate recoveries were within the required acceptance limits; therefore, the data is deemed acceptable. 1202786156 (CASA-13-24218).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1143774 1202786156 (CASA-13-24218).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1265958	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1265957	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
315267001	CASA-13-24210
1202786158	Method Blank (MB)
1202786159	315267001(CASA-13-24210) Sample Duplicate (DUP)
1202786161	315267001(CASA-13-24210) Matrix Spike (MS)
1202786165	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 13.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267001 (CASA-13-24210).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202786161 (CASA-13-24210).

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202786159 (CASA-13-24210).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1147238 1202786161 (CASA-13-24210).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are

present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1263016	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
315267002	CASA-13-24218
1202779479	Method Blank (MB)
1202779484	Laboratory Control Sample (LCS)
1202780694	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202780695	315159002(CAMO-13-24266) Post Spike (PS)
1202782515	315361001(SWWS46-13-24772) Sample Duplicate (DUP)
1202782516	315361001(SWWS46-13-24772) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 315159002 (CAMO-13-24266) and 315361001 (SWWS46-13-24772).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202780694 (CAMO-13-24266), 1202780695 (CAMO-13-24266), 1202782515 (SWWS46-13-24772) and 1202782516 (SWWS46-13-24772).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1263579	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1263578	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
315267002	CASA-13-24218
1202780723	Method Blank (MB)
1202780727	Laboratory Control Sample (LCS)
1202786124	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202786125	315267002(CASA-13-24218) Matrix Spike (MS)
1202786126	315267002(CASA-13-24218) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following sample was re-analyzed due to instrument failure: 1202780727 (LCS).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Solids, Total Dissolved**		
Analytical Batch:	1264080	**Method:**	EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
315267002	CASA-13-24218
1202781910	Method Blank (MB)
1202781912	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202781913	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Alkalinity**		
Analytical Batch:	1265667	**Method:**	EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
315267002	CASA-13-24218
1202785453	Laboratory Control Sample (LCS)
1202785460	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202785461	315267002(CASA-13-24218) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____12Dec12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-312 GEL Work Order: 315267

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 12, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-312

Client Sample ID:	CASA-13-24210	Project:	ESHL00210
Sample ID:	315267001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	13-NOV-12 12:59		
Receive Date:	15-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average		1.02	0.330	1.00	mg/L	1	TSM	11/16/12	1938	1262822	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1	KLP1	12/07/12	1501	1265958	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	12/06/12	1500	1265957

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 12, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-312

Client Sample ID:	CASA-13-24218	Project:	ESHL00210
Sample ID:	315267002	Client ID:	ARSL001
Matrix:	W		
Collect Date:	13-NOV-12 12:59		
Receive Date:	15-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		244	1.00	1.00	umhos/cm	1	LXA1	11/30/12	1417	1267060	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 9.90C	H	8.19	0.010	0.100	SU	1	LXA1	11/16/12	0813	1264084	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	11/30/12	1605	1264118	3
Chloride		6.27	0.067	0.200	mg/L	1					
Fluoride		0.332	0.033	0.100	mg/L	1					
Sulfate		5.52	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	J	0.0497	0.017	0.050	mg/L	1	KLP1	11/27/12	1059	1265956	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.451	0.017	0.050	mg/L	1	KLP1	11/19/12	1148	1263016	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	U	ND	0.017	0.050	mg/L	1	KLP1	11/27/12	1654	1263579	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		204	3.40	14.3	mg/L		LYG1	11/16/12	0746	1264080	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		105	0.725	1.00	mg/L		LXA1	11/26/12	1225	1265667	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/26/12	1700	1265955
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/26/12	1700	1263578

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 12, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-312
Project:	LANL-WQH Water Samples		

Client Sample ID:	CASA-13-24218	Project:	ESHL00210
Sample ID:	315267002	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: December 12, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **315267**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis											
Batch 1262822											
QC1202778961 315160001 DUP											
Total Organic Carbon Average		J	0.707	J	0.887	mg/L	22.6 ^		(+/-1.00)	TSM	11/16/12 18:36
QC1202778963 LCS											
Total Organic Carbon Average	10.0				9.66	mg/L		96.6	(85%-115%)		11/16/12 14:17
QC1202778960 MB											
Total Organic Carbon Average				U	ND	mg/L					11/16/12 14:08
QC1202778962 315160001 PS											
Total Organic Carbon Average	10.0	J	0.707		10.5	mg/L		97.5	(65%-120%)		11/16/12 18:56
Conductivity Analysis											
Batch 1267060											
QC1202788865 315351002 DUP											
Conductivity			171		170	umhos/cm	0.294		(0%-10%)	LXA1	11/30/12 14:21
QC1202788867 LCS											
Conductivity	1410				1420	umhos/cm		100	(95%-105%)		11/30/12 14:14
Electrode Analysis											
Batch 1264084											
QC1202781923 315267002 DUP											
pH		H	8.19	H	8.20	SU	0.122		(0%-10%)	LXA1	11/16/12 08:15
QC1202781924 LCS											
pH	7.00				7.04	SU		101	(99%-101%)		11/16/12 08:11
Ion Chromatography											
Batch 1264118											
QC1202781991 315267002 DUP											
Bromide		U	ND	U	ND	mg/L	N/A			MAR1	11/30/12 16:34
Chloride			6.27		6.30	mg/L	0.352		(0%-20%)		
Fluoride			0.332		0.333	mg/L	0.271 ^		(+/-0.100)		
Sulfate			5.52		5.55	mg/L	0.524		(0%-20%)		
QC1202781993 LCS											
Bromide	2.50				2.62	mg/L		105	(90%-110%)		11/30/12 15:36
Chloride	10.0				9.24	mg/L		92.4	(90%-110%)		
Fluoride	5.00				4.89	mg/L		97.9	(90%-110%)		
Sulfate	20.0				19.3	mg/L		96.4	(90%-110%)		
QC1202781990 MB											
Bromide				U	ND	mg/L					11/30/12 15:07
Chloride				U	ND	mg/L					
Fluoride				U	ND	mg/L					
Sulfate				U	ND	mg/L					
QC1202781992 315267002 PS											
Bromide	2.50	U	ND		2.59	mg/L		101	(90%-110%)		11/30/12 17:03
Chloride	10.0		6.27		16.2	mg/L		99.7	(90%-110%)		

QC Summary

Workorder: 315267

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1264118											
Fluoride	5.00		0.332		5.12	mg/L		95.8	(90%-110%)		
Sulfate	20.0		5.52		25.0	mg/L		97.3	(90%-110%)	MAR1	11/30/12 17:03
Nutrient Analysis											
Batch 1263016											
QC1202780694 315159002 DUP											
Nitrogen, Nitrate/Nitrite			1.50		1.57	mg/L	4.89		(0%-20%)	KLP1	11/19/12 11:37
QC1202782515 315361001 DUP											
Nitrogen, Nitrate/Nitrite			2.18		2.18	mg/L	0.00		(0%-20%)		11/19/12 12:04
QC1202779484 LCS											
Nitrogen, Nitrate/Nitrite	1.00				1.04	mg/L		104	(90%-110%)		11/19/12 11:28
QC1202779479 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					11/19/12 11:27
QC1202780695 315159002 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.299		1.28	mg/L		98.1	(90%-110%)		11/19/12 11:38
QC1202782516 315361001 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.435		1.47	mg/L		104	(90%-110%)		11/19/12 12:05
Batch 1263579											
QC1202786124 315267002 DUP											
Phosphorus, Total as P		U	ND	U	ND	mg/L	N/A			KLP1	11/27/12 16:55
QC1202780727 LCS											
Phosphorus, Total as P	1.00				0.924	mg/L		92.4	(76%-120%)		11/27/12 16:50
QC1202780723 MB											
Phosphorus, Total as P				U	ND	mg/L					11/27/12 16:37
QC1202786125 315267002 MS											
Phosphorus, Total as P	1.00	U	ND		0.850	mg/L		85	(62%-139%)		11/27/12 16:56
QC1202786126 315267002 MSD											
Phosphorus, Total as P	1.00	U	ND		0.915	mg/L	7.37	91.5	(0%-20%)		11/27/12 16:57
Batch 1265956											
QC1202786154 315267002 DUP											
Nitrogen, Ammonia		J	0.0497	J	0.0418	mg/L	17.3 ^		(+/-0.050)	KLP1	11/27/12 10:59
QC1202786157 LCS											
Nitrogen, Ammonia	1.00				1.05	mg/L		105	(90%-110%)		11/27/12 10:58
QC1202786153 MB											
Nitrogen, Ammonia				U	ND	mg/L					11/27/12 10:57
QC1202786155 315267002 MS											
Nitrogen, Ammonia	1.00	J	0.0497		0.981	mg/L		93.1	(90%-110%)		11/27/12 11:00
QC1202786156 315267002 MSD											
Nitrogen, Ammonia	1.00	J	0.0497		1.15	mg/L	15.9*	110	(0%-15%)		11/27/12 11:01
Batch 1265958											
QC1202786159 315267001 DUP											
Nitrogen, Total Kjeldahl		U	ND	U	ND	mg/L	N/A			KLP1	12/07/12 15:02
QC1202786165 LCS											
Nitrogen, Total Kjeldahl	1.00				0.987	mg/L		98.7	(90%-110%)		12/07/12 15:00
QC1202786158 MB											
Nitrogen, Total Kjeldahl				U	ND	mg/L					12/07/12 14:59
QC1202786161 315267001 MS											
Nitrogen, Total Kjeldahl	1.00	U	ND		0.881	mg/L		88.1 *	(90%-110%)		12/07/12 15:03

QC Summary

Workorder: 315267

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Solids Analysis											
Batch 1264080											
QC1202781912 315267002 DUP											
Total Dissolved Solids			204		206	mg/L	0.697		(0%-10%)	LYG1	11/16/12 07:46
QC1202781913 LCS											
Total Dissolved Solids	300				291	mg/L		97.1	(95%-105%)		11/16/12 07:46
QC1202781910 MB											
Total Dissolved Solids				U	ND	mg/L					11/16/12 07:46
Titration Analysis											
Batch 1265667											
QC1202785460 315267002 DUP											
Alkalinity, Total as CaCO3			105		106	mg/L	0.976		(0%-20%)	LXA1	11/26/12 12:35
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A				
QC1202785453 LCS											
Alkalinity, Total as CaCO3	50.0				51.0	mg/L		102	(90%-110%)		11/26/12 10:38
QC1202785461 315267002 MS											
Alkalinity, Total as CaCO3	50.0		105		155	mg/L		99.9	(80%-120%)		11/26/12 12:39

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E Organics--Concentration of the target analyte exceeds the instrument calibration range
- F Estimated Value
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded
- J Value is estimated
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N Metals--The Matrix spike sample recovery is not within specified control limits

QC Summary

Workorder: 315267

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
16-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	BETT, ESHL
Batch ID:	**Sample Numbers:**		
1264084	See below.		

Potentially affected work order(s)(SDG): 315267(2013-312),315311

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 315267 002 315311 002,006,010	1. Samples were received out of holding.

Originator's Name:

Lisa Gregory 19-NOV-12

Data Validator/Group Leader:

Julia Hamilton 10-DEC-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
27-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1	Liquid	ESHL, ORNL
Batch ID:	**Sample Numbers:**		
1265956	See below.		

Potentially affected work order(s)(SDG): **315267(2013-312),315351(2013-321),315352(2013-322),315353(2013-323),315450(2013-334),315545(2013-353),315650**

Application Issues:

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Failed RPD for MS/MSD: QC 1202786156MSD	1. The relative percent difference (RPD) between the Spike and Spike Duplicate was outside of the required acceptance limits. However, both the Spike and Spike Duplicate recoveries were within the required acceptance limits; therefore, the data is deemed acceptable.

Originator's Name:
Kristen Parson 27-NOV-12

Data Validator/Group Leader:
Julia Hamilton 27-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
07-DEC-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1265958	See below.		

Potentially affected work order(s)(SDG): **315267(2013-312),315311,315351(2013-321),315352(2013-322),315353(2013-323),315450(2013-334),315545(2013-353),315780**

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS: QC 1202786161MS	1. The spike recovery falls outside of the established acceptance limits due to matrix interference:

Originator's Name:

Kristen Parson 07-DEC-12

Data Validator/Group Leader:

Julia Hamilton 10-DEC-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-312
Work Order 315267

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1263626

Sample ID	Client ID
315267001	CASA-13-24210
1202780816	Method Blank (MB)
1202780817	315160001(CAMO-13-24245) Sample Duplicate (DUP)
1202780818	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202780816 (MB) and 1202780818 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315160001 (CAMO-13-24245). The QC was from ARSL work order 315160.

QC Information

All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1263628

Sample ID	Client ID
315267001	CASA-13-24210
1202780819	Method Blank (MB)
1202780820	315160001(CAMO-13-24245) Sample Duplicate (DUP)
1202780821	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202780819 (MB) and 1202780821 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315160001 (CAMO-13-24245). The QC was from ARSL work order 315160.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1263630

Sample ID	Client ID
315267001	CASA-13-24210
1202780828	Method Blank (MB)
1202780829	315160001(CAMO-13-24245) Sample Duplicate (DUP)
1202780830	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202780828 (MB) and 1202780830 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315160001 (CAMO-13-24245). The QC was from ARSL work order 315160.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population. The aliquot for sample 1202780829 (CAMO-13-24245) was reduced due to limited sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1264174

Sample ID	Client ID
315267001	CASA-13-24210
1202782104	Method Blank (MB)
1202782105	315352001(CASA-13-24212) Sample Duplicate (DUP)
1202782106	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with

GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in May 2012, June 2012, July 2012 and August 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 315352001 (CASA-13-24212). The QC was from ARSL work order 315352.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1264650

Sample ID	Client ID
315267001	CASA-13-24210
1202783218	Method Blank (MB)
1202783219	315352005(CASA-13-24206) Sample Duplicate (DUP)
1202783220	315352005(CASA-13-24206) Matrix Spike (MS)
1202783221	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202783218 (MB) and 1202783221 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315352005 (CASA-13-24206). The QC was from ARSL work order 315352.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202783219 (CASA-13-24206) was recounted due to high relative percent difference/relative error ratio. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202783220 (CASA-13-24206), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1268150

Sample ID	Client ID
315267001	CASA-13-24210
1202791495	Method Blank (MB)
1202791496	315159001(CAMO-13-24249) Sample Duplicate (DUP)
1202791497	315159001(CAMO-13-24249) Matrix Spike (MS)
1202791498	315159001(CAMO-13-24249) Matrix Spike Duplicate (MSD)
1202791499	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in December 2012. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202791495 (MB) and 1202791499 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315159001 (CAMO-13-24249). The QC was from ARSL work order 315159.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Samples were reprepped due to high relative percent difference/relative error ratio. The re-analysis is being reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike and matrix spike duplicate, 1202791497 (CAMO-13-24249) and 1202791498 (CAMO-13-24249), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-312 GEL Work Order: 315267

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Kate Gellatly**

Date: 11 DEC 2012 **Title: Analyst I**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CASA-13-24210
Sample ID: 315267001
Matrix: W
Collect Date: 13-NOV-12
Receive Date: 15-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	-0.00381	+/-0.00762	0.0217	+/-0.00762	0.050	pCi/L		NXP2	11/23/12	1200	1263626	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	-0.00916	+/-0.00857	0.022	+/-0.00857	0.050	pCi/L		NXP2	11/21/12	0937	1263628	2
Plutonium-239/240	U	0.00687	+/-0.00606	0.0366	+/-0.00607	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.413	+/-0.0351	0.0615	+/-0.0444	1.00	pCi/L		NXP2	11/21/12	0938	1263630	3
Uranium-235/236	U	0.00983	+/-0.00867	0.0384	+/-0.0087	1.00	pCi/L						
Uranium-238		0.202	+/-0.0237	0.0418	+/-0.0271	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-1.28	+/-1.56	5.25	+/-1.56	8.00	pCi/L		KXG3	11/19/12	0929	1264174	4
Cobalt-60	U	1.75	+/-1.25	5.30	+/-1.25	8.00	pCi/L						
Neptunium-237	U	-3.15	+/-2.81	9.64	+/-2.81	10.0	pCi/L						
Potassium-40	U	-15.7	+/-19.5	71.3	+/-19.5	10.0	pCi/L						
Sodium-22	U	-1.18	+/-1.50	5.13	+/-1.50	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.458	+/-0.154	0.482	+/-0.158	0.500	pCi/L		VXC2	11/30/12	1609	1264650	5
WSP-GrossA/B "As Received"													
Beta		3.02	+/-0.808	2.13	+/-0.847	3.00	pCi/L		DYT1	12/05/12	1620	1268150	6
Alpha	U	1.22	+/-0.690	2.04	+/-0.698	3.00	pCi/L		DYT1	12/06/12	1301	1268150	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1263626	90.9	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1263628	74.6	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1263630	81.4	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1264650	94.9	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CASA-13-24210
Sample ID: 315267001

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

QC Summary

Report Date: December 11, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico
Contact: **Keith Greene**

Workorder: **315267**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1263626										
QC1202780817 315160001 DUP										
Americium-241	U	0.00252	U	0.00249	pCi/L	0.00129		(0-1)	NXP2	11/23/1212:00
	Uncert:	+/-0.00564		+/-0.00747						
	TPU:	+/-0.00564		+/-0.00747						
**Americium-243 Tracer	3.47	3.42		3.06	pCi/L		88.2	(50%-105%)		
	Uncert:	+/-0.0933		+/-0.0925						
	TPU:	+/-0.166		+/-0.165						
QC1202780818 LCS										
Americium-241	1.41			1.38	pCi/L		97.5	(80%-120%)	NXP2	11/23/1212:00
	Uncert:			+/-0.0476						
	TPU:			+/-0.0732						
**Americium-243 Tracer	2.08			1.81	pCi/L		86.8	(50%-105%)		
	Uncert:			+/-0.0579						
	TPU:			+/-0.102						
QC1202780816 MB										
Americium-241			U	0.00151	pCi/L				NXP2	11/23/1212:00
	Uncert:			+/-0.00585						
	TPU:			+/-0.00585						
**Americium-243 Tracer	2.08			1.88	pCi/L		90.4	(50%-105%)		
	Uncert:			+/-0.0558						
	TPU:			+/-0.0996						
Batch 1263628										
QC1202780820 315160001 DUP										
Plutonium-238	U	0.0066	U	-0.00258	pCi/L	0.290		(0-1)	NXP2	11/21/1209:37
	Uncert:	+/-0.00808		+/-0.00775						
	TPU:	+/-0.00809		+/-0.00775						
Plutonium-239/240	U	0.0462	U	0.0103	pCi/L	0.752		(0-1)		
	Uncert:	+/-0.0148		+/-0.00895						
	TPU:	+/-0.0149		+/-0.00896						
**Plutonium-242 Tracer	3.24	2.41		2.72	pCi/L		83.8	(50%-105%)		
	Uncert:	+/-0.105		+/-0.0919						
	TPU:	+/-0.175		+/-0.160						
QC1202780821 LCS										
Plutonium-238			U	-1.05E-09	pCi/L			(80%-120%)	NXP2	11/21/1209:37
	Uncert:			+/-0.005						
	TPU:			+/-0.005						
Plutonium-239/240	2.03			1.94	pCi/L		95.9	(80%-120%)		
	Uncert:			+/-0.0556						
	TPU:			+/-0.0963						
**Plutonium-242 Tracer	1.94			1.71	pCi/L		87.8	(50%-105%)		
	Uncert:			+/-0.0556						
	TPU:			+/-0.0963						
QC1202780819 MB										

QC Summary

Workorder: 315267

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1263628										
Plutonium-238			U	-0.00673	pCi/L				NXP2	11/21/1209:37
	Uncert:			+/-0.00532						
	TPU:			+/-0.00532						
Plutonium-239/240			U	-8.41E-10	pCi/L					
	Uncert:			+/-0.00476						
	TPU:			+/-0.00476						
**Plutonium-242 Tracer	1.94			1.56	pCi/L		80.1	(50%-105%)		
	Uncert:			+/-0.0572						
	TPU:			+/-0.0981						
Batch 1263630										
QC1202780829 315160001 DUP										
Uranium-234		0.213		0.244	pCi/L	0.220		(0-1)	NXP2	11/21/1209:38
	Uncert:	+/-0.0306		+/-0.0313						
	TPU:	+/-0.0338		+/-0.0354						
Uranium-235/236	U	0.00	U	0.0219	pCi/L	0.502		(0-1)		
	Uncert:	+/-0.0102		+/-0.0116						
	TPU:	+/-0.0102		+/-0.0117						
Uranium-238		0.121		0.156	pCi/L	0.365		(0-1)		
	Uncert:	+/-0.0207		+/-0.024						
	TPU:	+/-0.0221		+/-0.026						
**Uranium-232 Tracer	3.64	3.12		2.95	pCi/L		81.1	(50%-105%)		
	Uncert:	+/-0.111		+/-0.114						
	TPU:	+/-0.259		+/-0.261						
QC1202780830 LCS										
Uranium-234				2.67	pCi/L				NXP2	11/21/1209:38
	Uncert:			+/-0.0832						
	TPU:			+/-0.195						
Uranium-235/236				0.157	pCi/L					
	Uncert:			+/-0.0226						
	TPU:			+/-0.0249						
Uranium-238	2.70			2.70	pCi/L		99.9	(80%-120%)		
	Uncert:			+/-0.0831						
	TPU:			+/-0.197						
**Uranium-232 Tracer	2.19			1.52	pCi/L		69.4	(50%-105%)		
	Uncert:			+/-0.0752						
	TPU:			+/-0.163						
QC1202780828 MB										
Uranium-234			U	-0.00675	pCi/L				NXP2	11/21/1209:38
	Uncert:			+/-0.00731						
	TPU:			+/-0.00732						
Uranium-235/236			U	0.00261	pCi/L					
	Uncert:			+/-0.00452						
	TPU:			+/-0.00452						
Uranium-238			U	0.00633	pCi/L					
	Uncert:			+/-0.00633						
	TPU:			+/-0.00635						
**Uranium-232 Tracer	2.19			1.84	pCi/L		84	(50%-105%)		
	Uncert:			+/-0.0682						

QC Summary

Workorder: 315267

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1263630										
	TPU:			+/-0.157						
Rad Gamma Spec										
Batch 1264174										
QC1202782105 315352001 DUP										
Cesium-137	U	0.667	U	-1.76	pCi/L	0.452		(0-1)	KXG3	11/19/1212:03
	Uncert:	+/-1.26		+/-1.43						
	TPU:	+/-1.26		+/-1.43						
Cobalt-60	U	-0.571	U	-1.22	pCi/L	0.120		(0-1)		
	Uncert:	+/-1.09		+/-1.61						
	TPU:	+/-1.09		+/-1.61						
Neptunium-237	U	-0.694	U	-3.29	pCi/L	0.215		(0-1)		
	Uncert:	+/-3.03		+/-3.01						
	TPU:	+/-3.03		+/-3.01						
Potassium-40	U	-17.2	U	-34	pCi/L	0.230		(0-1)		
	Uncert:	+/-19.7		+/-16.8						
	TPU:	+/-19.7		+/-16.8						
Sodium-22	U	0.918	U	0.637	pCi/L	0.0497		(0-1)		
	Uncert:	+/-1.26		+/-1.57						
	TPU:	+/-1.26		+/-1.57						
QC1202782106 LCS										
Americium-241	2780			2900	pCi/L		104	(80%-120%)	KXG3	11/19/1209:32
	Uncert:			+/-202						
	TPU:			+/-202						
Cesium-137	6090			6150	pCi/L		101	(80%-120%)		
	Uncert:			+/-255						
	TPU:			+/-255						
Cobalt-60	5640			5620	pCi/L		99.7	(80%-120%)		
	Uncert:			+/-233						
	TPU:			+/-233						
Neptunium-237			U	-33.7	pCi/L					
	Uncert:			+/-21.1						
	TPU:			+/-21.1						
Potassium-40			U	-65.4	pCi/L					
	Uncert:			+/-46.2						
	TPU:			+/-46.2						
Sodium-22			U	-6.45	pCi/L					
	Uncert:			+/-6.01						
	TPU:			+/-6.01						
QC1202782104 MB										
Cesium-137			U	-0.063	pCi/L				KXG3	11/19/1209:32
	Uncert:			+/-1.06						
	TPU:			+/-1.06						
Cobalt-60			U	1.61	pCi/L					
	Uncert:			+/-1.30						
	TPU:			+/-1.30						
Neptunium-237			U	1.61	pCi/L					
	Uncert:			+/-2.44						
	TPU:			+/-2.44						

QC Summary

Workorder: 315267

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1264174										
Potassium-40			U	16.7	pCi/L					
Uncert:				+/-14.8						
TPU:				+/-14.8						
Sodium-22			U	0.208	pCi/L					
Uncert:				+/-1.16						
TPU:				+/-1.16						
Rad Gas Flow										
Batch 1264650										
QC1202783219 315352005 DUP										
Strontium-90	U	-0.0566	U	-0.266	pCi/L	0.500		(0-1)	VXC2	12/03/1212:39
Uncert:		+/-0.120		+/-0.0895						
TPU:		+/-0.120		+/-0.0896						
**Strontium Carrier	7.17	6.60		7.10	mg		99.1	(50%-105%)		
QC1202783221 LCS										
Strontium-90	24.8			22.4	pCi/L		90.1	(80%-120%)	VXC2	11/30/1216:05
Uncert:				+/-0.604						
TPU:				+/-1.95						
**Strontium Carrier	7.17			7.10	mg		99.1	(50%-105%)		
QC1202783218 MB										
Strontium-90			U	0.227	pCi/L				VXC2	11/30/1216:11
Uncert:				+/-0.149						
TPU:				+/-0.150						
**Strontium Carrier	7.17			6.90	mg		96.3	(50%-105%)		
QC1202783220 315352005 MS										
Strontium-90	124 U	-0.0566		113	pCi/L		91.1	(75%-125%)	VXC2	11/30/1216:04
Uncert:		+/-0.120		+/-3.14						
TPU:		+/-0.120		+/-9.63						
**Strontium Carrier	7.17	6.60		6.60	mg		92.1	(50%-105%)		
Batch 1268150										
QC1202791496 315159001 DUP										
Alpha	U	0.830	U	0.155	pCi/L	0.312		(0-1)	DYT1	12/06/1213:08
Uncert:		+/-0.612		+/-0.463						
TPU:		+/-0.616		+/-0.464						
Beta	U	1.67	U	1.12	pCi/L	0.184		(0-1)		12/05/1216:21
Uncert:		+/-0.821		+/-0.671						
TPU:		+/-0.833		+/-0.677						
QC1202791499 LCS										
Alpha	12.0			11.7	pCi/L		97.3	(80%-120%)	DYT1	12/06/1213:02
Uncert:				+/-0.616						
TPU:				+/-1.20						
Beta	49.6			51.8	pCi/L		104	(80%-120%)		12/05/1216:18
Uncert:				+/-0.934						
TPU:				+/-4.41						
QC1202791495 MB										
Alpha			U	-0.0368	pCi/L				DYT1	12/06/1213:07
Uncert:				+/-0.0451						
TPU:				+/-0.0452						
Beta			U	-0.135	pCi/L					12/05/1216:20

QC Summary

Workorder: 315267

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1268150										
	Uncert:			+/-0.106						
	TPU:			+/-0.106						
QC1202791497 315159001 MS										
Alpha	481	0.830	U	473	pCi/L		98.2	(75%-125%)	DYT1	12/06/1213:01
	Uncert:	+/-0.612		+/-24.9						
	TPU:	+/-0.616		+/-47.7						
Beta	1980	1.67	U	2190	pCi/L		110	(75%-125%)		12/05/1216:18
	Uncert:	+/-0.821		+/-39.0						
	TPU:	+/-0.833		+/-185						
QC1202791498 315159001 MSD										
Alpha	481	0.830	U	472	pCi/L	0.000951	98.1	(0-1)	DYT1	12/06/1213:01
	Uncert:	+/-0.612		+/-25.1						
	TPU:	+/-0.616		+/-48.5						
Beta	1980	1.67	U	2150	pCi/L	0.0534	108	(0-1)		12/05/1216:18
	Uncert:	+/-0.821		+/-38.8						
	TPU:	+/-0.833		+/-191						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative

QC Summary

Workorder: **315267**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-307

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CAMO-13-24245	Nov 12 2012	10:58	W			1			1	1	
CAMO-13-24262	Nov 12 2012	10:58	W	1	1		1	1			
CAMO-13-24246	Nov 12 2012	12:38	W			1			1	1	
CAMO-13-24263	Nov 12 2012	12:38	W	1	1		1	1			

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 11/13/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24245

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/12/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1058	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-44 S1		FIELD PREP:	UF	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P1A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 50 feet of a running diesel generator.

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 6.70 mg/L Oxidation-Reduction Potential 101.2 MV pH 7.78 SU

Specific Conductance 134 uS/cm Temperature 18.67 deg C Turbidity 0.43 NTU

COLLECTED BY (PRINT) W Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/13/12 0845	(Printed Name) K. Green (Signature)	11/13/12 8:45
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**
(Printed Name) (Signature)		(Printed Name) (Signature)	

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24246 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/12/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1238	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-44 S2		FIELD PREP:	UF	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P2A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 50 feet of a running diesel generator

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 7.14 mg/L Oxidation-Reduction Potential 119.1 MV pH 7.87 SU

Specific Conductance 144 uS/cm Temperature 19.03 deg C Turbidity 0.17 NTU

COLLECTED BY (PRINT) W Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/13/12 8:45	(Printed Name) K. Greene (Signature)	11/13/12 8:45
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24262 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/12/12 ~~2012~~	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1058	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-44 S1		FIELD PREP:	F	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P1A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
	WSP-GENINORG	1 LITER POLY	1	ICE		
	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

See CAMO-13-24245

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) W Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/13/12 0845	(Printed Name) K. Greene (Signature)	11/13/12 8:45
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24263 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/12/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1238	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSI
LOCATION ID:	R-44 S2		FIELD PREP:	F	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P2A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
	WSP-GENINORG	1 LITER POLY	1	ICE		
	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

See CAMO-13-24246

COLLECTED BY (PRINT) W Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/13/12 0845	(Printed Name) K. Greene (Signature)	11/13/12 0845
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-307

1. Distribution Of Samples In EDD.

	Analytical	Regular	Field	Trip	Field	Equipment
SDG	Method	Samples	Duplicates	Blanks	Blanks	Blanks
315160	EPA:120.1	2				
315160	EPA:150.1	2				
315160	EPA:160.1	2				
315160	EPA:245.2	2				
315160	EPA:300.0	2				
315160	EPA:310.1	2				
315160	EPA:350.1	2				
315160	EPA:351.2	2				
315160	EPA:353.2	2				
315160	EPA:365.4	2				
315160	EPA:900	2				
315160	EPA:901.1	2				
315160	EPA:905.0	2				
315160	HASL-300:AM-241	2				
315160	HASL-300:ISOPU	2				
315160	HASL-300:ISOU	2				
315160	SM:A2340B	2				
315160	SW-846:6010B	2				
315160	SW-846:6020	2				
315160	SW-846:6850	2				
315160	SW-846:9060	2				

	Analytical	Analysis	Prep	Regular	Field	Trip	Field	Equipment	Method	Matrix	Matrix
SDG	Method	Lot ID	Lot ID	Samples	Duplicates	Blanks	Blanks	Blanks	Blanks	Spikes	Spike Dups
315160	EPA:120.1	1266189	1266189	2							
315160	EPA:150.1	1263688	1263688	2							
315160	EPA:160.1	1263692	1263692	2					1		
315160	EPA:245.2	1266834	1266827	2					1	1	
315160	EPA:300.0	1263381	1263381	2					1		
315160	EPA:310.1	1264841	1264841	2					1	1	
315160	EPA:350.1	1263572	1263571	2					1	2	2
315160	EPA:351.2	1263581	1263580	2					1	1	1
315160	EPA:353.2	1263016	1263016	2					1		
315160	EPA:365.4	1263577	1263576	2					1	2	2
315160	EPA:900	1268150	1268150	2					1	1	1
315160	EPA:901.1	1263255	1263255	2					1		
315160	EPA:905.0	1264650	1264650	2					1	1	
315160	HASL-300:AM-241	1263626	1263626	1					1		
315160	HASL-300:AM-241	1268379	1268379	1					1		
315160	HASL-300:ISOPU	1263628	1263628	2					1		
315160	HASL-300:ISOU	1263630	1263630	2					1		
315160	SM:A2340B	1268873	1268873	2							
315160	SW-846:6010B	1263453	1263452	2					1	1	
315160	SW-846:6020	1263451	1263450	2					1	1	
315160	SW-846:6850	1263682	1263681	2					1	1	1
315160	SW-846:9060	1262822	1262822	2					1		

Data Validation Report for: Chain Of Custody No. 2013-307

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				2			
		1				1			
		1				2			
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1							
		1				1			

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24262	315160002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24263	315160004	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24266	1202786721	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24270	1202786720	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202786722	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24262	315160002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24263	315160004	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24266	1202780948	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202780951	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24262	315160002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24263	315160004	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24266	1202780961	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202780962	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202780960	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24262	315160002	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24263	315160004	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24281	1202788351	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24281	1202788352	MS	0	0	1	0
EPA:245.2	INORGANIC	LCS	1202788350	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202788349	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24262	315160002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24263	315160004	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24266	1202780266	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202780268	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202780265	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24262	315160002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24263	315160004	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24266	1202784164	DUP	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24266	1202784165	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202784160	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202784163	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24229	1202780703	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24229	1202780705	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24229	1202780707	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24262	315160002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24263	315160004	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202780709	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202780702	MB	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	SWWS46-13-24772	1202782504	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	SWWS46-13-24772	1202782505	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	SWWS46-13-24772	1202782506	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24245	315160001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24246	315160003	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24249	1202780729	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24249	1202780731	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24249	1202780733	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202780735	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202780728	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24262	315160002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24263	315160004	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24266	1202780694	DUP	1	0	0	0

EPA:353.2	GENERAL CHEMISTRY	LCS	1202779484	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202779479	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	SWWS46-13-24772	1202782515	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24262	1202780717	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24262	1202780719	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24262	1202780721	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24262	315160002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24263	315160004	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24266	1202780716	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24266	1202780718	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24266	1202780720	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202780722	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202780715	MB	1	0	0	0
EPA:900	RAD	CAMO-13-24245	315160001	REG	2	0	0	0
EPA:900	RAD	CAMO-13-24246	315160003	REG	2	0	0	0
EPA:900	RAD	CAMO-13-24249	1202791496	DUP	2	0	0	0
EPA:900	RAD	CAMO-13-24249	1202791497	MS	0	0	2	0
EPA:900	RAD	CAMO-13-24249	1202791498	MSD	0	0	2	0
EPA:900	RAD	LCS	1202791499	LCS	0	0	2	0
EPA:900	RAD	MB	1202791495	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24245	315160001	REG	5	0	0	0
EPA:901.1	RAD	CAMO-13-24246	315160003	REG	5	0	0	0
EPA:901.1	RAD	CAMO-13-24249	1202780039	DUP	6	0	0	0
EPA:901.1	RAD	LCS	1202780040	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202780038	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24245	315160001	REG	1	0	0	0
EPA:905.0	RAD	CAMO-13-24246	315160003	REG	1	0	0	0
EPA:905.0	RAD	CASA-13-24206	1202783219	DUP	1	0	0	0
EPA:905.0	RAD	CASA-13-24206	1202783220	MS	0	0	1	0
EPA:905.0	RAD	LCS	1202783221	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202783218	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24245	1202780817	DUP	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24245	315160001	REG	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24246	1202791981	DUP	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24246	315160003	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202780818	LCS	0	0	1	0
HASL-300:AM-241	RAD	LCS	1202791982	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202780816	MB	1	0	0	0
HASL-300:AM-241	RAD	MB	1202791980	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24245	1202780820	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24245	315160001	REG	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24246	315160003	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202780821	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202780819	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24245	1202780829	DUP	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24245	315160001	REG	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24246	315160003	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202780830	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202780828	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24262	315160002	REG	1	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24263	315160004	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24262	1202780428	DUP	22	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24262	1202780429	MS	0	0	22	0
SW-846:6010B	INORGANIC	CAMO-13-24262	315160002	REG	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24263	315160004	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202780427	LCS	0	0	22	0

SW-846:6010B	INORGANIC	MB	1202780426	MB	22	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24262	1202780423	DUP	13	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24262	1202780424	MS	0	0	13	0
SW-846:6020	INORGANIC	CAMO-13-24262	315160002	REG	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24263	315160004	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202780422	LCS	0	0	13	0
SW-846:6020	INORGANIC	MB	1202780421	MB	13	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24262	1202780935	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24262	1202780936	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24262	315160002	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24263	315160004	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202780934	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202780933	MB	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24245	1202778961	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24245	315160001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24246	315160003	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202778963	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202778960	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202788349	METHOD BLANK	EPA:245.2	W	Mercury	-0.081	J	ug/L	0.2

Any samples affected by the presence of contaminants in blanks?

Field Sample ID	Blank Field Sample ID	Blank Lab Sample ID	Blank Type	Analytical Method	Parameter Name	Units	Blank Result	Sample Result	Lab Qualifier	Detect Limit	Detected
CAMO-13-24262	MB	1202788349	METHOD BLANK	EPA:245.2	Mercury	ug/L	-0.081	0.067	U	0.2	N
CAMO-13-24263	MB	1202788349	METHOD BLANK	EPA:245.2	Mercury	ug/L	-0.081	0.067	U	0.2	N

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CAMO-13-24229	1202780705	1202780707	EPA:350.1	Ammonia as Nitrogen	1263571	11/19/2012	W	94.9	89.2	110	90

Correction Factor (ND)	Correction Factor (J)	Use Factors
5		Y
5		Y

Rejection Limit	RPD	RPD Limit
10	5.81	15

CAMO-13-24249	1202780731	1202780733	EPA:351.2	Total Kjeldahl Nitrogen	1263580	11/16/2012	W	128	118	110	90
CAMO-13-24262	1202780429		SW-846:6010B	Silver	1263452	11/29/2012	W	58.2		125	75

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

Field Sample ID	Lab SampleID	Lab Duplicate Sample ID	Analytical Method	Parameter Name	Sample Matrix	Sample Result	Dup Sample Result	Units	Detected In Sample	Detected In Dup	RPD
CAMO-13-24245	315160001	1202780829	HASL-300:ISOU	Uranium-234	W	0.213	0.244	pCi/L	Y	Y	13.3
CAMO-13-24245	315160001	1202780829	HASL-300:ISOU	Uranium-238	W	0.121	0.156	pCi/L	Y	Y	25.4

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-44 S1	2013-307	CAMO-13-24245	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-44 S1	2013-307	CAMO-13-24245	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-44 S1	2013-307	CAMO-13-24245	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-44 S1	2013-307	CAMO-13-24245	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-44 S1	2013-307	CAMO-13-24245	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-44 S1	2013-307	CAMO-13-24245	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-44 S1	2013-307	CAMO-13-24245	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-44 S1	2013-307	CAMO-13-24245	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-44 S1	2013-307	CAMO-13-24245	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-44 S1	2013-307	CAMO-13-24245	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-44 S1	2013-307	CAMO-13-24245	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-44 S1	2013-307	CAMO-13-24245	REG	INIT	RAD	HASL-300:ISOU	Uranium-234		J	R10	Y
R-44 S1	2013-307	CAMO-13-24245	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-44 S1	2013-307	CAMO-13-24245	REG	INIT	RAD	HASL-300:ISOU	Uranium-238		J	R10	Y
R-44 S2	2013-307	CAMO-13-24246	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-44 S2	2013-307	CAMO-13-24246	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-44 S2	2013-307	CAMO-13-24246	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-44 S2	2013-307	CAMO-13-24246	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-44 S2	2013-307	CAMO-13-24246	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-44 S2	2013-307	CAMO-13-24246	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-44 S2	2013-307	CAMO-13-24246	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-44 S2	2013-307	CAMO-13-24246	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-44 S2	2013-307	CAMO-13-24246	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N

10	7.63	20
10		

RPD
Limit
0.0822
0.0558

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
0.00252	pCi/L	0.00252	pCi/L	0.0287	0.00564	W	11/12/2012		1263626	VAL	Y
0.293	pCi/L	0.293	pCi/L	5.13	1.42	W	11/12/2012		1263255	VAL	Y
-0.671	pCi/L	-0.671	pCi/L	4.26	1.13	W	11/12/2012		1263255	VAL	Y
1	pCi/L	1	pCi/L	2.36	0.706	W	11/12/2012		1268150	VAL	Y
2.56	pCi/L	2.56	pCi/L	2.82	0.933	W	11/12/2012		1268150	VAL	Y
-2.82	pCi/L	-2.82	pCi/L	10.2	2.95	W	11/12/2012		1263255	VAL	Y
0.0066	pCi/L	0.0066	pCi/L	0.0317	0.00808	W	11/12/2012		1263628	VAL	Y
0.0462	pCi/L	0.0462	pCi/L	0.0527	0.0148	W	11/12/2012		1263628	VAL	Y
-3.32	pCi/L	-3.32	pCi/L	74.5	18.4	W	11/12/2012		1263255	VAL	Y
-0.628	pCi/L	-0.628	pCi/L	6.16	1.66	W	11/12/2012		1263255	VAL	Y
-0.229	pCi/L	-0.229	pCi/L	0.493	0.129	W	11/12/2012		1264650	VAL	Y
0.213	pCi/L	0.213	pCi/L	0.0778	0.0306	W	11/12/2012		1263630	VAL	Y
0	pCi/L	0	pCi/L	0.0486	0.0102	W	11/12/2012		1263630	VAL	Y
0.121	pCi/L	0.121	pCi/L	0.0528	0.0207	W	11/12/2012		1263630	VAL	Y
0.00204	pCi/L	0.00204	pCi/L	0.0369	0.00456	W	11/12/2012		1268379	VAL	Y
-1.26	pCi/L	-1.26	pCi/L	5.25	1.48	W	11/12/2012		1263255	VAL	Y
0.955	pCi/L	0.955	pCi/L	5.86	1.47	W	11/12/2012		1263255	VAL	Y
0.689	pCi/L	0.689	pCi/L	2.37	0.661	W	11/12/2012		1268150	VAL	Y
1.18	pCi/L	1.18	pCi/L	2.75	0.82	W	11/12/2012		1268150	VAL	Y
-3.76	pCi/L	-3.76	pCi/L	11.1	3.29	W	11/12/2012		1263255	VAL	Y
0.00907	pCi/L	0.00907	pCi/L	0.0218	0.00641	W	11/12/2012		1263628	VAL	Y
0.00453	pCi/L	0.00453	pCi/L	0.0362	0.00555	W	11/12/2012		1263628	VAL	Y
-7.81	pCi/L	-7.81	pCi/L	64.6	16.6	W	11/12/2012		1263255	VAL	Y

R-44 S2	2013-307	CAMO-13-24246	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-44 S2	2013-307	CAMO-13-24246	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-44 S2	2013-307	CAMO-13-24246	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N

Reason Code	Description
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R10	Associated duplicate sample has DER or RER> the analytical laboratory's acceptance limits.
R5	Analyte is not detected because the amount reported is less than the MDC.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24245	R-44 S1	REG	EPA:351.2	0	1
CAMO-13-24245	R-44 S1	REG	EPA:900	0	2
CAMO-13-24245	R-44 S1	REG	EPA:901.1	0	5
CAMO-13-24245	R-44 S1	REG	EPA:905.0	0	1
CAMO-13-24245	R-44 S1	REG	HASL-300:AM-241	0	1
CAMO-13-24245	R-44 S1	REG	HASL-300:ISOPU	0	2
CAMO-13-24245	R-44 S1	REG	HASL-300:ISOU	0	3
CAMO-13-24245	R-44 S1	REG	SW-846:9060	0	1
CAMO-13-24246	R-44 S2	REG	EPA:351.2	0	1
CAMO-13-24246	R-44 S2	REG	EPA:900	0	2
CAMO-13-24246	R-44 S2	REG	EPA:901.1	0	5
CAMO-13-24246	R-44 S2	REG	EPA:905.0	0	1
CAMO-13-24246	R-44 S2	REG	HASL-300:AM-241	0	1
CAMO-13-24246	R-44 S2	REG	HASL-300:ISOPU	0	2
CAMO-13-24246	R-44 S2	REG	HASL-300:ISOU	0	3
CAMO-13-24246	R-44 S2	REG	SW-846:9060	0	1
CAMO-13-24262	R-44 S1	REG	EPA:120.1	0	1
CAMO-13-24262	R-44 S1	REG	EPA:150.1	0	1
CAMO-13-24262	R-44 S1	REG	EPA:160.1	0	1
CAMO-13-24262	R-44 S1	REG	EPA:245.2	0	1
CAMO-13-24262	R-44 S1	REG	EPA:300.0	0	4
CAMO-13-24262	R-44 S1	REG	EPA:310.1	0	2
CAMO-13-24262	R-44 S1	REG	EPA:350.1	0	1
CAMO-13-24262	R-44 S1	REG	EPA:353.2	0	1
CAMO-13-24262	R-44 S1	REG	EPA:365.4	0	1
CAMO-13-24262	R-44 S1	REG	SM:A2340B	0	1
CAMO-13-24262	R-44 S1	REG	SW-846:6010B	0	17
CAMO-13-24262	R-44 S1	REG	SW-846:6020	0	11
CAMO-13-24262	R-44 S1	REG	SW-846:6850	0	1
CAMO-13-24263	R-44 S2	REG	EPA:120.1	0	1
CAMO-13-24263	R-44 S2	REG	EPA:150.1	0	1
CAMO-13-24263	R-44 S2	REG	EPA:160.1	0	1
CAMO-13-24263	R-44 S2	REG	EPA:245.2	0	1
CAMO-13-24263	R-44 S2	REG	EPA:300.0	0	4
CAMO-13-24263	R-44 S2	REG	EPA:310.1	0	2
CAMO-13-24263	R-44 S2	REG	EPA:350.1	0	1
CAMO-13-24263	R-44 S2	REG	EPA:353.2	0	1
CAMO-13-24263	R-44 S2	REG	EPA:365.4	0	1
CAMO-13-24263	R-44 S2	REG	SM:A2340B	0	1
CAMO-13-24263	R-44 S2	REG	SW-846:6010B	0	17

0.145	pCi/L	0.145	pCi/L	5.32	1.39	W	11/12/2012		1263255	VAL	Y
0.00695	pCi/L	0.00695	pCi/L	0.49	0.132	W	11/12/2012		1264650	VAL	Y
0.0206	pCi/L	0.0206	pCi/L	0.0344	0.00881	W	11/12/2012		1263630	VAL	Y

CAMO-13-24263	R-44 S2	REG	SW-846:6020	0	11
CAMO-13-24263	R-44 S2	REG	SW-846:6850	0	1

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

December 07, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 315160
SDG: 2013-307

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 14, 2012, and analyzed for General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-307
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 315160
SDG: 2013-307

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....10

Perchlorates by LCMSMS Analysis.....12

Case Narrative.....13

Sample Data Summary.....19

Quality Control Summary.....22

Quality Control Data.....25

Metals Analysis.....31

Case Narrative.....32

Sample Data Summary.....38

Quality Control Summary.....44

General Chem Analysis.....58

Case Narrative.....59

Sample Data Summary.....87

Quality Control Summary.....95

Miscellaneous.....101

Radiological Analysis.....105

Sample Data Summary.....118

Quality Control Data.....123

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 315160
SDG # : 2013-307

December 07, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 14, 2012 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. The containers for Gross A/B were preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). The containers for radiochemistry were received at a temperature of 17C. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
315160001	CAMO-13-24245
315160002	CAMO-13-24262
315160003	CAMO-13-24246
315160004	CAMO-13-24263

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

for
Valerie Davis
Project Manager

List of current GEL Certifications as of 07 December 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

315160

COC/Lab Request #: 2013-307

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAMO-13-24245	Nov 12 2012	10:58	W			1			1	1
CAMO-13-24262	Nov 12 2012	10:58	W	1	1		1	1		
CAMO-13-24246	Nov 12 2012	12:38	W			1			1	1
CAMO-13-24263	Nov 12 2012	12:38	W	1	1		1	1		

Special Instructions:

Special Instructions:

Relinquished by:		Date/Time: 11/13/12 3:00	Received by: P. Nerd	11-14-12 0900
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/AR/COC/Work Order: 2013-307**
Received By: Patricia Dent	**Date Received:November 14, 2012**

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0CPM**
Classified Radioactive II or III by RSO?		X	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		X	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **3,4,17C**
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524646**
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			X	Sample ID's, containers affected and observed pH:**CAMO-13-24245, 24246 for Gross A/B** If Preservation added, Lot#**L03022**
6	VOA vials free of headspace (defined as < 6mm bubble)?	X			Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?	X			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			X	**CLIENTS**
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.	X			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9832 5285 3C 5462 9832 5274 4C 5462 9832 5263 17C**

Comments (Use Continuation Form if needed):

PM (PMA) review Initials P.D. Date 11-16-12 Page 1 of 1

Subject: Sample receipt issues from 11/14/12
From: Pat Dent <Pat.Dent@gel.com>
Date: 11/14/2012 5:22 PM
To: "Keith R. Greene" <kgreene@lanl.gov>, "team.davis" <team.davis@gel.com>, LANL@amrad.com

Good Evening all listed below are today's issues

Containers received for Gross A/B was preserved prior to analysis

RN#2013-306
Sample ID-CAMO-13-24250 the lab rec'd 1 container SVOA broken.
CAMO-13-25233 the lab rec'd 1 8260b container instead of 2 as indicated on coc.

Thanks!!

--
Patricia Dent
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Rd.
Charleston, S.C. 29407
Main: 843-556-8171 Ext 4264
Fax: 843-766-1178
Email: pad@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 13NOV12
ACTWGT: 46.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015GWK0

3c

58DC3/EE3B/10BC

FedEx Express

J111311060601 25

2 of 2
MPS# 0263 5462 9832 5285
Mstr# 5462 9832 5274

0201

WED - 14 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RITZ 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 13NOV12
ACTWGT: 41.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015GWK0

4c

58DC3/EE3B/10BC

FedEx Express

J111311060601 25

1 of 2
TRK# 0201 5462 9832 5274
** MASTER **

WED - 14 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RITZ 08/10

ORIGIN ID: SAFA (50[illegible]366
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 13NOV12
ACTWGT: 51.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: W51100000000

17c

50DC3/EE3B/10BC

FedEx Express

J1113110606 0125

TRK# 0201 5462 9832 5263

WED - 14 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC/MSMS
ARS International (ARSL)
SDG 2013-307

Method/Analysis Information

Procedure:	**Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method:	SW846 6850 Modified
Prep Method:	SW846 6850 Modified
Analytical Batch Number:	1263682
Prep Batch Number:	1263681

Sample Analysis

Sample ID	Client ID
315160002	CAMO-13-24262
315160004	CAMO-13-24263
1202780937	Interference Check Sample (ICS)
1202780933	Method Blank (MB)
1202780934	Laboratory Control Sample (LCS)
1202780935	315160002(CAMO-13-24262) Matrix Spike (MS)
1202780936	315160002(CAMO-13-24262) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 9.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

ICV Requirements
The initial calibration verification standard (ICV) met the acceptance criteria.

CCB Requirements
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

CCV Requirements
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

Low Level Standard (CRI) Requirements
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Interference Check Sample (ICS)
The interference check sample (ICS) met all recovery acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Client sample 315160002 (CAMO-13-24262) was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits.

Retention Time Standard Area Acceptance
The retention time standard areas were within the required acceptance criteria for all samples and QC.

Retention Time
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

A data exception report (DER) was not generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

Additional Comments
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples. Please see the isotope ratio criteria in the Miscellaneous Section.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-307 GEL Work Order: 315160

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 20 NOV 2012 **Title: Group Leader**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1263681

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24262

Date Received: 14-NOV-12

GEL Job No (SDG): 2013-307

GEL Sample ID: 315160002

Date Filtered: 15-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.395	ug/L		1	15-NOV-12 14:11	per1115017a
	Perchlorate Isotope Ratio			3.13			1	15-NOV-12 14:11	per1115017a
14797-73-0	Perchlorate-101	.05	.2	0.391	ug/L		1	15-NOV-12 14:11	per1115017a
	Perchlorate-O(18)			0.487	ug/L		1	15-NOV-12 14:11	per1115017a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1263681

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24263

Date Received: 14-NOV-12

GEL Job No (SDG): 2013-307

GEL Sample ID: 315160004

Date Filtered: 15-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.343	ug/L		1	15-NOV-12 14:35	per1115020a
	Perchlorate Isotope Ratio			3.07			1	15-NOV-12 14:35	per1115020a
14797-73-0	Perchlorate-101	.05	.2	0.346	ug/L		1	15-NOV-12 14:35	per1115020a
	Perchlorate-O(18)			0.502	ug/L		1	15-NOV-12 14:35	per1115020a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2013-307

Extract Batch Code: 1263681

Date Filtered: 15-NOV-12

Matrix: WATER

Sample ID: 1202780934

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.215	ug/L	107		85 - 115
Perchlorate Isotope Ratio		3.24				-
Perchlorate-101	0.200	.205	ug/L	103		85 - 115
Perchlorate-O(18)		.504	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2013-307

Extract Batch Code: 1263681

Date Extracted: 15-NOV-12

GEL MS/PS ID: 1202780935

Client ID: CAMO-13-24262

GEL MSD/PSD ID: 1202780936

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec #	MSD Conc	MSD Rec #	RPD #	RPD Limit	Recovery Limit
Perchlorate	0.200	0.395	ug/L	0.625	115	.625	115	.0862	30	75 - 125
Perchlorate Isotope Ratio	0	3.13		3.1		3.19		3.08		-
Perchlorate-101	0.200	0.391	ug/L	0.625	117	.606	108	3.16	30	75 - 125
Perchlorate-O(18)	0	0.487	ug/L	0.490		.497		1.41		-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1263681

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 15-NOV-12

GEL Job No (SDG): 2013-307

GEL Sample ID: 1202780933

Date Filtered: 15-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	15-NOV-12 13:31	per1115012a
	Perchlorate Isotope Ratio						1	15-NOV-12 13:31	per1115012a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	15-NOV-12 13:31	per1115012a
	Perchlorate-O(18)			0.500	ug/L		1	15-NOV-12 13:31	per1115012a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1263681

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 15-NOV-12

GEL Job No (SDG): 2013-307

GEL Sample ID: 1202780934

Date Filtered: 15-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.215	ug/L		1	15-NOV-12 13:39	per1115013a
	Perchlorate Isotope Ratio			3.24			1	15-NOV-12 13:39	per1115013a
14797-73-0	Perchlorate-101	.05	.2	0.205	ug/L		1	15-NOV-12 13:39	per1115013a
	Perchlorate-O(18)			0.504	ug/L		1	15-NOV-12 13:39	per1115013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1263681

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2013-307

GEL Sample ID: 1202780937

Date Filtered: 15-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.223	ug/L		1	15-NOV-12 13:47	per1115014a
	Perchlorate Isotope Ratio			3.15			1	15-NOV-12 13:47	per1115014a
14797-73-0	Perchlorate-101	.05	.2	0.220	ug/L		1	15-NOV-12 13:47	per1115014a
	Perchlorate-O(18)			0.528	ug/L		1	15-NOV-12 13:47	per1115014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1263681

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24262MS

Date Received: 14-NOV-12

GEL Job No (SDG): 2013-307

GEL Sample ID: 1202780935

Date Filtered: 15-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.625	ug/L		1	15-NOV-12 14:19	per1115018a
	Perchlorate Isotope Ratio			3.1			1	15-NOV-12 14:19	per1115018a
14797-73-0	Perchlorate-101	.05	.2	0.625	ug/L		1	15-NOV-12 14:19	per1115018a
	Perchlorate-O(18)			0.490	ug/L		1	15-NOV-12 14:19	per1115018a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1263681

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24262MSD

Date Received: 14-NOV-12

GEL Job No (SDG): 2013-307

GEL Sample ID: 1202780936

Date Filtered: 15-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.625	ug/L		1	15-NOV-12 14:27	per1115019a
	Perchlorate Isotope Ratio			3.19			1	15-NOV-12 14:27	per1115019a
14797-73-0	Perchlorate-101	.05	.2	0.606	ug/L		1	15-NOV-12 14:27	per1115019a
	Perchlorate-O(18)			0.497	ug/L		1	15-NOV-12 14:27	per1115019a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-307

Sample Analysis

Sample ID	Client ID
315160002	CAMO-13-24262
315160004	CAMO-13-24263
1202780426	Method Blank (MB) **ICP**
1202780427	Laboratory Control Sample (LCS)
1202780430	315160002(CAMO-13-24262L) Serial Dilution (SD)
1202780428	315160002(CAMO-13-24262D) Sample Duplicate (DUP)
1202780429	315160002(CAMO-13-24262S) Matrix Spike (MS)
1202780421	Method Blank (MB) **ICP-MS**
1202780422	Laboratory Control Sample (LCS)
1202780425	315160002(CAMO-13-24262L) Serial Dilution (SD)
1202780423	315160002(CAMO-13-24262D) Sample Duplicate (DUP)
1202780424	315160002(CAMO-13-24262S) Matrix Spike (MS)
1202788349	Method Blank (MB) **CVAA**
1202788350	Laboratory Control Sample (LCS)
1202788353	315353002(CAMO-13-24281L) Serial Dilution (SD)
1202788351	315353002(CAMO-13-24281D) Sample Duplicate (DUP)
1202788352	315353002(CAMO-13-24281S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1263453, 1263451, 1266834 and 1268873
Prep Batch :	1263452, 1263450 and 1266827
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 7
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B

Prep Method : SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 315160002 (CAMO-13-24262)-ICP and ICP-MS and 315353002 (CAMO-13-24281)-CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and

100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications

GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

Preparation Information

The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

Certification Statement
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:
GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 12/11/12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-307 GEL Work Order: 315160

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by 12/11/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-307 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 315160002 **BASIS:** As Received **DATE COLLECTED** 12-NOV-12

CLIENT ID: CAMO-13-24262 **LEVEL:** Low **DATE RECEIVED** 14-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/30/12 08:50	113012W1-14	1266834

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-307 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 315160002 **BASIS:** As Received **DATE COLLECTED** 12-NOV-12

CLIENT ID: CAMO-13-24262 **LEVEL:** Low **DATE RECEIVED** 14-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/29/12 15:34	112912A-1	1263453
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/27/12 14:10	121127-3	1263451
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/27/12 14:10	121127-3	1263451
7440-39-3	Barium	21.3	ug/L		1	5	5	1	P	HSC	11/29/12 15:34	112912A-1	1263453
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/29/12 15:34	112912A-1	1263453
7440-42-8	Boron	15.5	ug/L	J	15	50	50	1	P	HSC	11/29/12 15:34	112912A-1	1263453
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/27/12 14:10	121127-3	1263451
7440-70-2	Calcium	13600	ug/L		50	200	200	1	P	HSC	11/29/12 15:34	112912A-1	1263453
7440-47-3	Chromium	14.5	ug/L		2	10	10	1	MS	BAJ	11/28/12 12:59	121128-4	1263451
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/29/12 15:34	112912A-1	1263453
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/30/12 14:54	113012-2	1263453
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/29/12 15:34	112912A-1	1263453
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/27/12 14:10	121127-3	1263451
7439-95-4	Magnesium	3910	ug/L		110	300	300	1	P	HSC	11/29/12 15:34	112912A-1	1263453
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/29/12 15:34	112912A-1	1263453
7439-98-7	Molybdenum	0.879	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/28/12 12:59	121128-4	1263451
7440-02-0	Nickel	0.864	ug/L	J	0.5	2	2	1	MS	BAJ	11/27/12 14:10	121127-3	1263451
7440-09-7	Potassium	1200	ug/L		50	150	150	1	P	HSC	11/29/12 15:34	112912A-1	1263453
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/27/12 14:10	121127-3	1263451
7631-86-9	Silica	76300	ug/L		53	213	213	1	P	HSC	11/29/12 15:34	112912A-1	1263453
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/27/12 14:10	121127-3	1263451
7440-23-5	Sodium	9960	ug/L		100	300	300	1	P	HSC	11/30/12 14:54	113012-2	1263453
7440-24-6	Strontium	59.5	ug/L		1	5	5	1	P	HSC	11/29/12 15:34	112912A-1	1263453
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/27/12 14:10	121127-3	1263451
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/30/12 14:54	113012-2	1263453
7440-61-1	Uranium	0.461	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/27/12 14:10	121127-3	1263451
7440-62-2	Vanadium	4.95	ug/L	J	1	5	5	1	P	HSC	11/29/12 15:34	112912A-1	1263453
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	11/29/12 15:34	112912A-1	1263453

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-307 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 315160002 **BASIS:** As Received **DATE COLLECTED** 12-NOV-12

CLIENT ID: CAMO-13-24262 **LEVEL:** Low **DATE RECEIVED** 14-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	49.9	mg/L		0.453	1.24	1.24	1		JJ2	12/06/12 16:59		1268873

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1263451	1263450	SW846 3005A	50	mL	50	mL	11/20/12	AXG2
1263453	1263452	SW846 3005A	50	mL	50	mL	11/20/12	AXG2
1266834	1266827	EPA 245.1/245.2 Prep	20	mL	20	mL	11/29/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-307 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 315160004 **BASIS:** As Received **DATE COLLECTED** 12-NOV-12

CLIENT ID: CAMO-13-24263 **LEVEL:** Low **DATE RECEIVED** 14-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/30/12 08:51	113012W1-14	1266834

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-307 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 315160004 **BASIS:** As Received **DATE COLLECTED** 12-NOV-12

CLIENT ID: CAMO-13-24263 **LEVEL:** Low **DATE RECEIVED** 14-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/29/12 15:46	112912A-1	1263453
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/27/12 14:27	121127-3	1263451
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/27/12 14:27	121127-3	1263451
7440-39-3	Barium	22.7	ug/L		1	5	5	1	P	HSC	11/29/12 15:46	112912A-1	1263453
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/29/12 15:46	112912A-1	1263453
7440-42-8	Boron	15.2	ug/L	J	15	50	50	1	P	HSC	11/29/12 15:46	112912A-1	1263453
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/27/12 14:27	121127-3	1263451
7440-70-2	Calcium	13700	ug/L		50	200	200	1	P	HSC	11/29/12 15:46	112912A-1	1263453
7440-47-3	Chromium	4.74	ug/L	J	2	10	10	1	MS	BAJ	11/28/12 13:14	121128-4	1263451
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/29/12 15:46	112912A-1	1263453
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/30/12 15:25	113012-2	1263453
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/29/12 15:46	112912A-1	1263453
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/27/12 14:27	121127-3	1263451
7439-95-4	Magnesium	4310	ug/L		110	300	300	1	P	HSC	11/29/12 15:46	112912A-1	1263453
7439-96-5	Manganese	2.77	ug/L	J	2	10	10	1	P	HSC	11/29/12 15:46	112912A-1	1263453
7439-98-7	Molybdenum	0.840	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/28/12 13:14	121128-4	1263451
7440-02-0	Nickel	0.927	ug/L	J	0.5	2	2	1	MS	BAJ	11/27/12 14:27	121127-3	1263451
7440-09-7	Potassium	1340	ug/L		50	150	150	1	P	HSC	11/29/12 15:46	112912A-1	1263453
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/27/12 14:27	121127-3	1263451
7631-86-9	Silica	77000	ug/L		53	213	213	1	P	HSC	11/29/12 15:46	112912A-1	1263453
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/27/12 14:27	121127-3	1263451
7440-23-5	Sodium	10800	ug/L		100	300	300	1	P	HSC	11/30/12 15:25	113012-2	1263453
7440-24-6	Strontium	60.6	ug/L		1	5	5	1	P	HSC	11/29/12 15:46	112912A-1	1263453
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/27/12 14:27	121127-3	1263451
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/30/12 15:25	113012-2	1263453
7440-61-1	Uranium	0.558	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/27/12 14:27	121127-3	1263451
7440-62-2	Vanadium	6.25	ug/L		1	5	5	1	P	HSC	11/29/12 15:46	112912A-1	1263453
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	11/29/12 15:46	112912A-1	1263453

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-307 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 315160004 **BASIS:** As Received **DATE COLLECTED** 12-NOV-12

CLIENT ID: CAMO-13-24263 **LEVEL:** Low **DATE RECEIVED** 14-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	52	mg/L		0.453	1.24	1.24	1		JJ2	12/06/12 16:59		1268873

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1263451	1263450	SW846 3005A	50	mL	50	mL	11/20/12	AXG2
1263453	1263452	SW846 3005A	50	mL	50	mL	11/20/12	AXG2
1266834	1266827	EPA 245.1/245.2 Prep	20	mL	20	mL	11/29/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−307

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202780421								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202780426								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	50	ug/L	+/−150	U	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202788349								
	Mercury	−0.081	ug/L	+/−0.2	J	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−307 **Client ID** CAMO−13−24262S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315160002 **Spike ID:** 1202780424

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	197		1	U	200	98.7		MS
Arsenic	ug/L	75−125	84.6		1.7	U	80	104		MS
Cadmium	ug/L	75−125	10.9		0.11	U	10	109		MS
Chromium	ug/L	75−125	64.3		14.5		50	99.5		MS
Lead	ug/L	75−125	43.3		0.5	U	40	108		MS
Molybdenum	ug/L	75−125	50.3		0.879		50	98.7		MS
Nickel	ug/L	75−125	54.2		0.864	J	50	107		MS
Selenium	ug/L	75−125	22.1		1.5	U	20	108		MS
Silver	ug/L	75−125	54.7		0.2	U	50	109		MS
Thallium	ug/L	75−125	95.5		0.45	U	100	95.4		MS
Uranium	ug/L	75−125	52.9		0.461		50	105		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−307 **Client ID** CAMO−13−24262S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315160002 **Spike ID:** 1202780429

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5150		68	U	5000	103		P
Barium	ug/L	75−125	529		21.3		500	102		P
Beryllium	ug/L	75−125	522		1	U	500	104		P
Boron	ug/L	75−125	532		15.5	J	500	103		P
Calcium	ug/L	75−125	18100		13600		5000	91.5		P
Cobalt	ug/L	75−125	511		1	U	500	102		P
Copper	ug/L	75−125	512		3	U	500	102		P
Iron	ug/L	75−125	5260		30	U	5000	105		P
Magnesium	ug/L	75−125	9220		3910		5000	106		P
Manganese	ug/L	75−125	519		2	U	500	104		P
Potassium	ug/L	75−125	6220		1200		5000	101		P
Silica	ug/L		85900		76300		10700	89.3	N/A	P
Sodium	ug/L	75−125	14700		9960		5000	94		P
Strontium	ug/L	75−125	583		59.5		500	105		P
Tin	ug/L	75−125	494		2.5	U	500	98.8		P
Vanadium	ug/L	75−125	527		4.95	J	500	104		P
Zinc	ug/L	75−125	517		3.3	U	500	103		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−307 **Client ID** CAMO−13−24281S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315353002 **Spike ID:** 1202788352

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.11		0.067	U	2	106		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−307 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24262D

Matrix: LIQUID **Level:** Low

Sample ID: 315160002 **Duplicate ID:** 1202780423 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	14.5		14.7		1.07		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	0.879		0.866		1.49		MS
Nickel	ug/L	+/−2	0.864	J	0.891	J	3.08		MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.461		0.469		1.72		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−307 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24262D

Matrix: LIQUID **Level:** Low

Sample ID: 315160002 **Duplicate ID:** 1202780428 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−5	21.3		21.4		.211		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15.5	J	15	U	200		P
Calcium	ug/L	+/−20%	13600		13600		.684		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L		3	U	3	U			P
Iron	ug/L		30	U	30	U			P
Magnesium	ug/L	+/−20%	3910		3950		1.02		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	1200		1220		2.08		P
Silica	ug/L	+/−20%	76300		76500		.196		P
Sodium	ug/L	+/−20%	9960		9990		.325		P
Strontium	ug/L	+/−20%	59.5		59.2		.529		P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L	+/−5	4.95	J	4.97	J	.349		P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−307 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24281D

Matrix: LIQUID **Level:** Low

Sample ID: 315353002 **Duplicate ID:** 1202788351 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−307

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202780422								
	Antimony	ug/L	50	50.7		101	80−120	MS
	Arsenic	ug/L	50	54.1		108	80−120	MS
	Cadmium	ug/L	50	52.1		104	80−120	MS
	Chromium	ug/L	50	52.2		104	80−120	MS
	Lead	ug/L	50	54		108	80−120	MS
	Molybdenum	ug/L	50	50		100	80−120	MS
	Nickel	ug/L	50	56.8		114	80−120	MS
	Selenium	ug/L	50	55		110	80−120	MS
	Silver	ug/L	50	56.7		113	80−120	MS
	Thallium	ug/L	50	50.8		102	80−120	MS
	Uranium	ug/L	50	52.9		106	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−307

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202780427								
	Aluminum	ug/L	5000	5150		103	80−120	P
	Barium	ug/L	500	506		101	80−120	P
	Beryllium	ug/L	500	513		103	80−120	P
	Boron	ug/L	500	507		101	80−120	P
	Calcium	ug/L	5000	5200		104	80−120	P
	Cobalt	ug/L	500	507		101	80−120	P
	Copper	ug/L	500	493		98.6	80−120	P
	Iron	ug/L	5000	5180		104	80−120	P
	Magnesium	ug/L	5000	5400		108	80−120	P
	Manganese	ug/L	500	515		103	80−120	P
	Potassium	ug/L	5000	5050		101	80−120	P
	Silica	ug/L	10700	10900		102	80−120	P
	Sodium	ug/L	5000	4990		99.8	80−120	P
	Strontium	ug/L	500	519		104	80−120	P
	Tin	ug/L	500	490		98	80−120	P
	Vanadium	ug/L	500	514		103	80−120	P
	Zinc	ug/L	500	502		100	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−307

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202788350								
	Mercury	ug/L	2	2.09		104	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−307 **Client ID** CAMO−13−24262L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315160002 **Serial Dilution ID:** 1202780425

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	14.5		15.5	J	6.39			MS
Lead	.5	U	2.5	U				MS
Molybdenum	.879		1.2	J	36.5			MS
Nickel	.864	J	2.5	U	100			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	4.29	J				MS
Uranium	.461		.53	J	15			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−307 **Client ID** CAMO−13−24262L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315160002 **Serial Dilution ID:** 1202780430

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	21.3		20.8	J	2.32			P
Beryllium	1	U	5	U				P
Boron	15.5	J	75	U	100			P
Calcium	13600		13000		3.85		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	3910		3920		.476			P
Manganese	2	U	10	U				P
Potassium	1200		1310		9.48			P
Silica	76300		75700		.811		10	P
Sodium	9960		9650		3.08		10	P
Strontium	59.5		55.6		6.59		10	P
Tin	2.5	U	12.5	U				P
Vanadium	4.95	J	6.05	J	22.3			P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−307 **Client ID** CAMO−13−24281L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315353002 **Serial Dilution ID:** 1202788353

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-307

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1262822 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
315160001	CAMO-13-24245
315160003	CAMO-13-24246
1202778960	Method Blank (MB)
1202778961	315160001(CAMO-13-24245) Sample Duplicate (DUP)
1202778962	315160001(CAMO-13-24245) Post Spike (PS)
1202778963	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315160001 (CAMO-13-24245).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202778961 (CAMO-13-24245).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1266189	**Method:**	EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
315160002	CAMO-13-24262
315160004	CAMO-13-24263
1202786720	314987004(CAMO-13-24270) Sample Duplicate (DUP)
1202786721	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202786722	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314987004 (CAMO-13-24270) and 315159002 (CAMO-13-24266).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1263688 **Method:** EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
315160002	CAMO-13-24262
315160004	CAMO-13-24263
1202780948	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202780951	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315159002 (CAMO-13-24266).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following samples from this sample group were received by the lab outside of the method specified holding time: 315160002 (CAMO-13-24262) and 315160004 (CAMO-13-24263).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1141911 315160002 (CAMO-13-24262) and 315160004 (CAMO-13-24263).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1263381	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
315160002	CAMO-13-24262
315160004	CAMO-13-24263
1202780265	Method Blank (MB)
1202780266	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202780267	315159002(CAMO-13-24266) Post Spike (PS)
1202780268	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315159002 (CAMO-13-24266).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202780266 (CAMO-13-24266), 1202780267 (CAMO-13-24266), 315160002 (CAMO-13-24262) and 315160004 (CAMO-13-24263).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1263572	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1263571	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
315160002	CAMO-13-24262
315160004	CAMO-13-24263
1202780702	Method Blank (MB)
1202780703	314987010(CAMO-13-24229) Sample Duplicate (DUP)
1202780705	314987010(CAMO-13-24229) Matrix Spike (MS)
1202780707	314987010(CAMO-13-24229) Matrix Spike Duplicate (MSD)
1202780709	Laboratory Control Sample (LCS)
1202782504	315361001(SWWS46-13-24772) Sample Duplicate (DUP)
1202782505	315361001(SWWS46-13-24772) Matrix Spike (MS)
1202782506	315361001(SWWS46-13-24772) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314987010 (CAMO-13-24229) and 315361001 (SWWS46-13-24772).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The spike duplicate recovery falls outside of the established acceptance limits. Since both the spike recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported. 1202780707 (CAMO-13-24229).

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202780703 (CAMO-13-24229).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis

The following samples were re-analyzed to verify the results: 1202782504 (SWWS46-13-24772), 1202782505 (SWWS46-13-24772) and 1202782506 (SWWS46-13-24772).

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1142046 1202780707 (CAMO-13-24229).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1263581	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1263580	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
315160001	CAMO-13-24245
315160003	CAMO-13-24246
1202780728	Method Blank (MB)
1202780729	315159001(CAMO-13-24249) Sample Duplicate (DUP)
1202780731	315159001(CAMO-13-24249) Matrix Spike (MS)
1202780733	315159001(CAMO-13-24249) Matrix Spike Duplicate (MSD)
1202780735	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315159001 (CAMO-13-24249).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202780731 (CAMO-13-24249).

Matrix Spike Duplicate (MSD) Recovery Statement
The spike duplicate recovery falls outside of the established acceptance limits due to matrix interference: 1202780733 (CAMO-13-24249).

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202780729 (CAMO-13-24249).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following samples were re-analyzed due to instrument failure: 1202780728 (MB) and 1202780735 (LCS). The following samples were re-analyzed to verify the results: 1202780728 (MB), 1202780729 (CAMO-13-24249), 1202780731 (CAMO-13-24249) and 1202780735 (LCS).

Miscellaneous Information

Data Exception (DER) Documentation

The following DER was generated for this SDG: 1141299 1202780731 (CAMO-13-24249) and 1202780733 (CAMO-13-24249).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1263016	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
315160002	CAMO-13-24262
315160004	CAMO-13-24263
1202779479	Method Blank (MB)
1202779484	Laboratory Control Sample (LCS)
1202780694	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202780695	315159002(CAMO-13-24266) Post Spike (PS)
1202782515	315361001(SWWS46-13-24772) Sample Duplicate (DUP)
1202782516	315361001(SWWS46-13-24772) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 315159002 (CAMO-13-24266) and 315361001 (SWWS46-13-24772).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202780694 (CAMO-13-24266), 1202780695 (CAMO-13-24266), 1202782515 (SWWS46-13-24772) and 1202782516 (SWWS46-13-24772). The following sample in this sample group was diluted due to matrix interference: 315160002 (CAMO-13-24262).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1263577	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1263576	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
315160002	CAMO-13-24262
315160004	CAMO-13-24263
1202780715	Method Blank (MB)
1202780716	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202780717	315160002(CAMO-13-24262) Sample Duplicate (DUP)
1202780718	315159002(CAMO-13-24266) Matrix Spike (MS)
1202780719	315160002(CAMO-13-24262) Matrix Spike (MS)
1202780720	315159002(CAMO-13-24266) Matrix Spike Duplicate (MSD)
1202780721	315160002(CAMO-13-24262) Matrix Spike Duplicate (MSD)
1202780722	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 315159002 (CAMO-13-24266) and 315160002 (CAMO-13-24262).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries for this sample set were within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202780716 (CAMO-13-24266).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Solids, Total Dissolved**		
Analytical Batch:	1263692	**Method:**	EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
315160002	CAMO-13-24262
315160004	CAMO-13-24263
1202780960	Method Blank (MB)
1202780961	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202780962	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315159002 (CAMO-13-24266).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Alkalinity**

Analytical Batch: 1264841 **Method:** EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
315160002	CAMO-13-24262
315160004	CAMO-13-24263
1202784160	Laboratory Control Sample (LCS)
1202784164	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202784165	315159002(CAMO-13-24266) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315159002 (CAMO-13-24266).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____11Dec12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-307 GEL Work Order: 315160

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 11, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-307

Client Sample ID:	CAMO-13-24245	Project:	ESHL00210
Sample ID:	315160001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	12-NOV-12 10:58		
Receive Date:	14-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.707	0.330	1.00	mg/L	1	TSM	11/16/12	1803	1262822	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl		0.172	0.035	0.100	mg/L	1	KLP1	11/16/12	1353	1263581	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/15/12	1700	1263580

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 11, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-307

Client Sample ID:	CAMO-13-24262	Project:	ESHL00210
Sample ID:	315160002	Client ID:	ARSL001
Matrix:	W		
Collect Date:	12-NOV-12 10:58		
Receive Date:	14-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		134	1.00	1.00	umhos/cm	1	LXA1	11/27/12	1535	1266189	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 12.8C	H	7.88	0.010	0.100	SU	1	LYG1	11/15/12	0848	1263688	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	11/26/12	2041	1263381	3
Chloride		2.32	0.067	0.200	mg/L	1					
Fluoride		0.320	0.033	0.100	mg/L	1					
Sulfate		3.33	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.053	0.017	0.050	mg/L	1	KLP1	11/19/12	1229	1263572	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		1.10	0.085	0.250	mg/L	5	KLP1	11/19/12	1145	1263016	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.0507	0.017	0.050	mg/L	1	KLP1	11/16/12	1120	1263577	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		131	3.40	14.3	mg/L		LYG1	11/15/12	0800	1263692	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		58.5	0.725	1.00	mg/L		LXA1	11/20/12	1249	1264841	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/19/12	1045	1263571
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/15/12	1700	1263576

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 11, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-307
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24262	Project:	ESHL00210
Sample ID:	315160002	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 11, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-307

Client Sample ID:	CAMO-13-24246	Project:	ESHL00210
Sample ID:	315160003	Client ID:	ARSL001
Matrix:	W		
Collect Date:	12-NOV-12 12:38		
Receive Date:	14-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.906	0.330	1.00	mg/L	1	TSM	11/16/12	1905	1262822	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.035	0.100	mg/L	1	KLP1	11/16/12	1354	1263581	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/15/12	1700	1263580

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 11, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-307

Client Sample ID:	CAMO-13-24263	Project:	ESHL00210
Sample ID:	315160004	Client ID:	ARSL001
Matrix:	W		
Collect Date:	12-NOV-12 12:38		
Receive Date:	14-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		145	1.00	1.00	umhos/cm	1	LXA1	11/27/12	1536	1266189	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 13.3C	H	7.97	0.010	0.100	SU	1	LYG1	11/15/12	0849	1263688	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	11/26/12	2110	1263381	3
Chloride		2.26	0.067	0.200	mg/L	1					
Fluoride		0.367	0.033	0.100	mg/L	1					
Sulfate		3.45	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	U	ND	0.017	0.050	mg/L	1	KLP1	11/19/12	1230	1263572	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.626	0.017	0.050	mg/L	1	KLP1	11/19/12	1146	1263016	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	U	ND	0.017	0.050	mg/L	1	KLP1	11/16/12	1123	1263577	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		140	3.40	14.3	mg/L		LYG1	11/15/12	0800	1263692	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		66.0	0.725	1.00	mg/L		LXA1	11/20/12	1251	1264841	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/19/12	1045	1263571
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/15/12	1700	1263576

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 11, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-307
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24263	Project:	ESHL00210
Sample ID:	315160004	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: December 11, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **315160**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis											
Batch 1262822											
QC1202778961 315160001 DUP											
Total Organic Carbon Average		J	0.707	J	0.887	mg/L	22.6 ^		(+/-1.00)	TSM	11/16/12 18:36
QC1202778963 LCS											
Total Organic Carbon Average	10.0				9.66	mg/L		96.6	(85%-115%)		11/16/12 14:17
QC1202778960 MB											
Total Organic Carbon Average				U	ND	mg/L					11/16/12 14:08
QC1202778962 315160001 PS											
Total Organic Carbon Average	10.0	J	0.707		10.5	mg/L		97.5	(65%-120%)		11/16/12 18:56
Conductivity Analysis											
Batch 1266189											
QC1202786720 314987004 DUP											
Conductivity			188		189	umhos/cm	0.212		(0%-10%)	LXA1	11/27/12 15:25
QC1202786721 315159002 DUP											
Conductivity			187		187	umhos/cm	0.00		(0%-10%)		11/27/12 15:33
QC1202786722 LCS											
Conductivity	1410				1430	umhos/cm		101	(95%-105%)		11/27/12 15:23
Electrode Analysis											
Batch 1263688											
QC1202780948 315159002 DUP											
pH		H	8.02	H	8.06	SU	0.498		(0%-10%)	LYG1	11/15/12 08:45
QC1202780951 LCS											
pH	7.00				7.01	SU		100	(99%-101%)		11/15/12 08:24
Ion Chromatography											
Batch 1263381											
QC1202780266 315159002 DUP											
Bromide		J	0.0775	J	0.0804	mg/L	3.67 ^		(+/-0.200)	MAR1	11/26/12 19:14
Chloride			7.07		7.09	mg/L	0.171		(0%-20%)		
Fluoride			0.337		0.325	mg/L	3.74 ^		(+/-0.100)		
Sulfate			10.7		10.7	mg/L	0.0168		(0%-20%)		
QC1202780268 LCS											
Bromide	2.50				2.65	mg/L		106	(90%-110%)		11/26/12 18:16
Chloride	10.0				9.53	mg/L		95.3	(90%-110%)		
Fluoride	5.00				5.11	mg/L		102	(90%-110%)		
Sulfate	20.0				20.0	mg/L		99.8	(90%-110%)		
QC1202780265 MB											
Bromide				U	ND	mg/L					11/26/12 17:47
Chloride				U	ND	mg/L					
Fluoride				U	ND	mg/L					
Sulfate				U	ND	mg/L					
QC1202780267 315159002 PS											

QC Summary

Workorder: 315160

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1263381											
Bromide	2.50	J	0.0775		2.62	mg/L		102	(90%-110%)		11/26/12 19:43
Chloride	10.0		7.07		17.5	mg/L		105	(90%-110%)	MAR1	
Fluoride	5.00		0.337		5.25	mg/L		98.3	(90%-110%)		
Sulfate	20.0		10.7		31.1	mg/L		102	(90%-110%)		
Nutrient Analysis											
Batch 1263016											
QC1202780694 315159002 DUP											
Nitrogen, Nitrate/Nitrite			1.50		1.57	mg/L	4.89		(0%-20%)	KLP1	11/19/12 11:37
QC1202782515 315361001 DUP											
Nitrogen, Nitrate/Nitrite			2.18		2.18	mg/L	0.00		(0%-20%)		11/19/12 12:04
QC1202779484 LCS											
Nitrogen, Nitrate/Nitrite	1.00				1.04	mg/L		104	(90%-110%)		11/19/12 11:28
QC1202779479 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					11/19/12 11:27
QC1202780695 315159002 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.299		1.28	mg/L		98.1	(90%-110%)		11/19/12 11:38
QC1202782516 315361001 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.435		1.47	mg/L		104	(90%-110%)		11/19/12 12:05
Batch 1263572											
QC1202780703 314987010 DUP											
Nitrogen, Ammonia			0.0606	J	0.0307	mg/L	65.5 ^		(+/-0.050)	KLP1	11/19/12 12:14
QC1202782504 315361001 DUP											
Nitrogen, Ammonia			0.257		0.254	mg/L	1.17		(0%-20%)		11/19/12 12:48
QC1202780709 LCS											
Nitrogen, Ammonia	1.00				0.980	mg/L		98	(90%-110%)		11/19/12 12:12
QC1202780702 MB											
Nitrogen, Ammonia				U	ND	mg/L					11/19/12 12:11
QC1202780705 314987010 MS											
Nitrogen, Ammonia	1.00		0.0606		1.01	mg/L		94.9	(90%-110%)		11/19/12 12:15
QC1202782505 315361001 MS											
Nitrogen, Ammonia	1.00		0.257		1.19	mg/L		93.3	(90%-110%)		11/19/12 12:49
QC1202780707 314987010 MSD											
Nitrogen, Ammonia	1.00		0.0606		0.953	mg/L	5.81	89.2 *	(0%-15%)		11/19/12 12:15
QC1202782506 315361001 MSD											
Nitrogen, Ammonia	1.00		0.257		1.20	mg/L	0.837	94.3	(0%-15%)		11/19/12 12:49
Batch 1263577											
QC1202780716 315159002 DUP											
Phosphorus, Total as P		J	0.0482	U	ND	mg/L	N/A ^			KLP1	11/16/12 11:13
QC1202780717 315160002 DUP											
Phosphorus, Total as P			0.0507	J	0.039	mg/L	26.1 ^		(+/-0.050)		11/16/12 11:21
QC1202780722 LCS											
Phosphorus, Total as P	1.00				1.04	mg/L		104	(76%-120%)		11/16/12 11:09
QC1202780715 MB											
Phosphorus, Total as P				U	ND	mg/L					11/16/12 11:08
QC1202780718 315159002 MS											
Phosphorus, Total as P	1.00	J	0.0482		1.07	mg/L		102	(62%-139%)		11/16/12 11:14
QC1202780719 315160002 MS											

QC Summary

Workorder: 315160

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis											
Batch 1263577											
Phosphorus, Total as P	1.00		0.0507		1.07	mg/L		102	(62%-139%)		11/16/12 11:22
QC1202780720 315159002 MSD											
Phosphorus, Total as P	1.00	J	0.0482		1.09	mg/L	1.85	104	(0%-20%)	KLP1	11/16/12 11:15
QC1202780721 315160002 MSD											
Phosphorus, Total as P	1.00		0.0507		1.07	mg/L	0.00	102	(0%-20%)		11/16/12 11:23
Batch 1263581											
QC1202780729 315159001 DUP											
Nitrogen, Total Kjeldahl		J	0.0786	J	0.0382	mg/L	69.2 ^		(+/-0.100)	KLP1	11/16/12 13:50
QC1202780735 LCS											
Nitrogen, Total Kjeldahl	1.00				1.08	mg/L		108	(90%-110%)		11/16/12 13:48
QC1202780728 MB											
Nitrogen, Total Kjeldahl				U	ND	mg/L					11/16/12 13:47
QC1202780731 315159001 MS											
Nitrogen, Total Kjeldahl	1.00	J	0.0786		1.36	mg/L		128 *	(90%-110%)		11/16/12 13:51
QC1202780733 315159001 MSD											
Nitrogen, Total Kjeldahl	1.00	J	0.0786		1.26	mg/L	7.63	118 *	(0%-20%)		11/16/12 13:52
Solids Analysis											
Batch 1263692											
QC1202780961 315159002 DUP											
Total Dissolved Solids			153		143	mg/L	6.76		(0%-10%)	LYG1	11/15/12 08:00
QC1202780962 LCS											
Total Dissolved Solids	300				296	mg/L		98.6	(95%-105%)		11/15/12 08:00
QC1202780960 MB											
Total Dissolved Solids				U	ND	mg/L					11/15/12 08:00
Titration Analysis											
Batch 1264841											
QC1202784164 315159002 DUP											
Alkalinity, Total as CaCO3			63.8		63.3	mg/L	0.844		(0%-20%)	LXA1	11/20/12 12:31
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A				
QC1202784160 LCS											
Alkalinity, Total as CaCO3	50.0				53.6	mg/L		107	(90%-110%)		11/20/12 10:45
QC1202784165 315159002 MS											
Alkalinity, Total as CaCO3	50.0		63.8		115	mg/L		103	(80%-120%)		11/20/12 12:36

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis

QC Summary

Workorder: 315160

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

QC Summary

Workorder: **315160**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
16-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL, ORNL, UCOR
Batch ID:	**Sample Numbers:**		
1263581	See below.		

Potentially affected work order(s)(SDG): 315159(2013-306),315160(2013-307),315189,315223

Application Issues:

Failed Recovery for MS/PS

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS/MSD: QC 1202780731MS, QC 1202780733MSD 2. Failed Recovery for MS: QC 1202780732MS	1. The MS recovery falls outside of the established acceptance limits. The MSD verifies the recovery failure with a passing RPD; therefore, the failure is attributed to matrix interference. 2. The spike recovery falls outside of the established acceptance limits. Since both the spike duplicate recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported.

Originator's Name:

Kristen Parson 16-NOV-12

Data Validator/Group Leader:

Julia Hamilton 27-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
19-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ESHL, NFSR
Batch ID:	**Sample Numbers:**		
1263688	See below.		

Potentially affected work order(s)(SDG): 315152(CAH-12-126),315155(CAH-12-118A),315159(2013-306),315160(2013-307)

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 315152 001 315155 001 315159 002,004 315160 002,004	1. Samples were received out of holding.

Originator's Name:

Lisa Gregory 19-NOV-12

Data Validator/Group Leader:

Julia Hamilton 27-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
19-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1263572	See below.		

Potentially affected work order(s)(SDG): **314987(2013-297),315085,315088,315155(CAH-12-118A),315159(2013-306),315160(2013-307),315212,315230,315361(2013-331),315362(2013-333)**

Application Issues:

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MSD: QC 1202780707MSD	1. The MSD recovery falls outside of the established acceptance limits. Since both the MS recovery and the RPD between the MS and MSD fall within acceptance limits, the data is reported.

Originator's Name:
Kristen Parson 19-NOV-12

Data Validator/Group Leader:
Julia Hamilton 20-NOV-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-307
Work Order 315160

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1263626

Sample ID	Client ID
315160001	CAMO-13-24245
1202780816	Method Blank (MB)
1202780817	315160001(CAMO-13-24245) Sample Duplicate (DUP)
1202780818	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202780816 (MB) and 1202780818 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315160001 (CAMO-13-24245). The QC was from ARSL work order 315160.

QC Information

All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1263628

Sample ID	Client ID
315160001	CAMO-13-24245
315160003	CAMO-13-24246
1202780819	Method Blank (MB)
1202780820	315160001(CAMO-13-24245) Sample Duplicate (DUP)
1202780821	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202780819 (MB) and 1202780821 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315160001 (CAMO-13-24245). The QC was from ARSL work order 315160.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1263630

Sample ID	Client ID
315160001	CAMO-13-24245
315160003	CAMO-13-24246
1202780828	Method Blank (MB)
1202780829	315160001(CAMO-13-24245) Sample Duplicate (DUP)
1202780830	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202780828 (MB) and 1202780830 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315160001 (CAMO-13-24245). The QC was from ARSL work order 315160.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population. The aliquot for samples 1202780829 (CAMO-13-24245) and 315160001 (CAMO-13-24245) were reduced due to limited sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1268379

Sample ID	Client ID
315160003	CAMO-13-24246
1202791980	Method Blank (MB)
1202791981	315160003(CAMO-13-24246) Sample Duplicate (DUP)
1202791982	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202791980 (MB) and 1202791982 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315160003 (CAMO-13-24246). The QC was from ARSL work order 315160.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The Am-241 blank result is greater than 1.65 times the CSU but less than the MDC.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Samples were reprepped due to high carrier/tracer yield. The re-analysis is being reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The Am-241 blank result is greater than the decision level but less than the MDC.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1263255

Sample ID	Client ID
315160001	CAMO-13-24245
315160003	CAMO-13-24246
1202780038	Method Blank (MB)
1202780039	315159001(CAMO-13-24249) Sample Duplicate (DUP)
1202780040	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in May 2012, June 2012, July 2012 and August 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 315159001 (CAMO-13-24249). The QC was from ARSL work order 315159.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank 1202780038 (MB) result is greater than 1.65 times the CSU but less than the MDC for Co-60.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1264650

Sample ID	Client ID
315160001	CAMO-13-24245
315160003	CAMO-13-24246
1202783218	Method Blank (MB)
1202783219	315352005(CASA-13-24206) Sample Duplicate (DUP)
1202783220	315352005(CASA-13-24206) Matrix Spike (MS)
1202783221	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202783218 (MB) and 1202783221 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315352005 (CASA-13-24206). The QC was from ARSL work order 315352.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202783219 (CASA-13-24206) was recounted due to high relative percent difference/relative error ratio. The recount is reported. Sample 315160003 (CAMO-13-24246) was recounted due to a suspected false positive. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202783220 (CASA-13-24206), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1268150

Sample ID	Client ID
315160001	CAMO-13-24245
315160003	CAMO-13-24246
1202791495	Method Blank (MB)
1202791496	315159001(CAMO-13-24249) Sample Duplicate (DUP)
1202791497	315159001(CAMO-13-24249) Matrix Spike (MS)
1202791498	315159001(CAMO-13-24249) Matrix Spike Duplicate (MSD)
1202791499	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in December 2012. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202791495 (MB) and 1202791499 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315159001 (CAMO-13-24249). The QC was from ARSL work order 315159.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Samples were reprepped due to high relative percent difference/relative error ratio. The re-analysis is being reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike and matrix spike duplicate, 1202791497 (CAMO-13-24249) and 1202791498 (CAMO-13-24249), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-307 GEL Work Order: 315160

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Kate Gellatly**

Date: 11 DEC 2012 **Title: Analyst I**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24245
Sample ID: 315160001
Matrix: W
Collect Date: 12-NOV-12
Receive Date: 14-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.00252	+/-0.00564	0.0287	+/-0.00564	0.050	pCi/L		NXP2	11/23/12	1200	1263626	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.0066	+/-0.00808	0.0317	+/-0.00809	0.050	pCi/L		NXP2	11/21/12	0937	1263628	2
Plutonium-239/240	U	0.0462	+/-0.0148	0.0527	+/-0.0149	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.213	+/-0.0306	0.0778	+/-0.0338	1.00	pCi/L		NXP2	11/21/12	0937	1263630	3
Uranium-235/236	U	0.00	+/-0.0102	0.0486	+/-0.0102	1.00	pCi/L						
Uranium-238		0.121	+/-0.0207	0.0528	+/-0.0221	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	0.293	+/-1.42	5.13	+/-1.42	8.00	pCi/L		KXG3	11/14/12	1244	1263255	4
Cobalt-60	U	-0.671	+/-1.13	4.26	+/-1.13	8.00	pCi/L						
Neptunium-237	U	-2.82	+/-2.95	10.2	+/-2.95	10.0	pCi/L						
Potassium-40	U	-3.32	+/-18.4	74.5	+/-18.4	10.0	pCi/L						
Sodium-22	U	-0.628	+/-1.66	6.16	+/-1.66	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	-0.229	+/-0.129	0.493	+/-0.129	0.500	pCi/L		VXC2	11/30/12	1608	1264650	5
WSP-GrossA/B "As Received"													
Beta	U	2.56	+/-0.933	2.82	+/-0.958	3.00	pCi/L		DYT1	12/05/12	1618	1268150	6
Alpha	U	1.00	+/-0.706	2.36	+/-0.711	3.00	pCi/L		DYT1	12/06/12	1304	1268150	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1263626	98.4	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1263628	74.3	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1263630	85.7	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1264650	94.9	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24245
Sample ID: 315160001

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24246
Sample ID: 315160003
Matrix: W
Collect Date: 12-NOV-12
Receive Date: 14-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.00204	+/-0.00456	0.0369	+/-0.00456	0.050	pCi/L		NXP2	12/07/12	1051	1268379	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.00907	+/-0.00641	0.0218	+/-0.00642	0.050	pCi/L		NXP2	11/21/12	0937	1263628	2
Plutonium-239/240	U	0.00453	+/-0.00555	0.0362	+/-0.00556	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.350	+/-0.0307	0.0551	+/-0.0383	1.00	pCi/L		NXP2	11/21/12	0938	1263630	3
Uranium-235/236	U	0.0206	+/-0.00881	0.0344	+/-0.0089	1.00	pCi/L						
Uranium-238		0.173	+/-0.0206	0.0374	+/-0.0233	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-1.26	+/-1.48	5.25	+/-1.48	8.00	pCi/L		KXG3	11/14/12	1244	1263255	4
Cobalt-60	U	0.955	+/-1.47	5.86	+/-1.47	8.00	pCi/L						
Neptunium-237	U	-3.76	+/-3.29	11.1	+/-3.29	10.0	pCi/L						
Potassium-40	U	-7.81	+/-16.6	64.6	+/-16.6	10.0	pCi/L						
Sodium-22	U	0.145	+/-1.39	5.32	+/-1.39	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.00695	+/-0.132	0.490	+/-0.132	0.500	pCi/L		VXC2	12/02/12	1343	1264650	5
WSP-GrossA/B "As Received"													
Beta	U	1.18	+/-0.820	2.75	+/-0.826	3.00	pCi/L		DYT1	12/05/12	1620	1268150	6
Alpha	U	0.689	+/-0.661	2.37	+/-0.665	3.00	pCi/L		DYT1	12/06/12	1301	1268150	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1268379	86.7	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1263628	73.6	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1263630	90.7	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1264650	99.1	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24246
Sample ID: 315160003

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

QC Summary

Report Date: December 11, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico
Contact: **Keith Greene**

Workorder: **315160**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1263626										
QC1202780817 315160001 DUP										
Americium-241	U	0.00252	U	0.00249	pCi/L	0.00129		(0-1)	NXP2	11/23/1212:00
	Uncert:	+/-0.00564		+/-0.00747						
	TPU:	+/-0.00564		+/-0.00747						
**Americium-243 Tracer	3.47	3.42		3.06	pCi/L		88.2	(50%-105%)		
	Uncert:	+/-0.0933		+/-0.0925						
	TPU:	+/-0.166		+/-0.165						
QC1202780818 LCS										
Americium-241	1.41			1.38	pCi/L		97.5	(80%-120%)	NXP2	11/23/1212:00
	Uncert:			+/-0.0476						
	TPU:			+/-0.0732						
**Americium-243 Tracer	2.08			1.81	pCi/L		86.8	(50%-105%)		
	Uncert:			+/-0.0579						
	TPU:			+/-0.102						
QC1202780816 MB										
Americium-241			U	0.00151	pCi/L				NXP2	11/23/1212:00
	Uncert:			+/-0.00585						
	TPU:			+/-0.00585						
**Americium-243 Tracer	2.08			1.88	pCi/L		90.4	(50%-105%)		
	Uncert:			+/-0.0558						
	TPU:			+/-0.0996						
Batch 1263628										
QC1202780820 315160001 DUP										
Plutonium-238	U	0.0066	U	-0.00258	pCi/L	0.290		(0-1)	NXP2	11/21/1209:37
	Uncert:	+/-0.00808		+/-0.00775						
	TPU:	+/-0.00809		+/-0.00775						
Plutonium-239/240	U	0.0462	U	0.0103	pCi/L	0.752		(0-1)		
	Uncert:	+/-0.0148		+/-0.00895						
	TPU:	+/-0.0149		+/-0.00896						
**Plutonium-242 Tracer	3.24	2.41		2.72	pCi/L		83.8	(50%-105%)		
	Uncert:	+/-0.105		+/-0.0919						
	TPU:	+/-0.175		+/-0.160						
QC1202780821 LCS										
Plutonium-238			U	-1.05E-09	pCi/L			(80%-120%)	NXP2	11/21/1209:37
	Uncert:			+/-0.005						
	TPU:			+/-0.005						
Plutonium-239/240	2.03			1.94	pCi/L		95.9	(80%-120%)		
	Uncert:			+/-0.0556						
	TPU:			+/-0.0963						
**Plutonium-242 Tracer	1.94			1.71	pCi/L		87.8	(50%-105%)		
	Uncert:			+/-0.0556						
	TPU:			+/-0.0963						
QC1202780819 MB										

QC Summary

Workorder: 315160

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1263628										
Plutonium-238			U	-0.00673	pCi/L				NXP2	11/21/1209:37
	Uncert:			+/-0.00532						
	TPU:			+/-0.00532						
Plutonium-239/240			U	-8.41E-10	pCi/L					
	Uncert:			+/-0.00476						
	TPU:			+/-0.00476						
**Plutonium-242 Tracer	1.94			1.56	pCi/L		80.1	(50%-105%)		
	Uncert:			+/-0.0572						
	TPU:			+/-0.0981						
Batch 1263630										
QC1202780829 315160001 DUP										
Uranium-234		0.213		0.244	pCi/L	0.220		(0-1)	NXP2	11/21/1209:38
	Uncert:	+/-0.0306		+/-0.0313						
	TPU:	+/-0.0338		+/-0.0354						
Uranium-235/236	U	0.00	U	0.0219	pCi/L	0.502		(0-1)		
	Uncert:	+/-0.0102		+/-0.0116						
	TPU:	+/-0.0102		+/-0.0117						
Uranium-238		0.121		0.156	pCi/L	0.365		(0-1)		
	Uncert:	+/-0.0207		+/-0.024						
	TPU:	+/-0.0221		+/-0.026						
**Uranium-232 Tracer	3.64	3.12		2.95	pCi/L		81.1	(50%-105%)		
	Uncert:	+/-0.111		+/-0.114						
	TPU:	+/-0.259		+/-0.261						
QC1202780830 LCS										
Uranium-234				2.67	pCi/L				NXP2	11/21/1209:38
	Uncert:			+/-0.0832						
	TPU:			+/-0.195						
Uranium-235/236				0.157	pCi/L					
	Uncert:			+/-0.0226						
	TPU:			+/-0.0249						
Uranium-238	2.70			2.70	pCi/L		99.9	(80%-120%)		
	Uncert:			+/-0.0831						
	TPU:			+/-0.197						
**Uranium-232 Tracer	2.19			1.52	pCi/L		69.4	(50%-105%)		
	Uncert:			+/-0.0752						
	TPU:			+/-0.163						
QC1202780828 MB										
Uranium-234			U	-0.00675	pCi/L				NXP2	11/21/1209:38
	Uncert:			+/-0.00731						
	TPU:			+/-0.00732						
Uranium-235/236			U	0.00261	pCi/L					
	Uncert:			+/-0.00452						
	TPU:			+/-0.00452						
Uranium-238			U	0.00633	pCi/L					
	Uncert:			+/-0.00633						
	TPU:			+/-0.00635						
**Uranium-232 Tracer	2.19			1.84	pCi/L		84	(50%-105%)		
	Uncert:			+/-0.0682						

QC Summary

Workorder: 315160

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1263630										
	TPU:			+/-0.157						
Batch 1268379										
QC1202791981 315160003 DUP										
Americium-241	U	0.00204	U	0.0021	pCi/L	0.00324		(0-1)	NXP2	12/07/1210:51
	Uncert:	+/-0.00456		+/-0.00469						
	TPU:	+/-0.00456		+/-0.00469						
**Americium-243 Tracer	2.60	2.26		2.30	pCi/L		88.4	(50%-105%)		
	Uncert:	+/-0.0725		+/-0.0738						
	TPU:	+/-0.128		+/-0.129						
QC1202791982 LCS										
Americium-241	1.41			1.36	pCi/L		96.1	(80%-120%)	NXP2	12/07/1210:51
	Uncert:			+/-0.0485						
	TPU:			+/-0.0737						
**Americium-243 Tracer	2.08			1.72	pCi/L		82.5	(50%-105%)		
	Uncert:			+/-0.0595						
	TPU:			+/-0.104						
QC1202791980 MB										
Americium-241			U	0.0153	pCi/L				NXP2	12/07/1210:51
	Uncert:			+/-0.00613						
	TPU:			+/-0.00616						
**Americium-243 Tracer	2.08			1.68	pCi/L		80.7	(50%-105%)		
	Uncert:			+/-0.0592						
	TPU:			+/-0.103						
Rad Gamma Spec										
Batch 1263255										
QC1202780039 315159001 DUP										
Cesium-137	U	-2.37	U	0.346	pCi/L	0.420		(0-1)	KXG3	11/15/1208:06
	Uncert:	+/-1.88		+/-1.35						
	TPU:	+/-1.88		+/-1.35						
Cobalt-60	U	0.222	U	-0.469	pCi/L	0.115		(0-1)		
	Uncert:	+/-1.61		+/-1.40						
	TPU:	+/-1.61		+/-1.40						
Neptunium-237	U	4.38	U	-2.11	pCi/L	0.503		(0-1)		
	Uncert:	+/-3.63		+/-2.82						
	TPU:	+/-3.63		+/-2.82						
Potassium-40	U	-2.43	U	29.5	pCi/L	0.370		(0-1)		
	Uncert:	+/-23.2		+/-20.1						
	TPU:	+/-23.2		+/-20.1						
Sodium-22	U	1.35	U	0.532	pCi/L	0.143		(0-1)		
	Uncert:	+/-1.66		+/-1.19						
	TPU:	+/-1.66		+/-1.19						
QC1202780040 LCS										
Americium-241	2780			3070	pCi/L		110	(80%-120%)	KXG3	11/16/1208:06
	Uncert:			+/-247						
	TPU:			+/-247						
Cesium-137	6090			6190	pCi/L		102	(80%-120%)		
	Uncert:			+/-271						
	TPU:			+/-271						

QC Summary

Workorder: 315160

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1263255										
Cobalt-60	5650			5840	pCi/L		103	(80%-120%)		
Uncert:				+/-248						
TPU:				+/-248						
Neptunium-237			U	8.42	pCi/L					
Uncert:				+/-25.1						
TPU:				+/-25.1						
Potassium-40			U	-39.5	pCi/L					
Uncert:				+/-53.0						
TPU:				+/-53.0						
Sodium-22			U	-7.85	pCi/L					
Uncert:				+/-7.75						
TPU:				+/-7.75						
QC1202780038 MB										
Cesium-137			U	-1.35	pCi/L				KXG3	11/14/1212:44
Uncert:				+/-1.12						
TPU:				+/-1.12						
Cobalt-60			U	2.06	pCi/L					
Uncert:				+/-1.02						
TPU:				+/-1.02						
Neptunium-237			U	-1.8	pCi/L					
Uncert:				+/-2.16						
TPU:				+/-2.16						
Potassium-40			U	-7.66	pCi/L					
Uncert:				+/-13.7						
TPU:				+/-13.7						
Sodium-22			U	-0.201	pCi/L					
Uncert:				+/-1.17						
TPU:				+/-1.17						
Rad Gas Flow										
Batch 1264650										
QC1202783219 315352005 DUP										
Strontium-90	U	-0.0566	U	-0.266	pCi/L	0.500		(0-1)	VXC2	12/03/1212:39
Uncert:		+/-0.120		+/-0.0895						
TPU:		+/-0.120		+/-0.0896						
**Strontium Carrier	7.17	6.60		7.10	mg		99.1	(50%-105%)		
QC1202783221 LCS										
Strontium-90	24.8			22.4	pCi/L		90.1	(80%-120%)	VXC2	11/30/1216:05
Uncert:				+/-0.604						
TPU:				+/-1.95						
**Strontium Carrier	7.17			7.10	mg		99.1	(50%-105%)		
QC1202783218 MB										
Strontium-90			U	0.227	pCi/L				VXC2	11/30/1216:11
Uncert:				+/-0.149						
TPU:				+/-0.150						
**Strontium Carrier	7.17			6.90	mg		96.3	(50%-105%)		
QC1202783220 315352005 MS										
Strontium-90	124 U	-0.0566		113	pCi/L		91.1	(75%-125%)	VXC2	11/30/1216:04
Uncert:		+/-0.120		+/-3.14						

QC Summary

Workorder: 315160

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1264650										
TPU:		+/-0.120		+/-9.63						
**Strontium Carrier	7.17	6.60		6.60	mg		92.1	(50%-105%)		
Batch 1268150										
QC1202791496 315159001 DUP										
Alpha	U	0.830	U	0.155	pCi/L	0.312		(0-1)	DYT1	12/06/1213:08
Uncert:		+/-0.612		+/-0.463						
TPU:		+/-0.616		+/-0.464						
Beta	U	1.67	U	1.12	pCi/L	0.184		(0-1)		12/05/1216:21
Uncert:		+/-0.821		+/-0.671						
TPU:		+/-0.833		+/-0.677						
QC1202791499 LCS										
Alpha	12.0			11.7	pCi/L		97.3	(80%-120%)	DYT1	12/06/1213:02
Uncert:				+/-0.616						
TPU:				+/-1.20						
Beta	49.6			51.8	pCi/L		104	(80%-120%)		12/05/1216:18
Uncert:				+/-0.934						
TPU:				+/-4.41						
QC1202791495 MB										
Alpha			U	-0.0368	pCi/L				DYT1	12/06/1213:07
Uncert:				+/-0.0451						
TPU:				+/-0.0452						
Beta			U	-0.135	pCi/L					12/05/1216:20
Uncert:				+/-0.106						
TPU:				+/-0.106						
QC1202791497 315159001 MS										
Alpha	481 U	0.830		473	pCi/L		98.2	(75%-125%)	DYT1	12/06/1213:01
Uncert:		+/-0.612		+/-24.9						
TPU:		+/-0.616		+/-47.7						
Beta	1980 U	1.67		2190	pCi/L		110	(75%-125%)		12/05/1216:18
Uncert:		+/-0.821		+/-39.0						
TPU:		+/-0.833		+/-185						
QC1202791498 315159001 MSD										
Alpha	481 U	0.830		472	pCi/L	0.000951	98.1	(0-1)	DYT1	12/06/1213:01
Uncert:		+/-0.612		+/-25.1						
TPU:		+/-0.616		+/-48.5						
Beta	1980 U	1.67		2150	pCi/L	0.0534	108	(0-1)		12/05/1216:18
Uncert:		+/-0.821		+/-38.8						
TPU:		+/-0.833		+/-191						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

QC Summary

Workorder: **315160**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-306

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CAMO-13-24249	Nov 9 2012	12:17	W					1			1	1	
CAMO-13-24266	Nov 9 2012	12:17	W			1	1		1	1			
CAMO-13-24250	Nov 9 2012	16:04	W	2	3			1			1	1	
CAMO-13-24267	Nov 9 2012	16:04	W			1	1		1	1			
CAMO-13-24233	Nov 9 2012	16:04	W	2									

Special Instructions:

Relinquished by: Melissa Martyn		Date/Time: 11/13/12 3:10	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24250

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/09/2012	FIELD MATRIX: WG		OK
TIME COLLECTED (HH:MM):		1604	MEDIA: UA		OK
PRS ID:		OK	SAMPLE TECH CODE: UA		GSP
LOCATION ID: R-50 S2			FIELD PREP: UF		OK
LOCATION TYPE: MON			FIELD QC TYPE: REG		
PORT: P2A			SAMPLE USAGE: INV		

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE		
	WSP-GrossA/B	1 LITER POLY	1	NONE		
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 75 feet of a running diesel generator

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 7.04 mg/L Oxidation-Reduction Potential 74.0 MV pH 8.13 SU

Specific Conductance 139 uS/cm Temperature 18.57 deg C Turbidity 1.24 NTU

COLLECTED BY (PRINT) D Fellenz

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) Barry Woody	11/09/12 1650	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	11/09/12 1650
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**
(Printed Name) (Signature)		(Printed Name) (Signature)	

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24233

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/09/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1604	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	DC
LOCATION ID:	R-50 S2		FIELD PREP:	UF	OK
LOCATION TYPE:			FIELD QC TYPE:	FTB	OK
PORT:	P2A		SAMPLE USAGE:	QC	OK

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	~~2~~ 1	HCL DE 11/6/12	Y	NA

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

See CAMO-13-24250

COLLECTED BY (PRINT) D Fellenz

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Wady (Signature) David Wady	11/09/12 1650	(Printed Name) D. Sherwood (Signature) Sherwood	11/09/12 1650
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24249 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/09/2012	FIELD MATRIX: WG		OK
TIME COLLECTED (HH:MM):		1217	MEDIA: UA		OK
PRS ID:		OK	SAMPLE TECH CODE: UA		GSP
LOCATION ID: R-50 S1			FIELD PREP: UF		OK
LOCATION TYPE: MON			FIELD QC TYPE: REG		
PORT: P1A			SAMPLE USAGE: INV		

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 75 feet of a running diesel generator.

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 5.55 mg/L Oxidation-Reduction Potential 81.5 MV pH 8.04 SU

Specific Conductance 185 uS/cm Temperature 18.06 deg C Turbidity 0.63 NTU

COLLECTED BY (PRINT) W Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/09/2012 1650	(Printed Name) S Sherwood (Signature) Sheri Sherwood	11/09/2012 1650
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**
(Printed Name) (Signature)		(Printed Name) (Signature)	

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24266 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/09/12 DW 11/09/12 2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1217	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-50 S1		FIELD PREP:	F	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P1A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
	WSP-GENINORG	1 LITER POLY	1	ICE		
	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

See CAMO-13-24249

COLLECTED BY (PRINT) W Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/09/12 1650	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	11/09/12 1650
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24267 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/09/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1604	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-50 S2		FIELD PREP:	F	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P2A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
	WSP-GENINORG	1 LITER POLY	1	ICE		
	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

See CAMO-13-24250

COLLECTED BY (PRINT) D Fellenz

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D. Woody (Signature) David Woody	11/09/12 1650	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	11/09/12 1650
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-306

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
315159	EPA:120.1	2				
315159	EPA:150.1	2				
315159	EPA:160.1	2				
315159	EPA:245.2	2				
315159	EPA:300.0	2				
315159	EPA:310.1	2				
315159	EPA:350.1	2				
315159	EPA:351.2	2				
315159	EPA:353.2	2				
315159	EPA:365.4	2				
315159	EPA:900	2				
315159	EPA:901.1	2				
315159	EPA:905.0	2				
315159	HASL-300:AM-241	2				
315159	HASL-300:ISOPU	2				
315159	HASL-300:ISOU	2				
315159	SM:A2340B	2				
315159	SW-846:6010B	2				
315159	SW-846:6020	2				
315159	SW-846:6850	2				
315159	SW-846:8260B	1		1		
315159	SW-846:8270C	1				
315159	SW-846:9060	2				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
315159	EPA:120.1	1266189	1266189	2							
315159	EPA:150.1	1263688	1263688	2							
315159	EPA:160.1	1263692	1263692	2					1		
315159	EPA:245.2	1266545	1266544	2					1	1	
315159	EPA:300.0	1263381	1263381	2					1		
315159	EPA:310.1	1264841	1264841	2					1	1	
315159	EPA:350.1	1263572	1263571	2					1	2	2
315159	EPA:351.2	1263581	1263580	2					1	1	1
315159	EPA:353.2	1263016	1263016	2					1		
315159	EPA:365.4	1263577	1263576	2					1	2	2
315159	EPA:900	1268150	1268150	2					1	1	1
315159	EPA:901.1	1263255	1263255	2					1		
315159	EPA:905.0	1264650	1264650	2					1	1	
315159	HASL-300:AM-241	1263626	1263626	2					1		
315159	HASL-300:ISOPU	1263628	1263628	2					1		
315159	HASL-300:ISOU	1263630	1263630	2					1		
315159	SM:A2340B	1268873	1268873	2							
315159	SW-846:6010B	1263453	1263452	2					1	1	
315159	SW-846:6020	1263451	1263450	2					1	1	
315159	SW-846:6850	1263682	1263681	2					1	1	1
315159	SW-846:8260B	1264307	1264307	1		1			2		

Data Validation Report for: Chain Of Custody No. 2013-306

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				2			
		1				1			
		1				2			
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1							
		4							

315159	SW-846:8270C	1263326	1263325	1					1	1	1
315159	SW-846:9060	1262822	1262822	2					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24266	1202786721	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24266	315159002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24267	315159004	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24270	1202786720	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202786722	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24266	1202780948	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24266	315159002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24267	315159004	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202780951	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24266	1202780961	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24266	315159002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24267	315159004	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202780962	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202780960	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24266	1202787646	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24266	1202787647	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24266	315159002	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24267	315159004	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202787645	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202787644	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24266	1202780266	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24266	315159002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24267	315159004	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202780268	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202780265	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24266	1202784164	DUP	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24266	1202784165	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24266	315159002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24267	315159004	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202784160	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202784163	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24229	1202780703	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24229	1202780705	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24229	1202780707	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24266	315159002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24267	315159004	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202780709	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202780702	MB	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	SWWS46-13-24772	1202782504	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	SWWS46-13-24772	1202782505	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	SWWS46-13-24772	1202782506	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24249	1202780729	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24249	1202780731	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24249	1202780733	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24249	315159001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24250	315159003	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202780735	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202780728	MB	1	0	0	0

		1							
		1				1			

EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24266	1202780694	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24266	315159002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24267	315159004	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202779484	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202779479	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	SWWS46-13-24772	1202782515	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24262	1202780717	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24262	1202780719	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24262	1202780721	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24266	1202780716	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24266	1202780718	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24266	1202780720	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24266	315159002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24267	315159004	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202780722	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202780715	MB	1	0	0	0
EPA:900	RAD	CAMO-13-24249	1202791496	DUP	2	0	0	0
EPA:900	RAD	CAMO-13-24249	1202791497	MS	0	0	2	0
EPA:900	RAD	CAMO-13-24249	1202791498	MSD	0	0	2	0
EPA:900	RAD	CAMO-13-24249	315159001	REG	2	0	0	0
EPA:900	RAD	CAMO-13-24250	315159003	REG	2	0	0	0
EPA:900	RAD	LCS	1202791499	LCS	0	0	2	0
EPA:900	RAD	MB	1202791495	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24249	1202780039	DUP	6	0	0	0
EPA:901.1	RAD	CAMO-13-24249	315159001	REG	5	0	0	0
EPA:901.1	RAD	CAMO-13-24250	315159003	REG	5	0	0	0
EPA:901.1	RAD	LCS	1202780040	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202780038	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24249	315159001	REG	1	0	0	0
EPA:905.0	RAD	CAMO-13-24250	315159003	REG	1	0	0	0
EPA:905.0	RAD	CASA-13-24206	1202783219	DUP	1	0	0	0
EPA:905.0	RAD	CASA-13-24206	1202783220	MS	0	0	1	0
EPA:905.0	RAD	LCS	1202783221	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202783218	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24245	1202780817	DUP	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24249	315159001	REG	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24250	315159003	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202780818	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202780816	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24245	1202780820	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24249	315159001	REG	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24250	315159003	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202780821	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202780819	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24245	1202780829	DUP	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24249	315159001	REG	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24250	315159003	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202780830	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202780828	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24266	315159002	REG	1	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24267	315159004	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24262	1202780428	DUP	22	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24262	1202780429	MS	0	0	22	0
SW-846:6010B	INORGANIC	CAMO-13-24266	315159002	REG	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24267	315159004	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202780427	LCS	0	0	22	0

SW-846:6010B	INORGANIC	MB	1202780426	MB	22	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24262	1202780423	DUP	13	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24262	1202780424	MS	0	0	13	0
SW-846:6020	INORGANIC	CAMO-13-24266	315159002	REG	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24267	315159004	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202780422	LCS	0	0	13	0
SW-846:6020	INORGANIC	MB	1202780421	MB	13	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24262	1202780935	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24262	1202780936	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24266	315159002	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24267	315159004	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202780934	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202780933	MB	1	0	0	0
SW-846:8260B	VOC	CAMO-13-24233	315159005	FTB	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24250	315159003	REG	80	3	0	0
SW-846:8260B	VOC	LCS	1202782453	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202782454	LCS	0	3	10	0
SW-846:8260B	VOC	LCS	1202784991	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202784992	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1202782450	MB	80	3	0	0
SW-846:8260B	VOC	MB	1202784990	MB	80	3	0	0
SW-846:8270C	SVOC	CAMO-13-24250	1202780155	MS	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24250	1202780156	MSD	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24250	315159003	REG	80	6	0	0
SW-846:8270C	SVOC	LCS	1202780154	LCS	0	6	76	0
SW-846:8270C	SVOC	MB	1202780153	MB	80	6	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24245	1202778961	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24249	315159001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24250	315159003	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202778963	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202778960	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

No.

Any samples affected by the presence of contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CAMO-13-24229	1202780705	1202780707	EPA:350.1	Ammonia as Nitrogen	1263571	11/19/2012	W	94.9	89.2	110	90
CAMO-13-24249	1202780731	1202780733	EPA:351.2	Total Kjeldahl Nitrogen	1263580	11/16/2012	W	128	118	110	90
CAMO-13-24249	1202780731	1202780733	EPA:351.2	Total Kjeldahl Nitrogen	1263580	11/16/2012	W	128	118	110	90
CAMO-13-24262	1202780429		SW-846:6010B	Silver	1263452	11/29/2012	W	58.2		125	75
CAMO-13-24250	1202780155	1202780156	SW-846:8270C	Benzidine	1263325	11/19/2012	W	27	64	125	10

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

LCS Sample ID	LCSD Sample ID	Analytical Method	Parameter Name	Lab Lot ID	Analysis Date	Sample Matrix	LCS Recovery	LCSD Recovery	Upper Limit	Lower Limit	Lower Reject Limit
1202782453		SW-846:8260B	Hexanone[2-]	1264307	11/16/2012	W	164		158	53	10
1202782453		SW-846:8260B	Trichlorofluoromethane	1264307	11/16/2012	W	132		123	65	10
1202780154		SW-846:8270C	Dioxane[1,4-]	1263325	11/19/2012	W	35		69	41	10
1202780154		SW-846:8270C	Hexachlorocyclopentadiene	1263325	11/19/2012	W	36		79	38	10

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-50 S1	2013-306	CAMO-13-24249	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-50 S1	2013-306	CAMO-13-24249	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-50 S1	2013-306	CAMO-13-24249	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-50 S1	2013-306	CAMO-13-24249	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-50 S1	2013-306	CAMO-13-24249	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-50 S1	2013-306	CAMO-13-24249	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-50 S1	2013-306	CAMO-13-24249	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-50 S1	2013-306	CAMO-13-24249	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-50 S1	2013-306	CAMO-13-24249	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-50 S1	2013-306	CAMO-13-24249	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N

Rejection Limit	RPD	RPD Limit
10	5.81	15
10	7.63	20
10	7.63	20
10		
10	80	30

Upper Reject Limit	RPD	RPD Limit

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
0.00187	pCi/L	0.00187	pCi/L	0.0212	0.00619	W	11/9/2012		1263626	VAL	Y
-2.37	pCi/L	-2.37	pCi/L	6.27	1.88	W	11/9/2012		1263255	VAL	Y
0.222	pCi/L	0.222	pCi/L	6.26	1.61	W	11/9/2012		1263255	VAL	Y
0.83	pCi/L	0.83	pCi/L	2.08	0.612	W	11/9/2012		1268150	VAL	Y
1.67	pCi/L	1.67	pCi/L	2.61	0.821	W	11/9/2012		1268150	VAL	Y
4.38	pCi/L	4.38	pCi/L	13.2	3.63	W	11/9/2012		1263255	VAL	Y
-0.00857	pCi/L	-0.00857	pCi/L	0.0206	0.00606	W	11/9/2012		1263628	VAL	Y
0.0107	pCi/L	0.0107	pCi/L	0.0342	0.00643	W	11/9/2012		1263628	VAL	Y
-2.43	pCi/L	-2.43	pCi/L	85.6	23.2	W	11/9/2012		1263255	VAL	Y
1.35	pCi/L	1.35	pCi/L	6.76	1.66	W	11/9/2012		1263255	VAL	Y

R-50 S1	2013-306	CAMO-13-24249	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-50 S1	2013-306	CAMO-13-24249	REG	INIT	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	J	J+	I6b	Y
R-50 S1	2013-306	CAMO-13-24249	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-50 S2	2013-306	CAMO-13-24250	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-50 S2	2013-306	CAMO-13-24250	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-50 S2	2013-306	CAMO-13-24250	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-50 S2	2013-306	CAMO-13-24250	REG	INIT	SVOC	SW-846:8270C	Dioxane[1,4-]	U	UJ	SV12a	N
R-50 S2	2013-306	CAMO-13-24250	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-50 S2	2013-306	CAMO-13-24250	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-50 S2	2013-306	CAMO-13-24250	REG	INIT	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	UJ	SV12a	N
R-50 S2	2013-306	CAMO-13-24250	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-50 S2	2013-306	CAMO-13-24250	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-50 S2	2013-306	CAMO-13-24250	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-50 S2	2013-306	CAMO-13-24250	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-50 S2	2013-306	CAMO-13-24250	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-50 S2	2013-306	CAMO-13-24250	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-50 S2	2013-306	CAMO-13-24250	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-50 S1	2013-306	CAMO-13-24266	REG	INIT	INORGANIC	SW-846:6020	Antimony	U	R	I19	N
R-50 S1	2013-306	CAMO-13-24266	REG	INIT	INORGANIC	SW-846:6020	Arsenic	U	R	I19	N
R-50 S1	2013-306	CAMO-13-24266	REG	INIT	INORGANIC	SW-846:6020	Cadmium	U	R	I19	N
R-50 S1	2013-306	CAMO-13-24266	REG	INIT	INORGANIC	SW-846:6020	Chromium	J	R	I19	Y
R-50 S1	2013-306	CAMO-13-24266	REG	INIT	INORGANIC	SW-846:6020	Lead	U	R	I19	N
R-50 S1	2013-306	CAMO-13-24266	REG	INIT	INORGANIC	SW-846:6020	Molybdenum		R	I19	Y
R-50 S1	2013-306	CAMO-13-24266	REG	INIT	INORGANIC	SW-846:6020	Nickel	J	R	I19	Y
R-50 S1	2013-306	CAMO-13-24266	REG	INIT	INORGANIC	SW-846:6020	Selenium	U	R	I19	N
R-50 S1	2013-306	CAMO-13-24266	REG	INIT	INORGANIC	SW-846:6020	Silver	U	R	I19	N
R-50 S1	2013-306	CAMO-13-24266	REG	INIT	INORGANIC	SW-846:6020	Thallium	U	R	I19	N
R-50 S1	2013-306	CAMO-13-24266	REG	INIT	INORGANIC	SW-846:6020	Uranium		R	I19	Y
R-50 S2	2013-306	CAMO-13-24267	REG	INIT	INORGANIC	SW-846:6020	Antimony	U	R	I19	N
R-50 S2	2013-306	CAMO-13-24267	REG	INIT	INORGANIC	SW-846:6020	Arsenic	U	R	I19	N
R-50 S2	2013-306	CAMO-13-24267	REG	INIT	INORGANIC	SW-846:6020	Cadmium	U	R	I19	N
R-50 S2	2013-306	CAMO-13-24267	REG	INIT	INORGANIC	SW-846:6020	Chromium		R	I19	Y
R-50 S2	2013-306	CAMO-13-24267	REG	INIT	INORGANIC	SW-846:6020	Lead	U	R	I19	N
R-50 S2	2013-306	CAMO-13-24267	REG	INIT	INORGANIC	SW-846:6020	Molybdenum		R	I19	Y
R-50 S2	2013-306	CAMO-13-24267	REG	INIT	INORGANIC	SW-846:6020	Nickel	J	R	I19	Y
R-50 S2	2013-306	CAMO-13-24267	REG	INIT	INORGANIC	SW-846:6020	Selenium	U	R	I19	N
R-50 S2	2013-306	CAMO-13-24267	REG	INIT	INORGANIC	SW-846:6020	Silver	U	R	I19	N
R-50 S2	2013-306	CAMO-13-24267	REG	INIT	INORGANIC	SW-846:6020	Thallium	U	R	I19	N
R-50 S2	2013-306	CAMO-13-24267	REG	INIT	INORGANIC	SW-846:6020	Uranium		R	I19	Y

Reason Code	Description
I19	the LANL project chemist identified quality deficiencies in the reported data that require further qualification. This code can ONLY be used under advisement by the LANL project chemist.
I6b	The associated matrix spike recovery was above the Upper Acceptance Limit (UAL). Follow the external laboratory limits located within the associated data package.
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.
SV12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.
U_LAB	The analytical laboratory qualified the analyte as not detected.

0.0381	pCi/L	0.0381	pCi/L	0.494	0.139	W	11/9/2012		1264650	VAL	Y
0.0786	mg/L	0.0786	mg/L			W	11/9/2012		1263581	VAL	Y
0.0271	pCi/L	0.0271	pCi/L	0.0453	0.0128	W	11/9/2012		1263630	VAL	Y
0.00749	pCi/L	0.00749	pCi/L	0.0213	0.0053	W	11/9/2012		1263626	VAL	Y
0.23	pCi/L	0.23	pCi/L	4.33	1.11	W	11/9/2012		1263255	VAL	Y
-2.77	pCi/L	-2.77	pCi/L	4.48	1.42	W	11/9/2012		1263255	VAL	Y
3	ug/L	3	ug/L			W	11/9/2012		1263326	VAL	Y
0.0227	pCi/L	0.0227	pCi/L	2.32	0.473	W	11/9/2012		1268150	VAL	Y
0.933	pCi/L	0.933	pCi/L	2.39	0.707	W	11/9/2012		1268150	VAL	Y
3	ug/L	3	ug/L			W	11/9/2012		1263326	VAL	Y
-1.02	pCi/L	-1.02	pCi/L	9.55	2.66	W	11/9/2012		1263255	VAL	Y
0.00229	pCi/L	0.00229	pCi/L	0.022	0.00605	W	11/9/2012		1263628	VAL	Y
-0.00458	pCi/L	-0.00458	pCi/L	0.0365	0.00647	W	11/9/2012		1263628	VAL	Y
-9.62	pCi/L	-9.62	pCi/L	56.5	14.8	W	11/9/2012		1263255	VAL	Y
1.08	pCi/L	1.08	pCi/L	5.99	1.46	W	11/9/2012		1263255	VAL	Y
0.431	pCi/L	0.431	pCi/L	0.485	0.156	W	11/9/2012		1264650	VAL	Y
0.0294	pCi/L	0.0294	pCi/L	0.0383	0.0109	W	11/9/2012		1263630	VAL	Y
1	ug/L	1	ug/L			W	11/9/2012		1263451	VAL	Y
1.7	ug/L	1.7	ug/L			W	11/9/2012		1263451	VAL	Y
0.11	ug/L	0.11	ug/L			W	11/9/2012		1263451	VAL	Y
3.79	ug/L	3.79	ug/L			W	11/9/2012		1263451	VAL	Y
0.5	ug/L	0.5	ug/L			W	11/9/2012		1263451	VAL	Y
1.17	ug/L	1.17	ug/L			W	11/9/2012		1263451	VAL	Y
1.7	ug/L	1.7	ug/L			W	11/9/2012		1263451	VAL	Y
1.5	ug/L	1.5	ug/L			W	11/9/2012		1263451	VAL	Y
0.2	ug/L	0.2	ug/L			W	11/9/2012		1263451	VAL	Y
0.45	ug/L	0.45	ug/L			W	11/9/2012		1263451	VAL	Y
0.636	ug/L	0.636	ug/L			W	11/9/2012		1263451	VAL	Y
1	ug/L	1	ug/L			W	11/9/2012		1263451	VAL	Y
1.7	ug/L	1.7	ug/L			W	11/9/2012		1263451	VAL	Y
0.11	ug/L	0.11	ug/L			W	11/9/2012		1263451	VAL	Y
14.6	ug/L	14.6	ug/L			W	11/9/2012		1263451	VAL	Y
0.5	ug/L	0.5	ug/L			W	11/9/2012		1263451	VAL	Y
0.895	ug/L	0.895	ug/L			W	11/9/2012		1263451	VAL	Y
0.866	ug/L	0.866	ug/L			W	11/9/2012		1263451	VAL	Y
1.5	ug/L	1.5	ug/L			W	11/9/2012		1263451	VAL	Y
0.2	ug/L	0.2	ug/L			W	11/9/2012		1263451	VAL	Y
0.45	ug/L	0.45	ug/L			W	11/9/2012		1263451	VAL	Y
0.463	ug/L	0.463	ug/L			W	11/9/2012		1263451	VAL	Y

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24233	R-50 S2	FTB	SW-846:8260B	0	80
CAMO-13-24249	R-50 S1	REG	EPA:351.2	0	1
CAMO-13-24249	R-50 S1	REG	EPA:900	0	2
CAMO-13-24249	R-50 S1	REG	EPA:901.1	0	5
CAMO-13-24249	R-50 S1	REG	EPA:905.0	0	1
CAMO-13-24249	R-50 S1	REG	HASL-300:AM-241	0	1
CAMO-13-24249	R-50 S1	REG	HASL-300:ISOPU	0	2
CAMO-13-24249	R-50 S1	REG	HASL-300:ISOU	0	3
CAMO-13-24249	R-50 S1	REG	SW-846:9060	0	1
CAMO-13-24250	R-50 S2	REG	EPA:351.2	0	1
CAMO-13-24250	R-50 S2	REG	EPA:900	0	2
CAMO-13-24250	R-50 S2	REG	EPA:901.1	0	5
CAMO-13-24250	R-50 S2	REG	EPA:905.0	0	1
CAMO-13-24250	R-50 S2	REG	HASL-300:AM-241	0	1
CAMO-13-24250	R-50 S2	REG	HASL-300:ISOPU	0	2
CAMO-13-24250	R-50 S2	REG	HASL-300:ISOU	0	3
CAMO-13-24250	R-50 S2	REG	SW-846:8260B	0	80
CAMO-13-24250	R-50 S2	REG	SW-846:8270C	0	80
CAMO-13-24250	R-50 S2	REG	SW-846:9060	0	1
CAMO-13-24266	R-50 S1	REG	EPA:120.1	0	1
CAMO-13-24266	R-50 S1	REG	EPA:150.1	0	1
CAMO-13-24266	R-50 S1	REG	EPA:160.1	0	1
CAMO-13-24266	R-50 S1	REG	EPA:245.2	0	1
CAMO-13-24266	R-50 S1	REG	EPA:300.0	0	4
CAMO-13-24266	R-50 S1	REG	EPA:310.1	0	2
CAMO-13-24266	R-50 S1	REG	EPA:350.1	0	1
CAMO-13-24266	R-50 S1	REG	EPA:353.2	0	1
CAMO-13-24266	R-50 S1	REG	EPA:365.4	0	1
CAMO-13-24266	R-50 S1	REG	SM:A2340B	0	1
CAMO-13-24266	R-50 S1	REG	SW-846:6010B	0	17
CAMO-13-24266	R-50 S1	REG	SW-846:6020	0	11
CAMO-13-24266	R-50 S1	REG	SW-846:6850	0	1
CAMO-13-24267	R-50 S2	REG	EPA:120.1	0	1
CAMO-13-24267	R-50 S2	REG	EPA:150.1	0	1
CAMO-13-24267	R-50 S2	REG	EPA:160.1	0	1
CAMO-13-24267	R-50 S2	REG	EPA:245.2	0	1
CAMO-13-24267	R-50 S2	REG	EPA:300.0	0	4
CAMO-13-24267	R-50 S2	REG	EPA:310.1	0	2
CAMO-13-24267	R-50 S2	REG	EPA:350.1	0	1
CAMO-13-24267	R-50 S2	REG	EPA:353.2	0	1
CAMO-13-24267	R-50 S2	REG	EPA:365.4	0	1
CAMO-13-24267	R-50 S2	REG	SM:A2340B	0	1
CAMO-13-24267	R-50 S2	REG	SW-846:6010B	0	17
CAMO-13-24267	R-50 S2	REG	SW-846:6020	0	11
CAMO-13-24267	R-50 S2	REG	SW-846:6850	0	1

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

December 07, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 315159
SDG: 2013-306

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 14, 2012, and analyzed for GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

for

Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-306
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 315159
SDG: 2013-306

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....10

Volatile Analysis.....12

Case Narrative.....13

Sample Data Summary.....19

Quality Control Summary.....26

Quality Control Data.....48

Miscellaneous.....73

Semi-Volatile Analysis.....75

Case Narrative.....76

Sample Data Summary.....82

Quality Control Summary.....86

Quality Control Data.....101

Miscellaneous.....114

Perchlorates by LCMSMS Analysis.....116

Case Narrative.....117

Sample Data Summary.....123

Quality Control Summary.....126

Quality Control Data.....129

Metals Analysis.....135
Case Narrative.....136
Sample Data Summary.....142
Quality Control Summary.....148
Miscellaneous.....162
General Chem Analysis.....164
Case Narrative.....165
Sample Data Summary.....193
Quality Control Summary.....201
Miscellaneous.....207
Radiological Analysis.....211
Sample Data Summary.....223
Quality Control Data.....228

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 315159
SDG # : 2013-306

December 07, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 14, 2012 for analysis. Please see attached email for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. The containers for Gross A/B were preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). The containers for radiochemistry were received at a temperature of 17C. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
315159001	CAMO-13-24249
315159002	CAMO-13-24266
315159003	CAMO-13-24250
315159004	CAMO-13-24267
315159005	CAMO-13-24233

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

for
Valerie Davis
Project Manager

List of current GEL Certifications as of 07 December 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

315159

COC/Lab Request #: 2013-306

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Site Name: Los Alamos National Laboratory

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAMO-13-24249	Nov 9 2012	12:17	W					1			1	1
CAMO-13-24266	Nov 9 2012	12:17	W			1	1		1	1		
CAMO-13-24250	Nov 9 2012	16:04	W	2	3			1			1	1
CAMO-13-24267	Nov 9 2012	16:04	W			1	1		1	1		
CAMO-13-24233	Nov 9 2012	16:04	W	2								

Special Instructions:

Special Instructions:

Relinquished by: Melissa Martinez		Date/Time: 11/13/12 3:00	Received by: P. Valent	11-14-12 0900
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/AR/COC/Work Order: 2013-306**
Received By: Patricia Dent	**Date Received:November 14, 2012**

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0CPM**
Classified Radioactive II or III by RSO?		X	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		X	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **3,4,17C**
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524646**
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?			X	Circle Applicable: Seals broken Damaged container Leaking container Other (describe) **CAMO-13-24250 container received broken for SVOA**
5	Samples requiring chemical preservation at proper pH?			X	Sample ID's, containers affected and observed pH:**CAMO-13-24249, 24250 for Gross A/B** If Preservation added, Lot#**L03022**
6	VOA vials free of headspace (defined as < 6mm bubble)?	X			Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?			X	Sample ID's affected: **CAMO-13-25233 the lab rec'd 1 8260b container instead of 2 as indicated on coc.**
12	Are sample containers identifiable as GEL provided?			X	**CLIENTS**
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.	X			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9832 5285 3C 5462 9832 5274 4C 5462 9832 5263 17C**

Comments (Use Continuation Form if needed):

PM (PMA) review Initials HH Date 111612 Page____ of____

Subject: Sample receipt issues from 11/14/12
From: Pat Dent <Pat.Dent@gel.com>
Date: 11/14/2012 5:22 PM
To: "Keith R. Greene" <kgreene@lanl.gov>, "team.davis" <team.davis@gel.com>, LANL@amrad.com

Good Evening all listed below are today's issues

Containers received for Gross A/B was preserved prior to analysis

RN#2013-306
Sample ID-CAMO-13-24250 the lab rec'd 1 container SVOA broken.
CAMO-13-25233 the lab rec'd 1 8260b container instead of 2 as indicated on coc.

Thanks!!

--
Patricia Dent
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Rd.
Charleston, S.C. 29407
Main: 843-556-8171 Ext 4264
Fax: 843-766-1178
Email: pad@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 13NOV12
ACTWGT: 46.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015GWK0

3c

58DC3/EE3B/10BC

FedEx Express

J111311060601 25

2 of 2
MPS# 0263 5462 9832 5285
Mstr# 5462 9832 5274 0201

WED - 14 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 13NOV12
ACTWGT: 41.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015GWK0

4c

58DC3/EE3B/10BC

FedEx Express

J111311060601 25

1 of 2
TRK# 0201 5462 9832 5274
MASTER

WED - 14 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (50[illegible]966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 13NOV12
ACTWGT: 51.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: W51100000000

17c

50DC3/EE3B/10BC

FedEx Express

J111311060860125

TRK# 0201 5462 9832 5263

WED - 14 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Volatile Analysis

Case Narrative

ChemStation Case Narrative
ARS International (ARSL)
SDG 2013-306

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 8260B DOE-AL
Analytical Batch Number:	1264307

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

Sample ID	Client ID
315159003	CAMO-13-24250
315159005	CAMO-13-24233
1202782450	Method Blank (MB)
1202782451	315285002(WST50-12-23903) Post Spike (PS)
1202782452	315285002(WST50-12-23903) Post Spike Duplicate (PSD)
1202782453	Laboratory Control Sample (LCS)
1202782454	Laboratory Control Sample (LCS)
1202784990	Method Blank (MB)
1202784991	Laboratory Control Sample (LCS)
1202784992	Laboratory Control Sample (LCS)

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 18.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 19.1.2. False positive analytes are designated on the quantitation report with a ’d’ qualifier.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the

Calibration History report located in the Standard Data section of the data package.

The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement
The blanks analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
Surrogate recoveries in all client and quality control samples were within the acceptance limits.

Laboratory Control Sample (LCS) Recovery
The LCS 1202782453 (LCS) recoveries were not all within the acceptance limits. The unacceptable recoveries were less than 5% of the requested analyte list. This satisfies the client criteria. The results are reported. See the Data Exception Report in the miscellaneous section of the data package.

QC Sample Designation
Sample 315285002 (WST50-12-23903) was designated for spike analysis.

Matrix Spike (PS) Recovery Statement
The spike 1202782451 (WST50-12-23903) recoveries were not all within the acceptance limits. See the Data Exception Report in the miscellaneous section of the data package.

Matrix Spike Duplicate (PSD) Recovery Statement
The spike duplicate 1202782452 (WST50-12-23903) recoveries were not all within the acceptance limits. See the Data Exception Report in the miscellaneous section of the data package.

Relative Percent Difference (RPD) Statement
The RPDs between the matrix spike pair met the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-analyses were not required for samples in this SDG.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1145021.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) may be requested for this sample delivery group/work order. Please note that non-requested target analytes that are reported on the quantitation reports will be present on the Form I. These detected analytes are included in the calibrated method and as a result will be reported on the Sample Data Summary (Form I) or Certificate of Analysis (C of A). TIC data, if requested, are included on the Sample Data Summary (Form I) and are also included with the sample raw data.

Additional Comments
Additional comments were not required for this SDG.

Residual Chlorine
Residual Chlorine was not detected in any of the samples in this SDG.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOA1.I	Agilent 6890/5973 GC/MS w/ OI 4560/Archon Autosampler	HP6890/HP5973	RTX-624	Restek, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all the

requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-306 GEL Work Order: 315159

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Erin Haubert **Name:** **Erin Haubert**

Date: **07 DEC 2012** **Title:** **Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**315159003**	**Date Received:**	**11/14/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24250**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 08:38**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 08:38**				
Data File:	**111612V1\1M537.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**315159003**	**Date Received:**	**11/14/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24250**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 08:38**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 08:38**				
Data File:	**111612V1\1M537.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**315159003**	**Date Received:**	**11/14/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24250**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 08:38**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 08:38**				
Data File:	**111612V1\1M537.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	54.4	50.0	ug/L	109	(78%-124%)
Bromofluorobenzene	49.5	50.0	ug/L	99.0	(80%-120%)
Toluene-d8	50.3	50.0	ug/L	101	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**315159005**	**Date Received:**	**11/14/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24233**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 09:09**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 09:09**				
Data File:	**111612V1\1M538.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**315159005**	**Date Received:**	**11/14/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24233**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 09:09**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 09:09**				
Data File:	**111612V1\1M538.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**315159005**	**Date Received:**	**11/14/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24233**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 09:09**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 09:09**				
Data File:	**111612V1\1M538.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	54.6	50.0	ug/L	109	(78%-124%)
Bromofluorobenzene	49.7	50.0	ug/L	99.4	(80%-120%)
Toluene-d8	51.5	50.0	ug/L	103	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2013-306

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1202782453	LCS for batch 1264307	106	104	95
1202782454	LCS for batch 1264307	104	102	99
1202782450	MB for batch 1264307	107	103	99
1202782451	WST50-12-23903PS	110	101	94
1202782452	WST50-12-23903PSD	108	103	94
1202784991	LCS for batch 1264307	109	103	97
1202784992	LCS for batch 1264307	103	100	98
1202784990	MB for batch 1264307	105	102	96
315159003	CAMO-13-24250	109	101	99
315159005	CAMO-13-24233	109	103	99

Surrogate		Acceptance Limits
DCED4	= 1,2-Dichloroethane-d4	(78%-124%)
TOL	= Toluene-d8	(80%-120%)
BFB	= Bromofluorobenzene	(80%-120%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **WST50-12-23903PS**
Lab Sample ID: **1202782451**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/16/2012 18:47**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	PS	Dichlorodifluoromethane	50.0	0.00	U	65.3	131 *	36-123
74-87-3	PS	Chloromethane	50.0	0.00	U	57.4	115	47-134
75-01-4	PS	Vinyl chloride	50.0	0.00	U	51.3	103	49-129
74-83-9	PS	Bromomethane	50.0	0.00	U	54.7	109	56-127
75-00-3	PS	Chloroethane	50.0	0.00	U	55.6	111	67-122
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	U	70.4	141 *	60-123
60-29-7	PS	Ethyl ether	50.0	0.00	U	52.0	104	69-121
67-64-1	PS	Acetone	250	4.75	J	130	50	30-143
75-05-8	PS	Acetonitrile	1250	0.00	U	1210	97	60-133
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	U	63.1	126	67-132
74-88-4	PS	Iodomethane	250	0.00	U	303	121	69-147
75-09-2	PS	Methylene chloride	50.0	0.00	U	53.1	106	56-135
75-15-0	PS	Carbon disulfide	250	0.00	U	300	120	65-153
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	U	56.3	113	73-126
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	U	56.9	114	69-128
108-05-4	PS	Vinyl acetate	250	0.00	U	0.00	0 *	50-143
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	U	53.9	108	75-124
78-93-3	PS	2-Butanone	250	0.00	U	173	69	30-140
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	U	54.8	110	52-147
594-20-7	PS	2,2-Dichloropropane	50.0	0.00	U	66.7	133	67-143
67-66-3	PS	Chloroform	50.0	0.00	U	55.6	111	75-125
74-97-5	PS	Bromochloromethane	50.0	0.00	U	54.2	108	80-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306** **Sample Type:** **Post Spike**

Client ID: **WST50-12-23903PS** **Matrix:** **W**

Lab Sample ID: **1202782451**

Instrument: **VOA1.I** **Analysis Date:** **11/16/2012 18:47** **Dilution: 1**

Analyst: **ACJ** **Prep Batch ID:** **1264307**

Purge Vol: **5 mL** **Batch ID:** **1264307**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	PS	1,1,1-Trichloroethane	50.0	0.00	U	66.0	132	69-140
563-58-6	PS	1,1-Dichloropropene	50.0	0.00	U	60.8	122	71-130
71-36-3	PS	n-Butyl alcohol	5000	0.00	U	6010	120	53-150
56-23-5	PS	Carbon tetrachloride	50.0	0.00	U	69.7	139	69-142
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	U	54.5	109	72-126
71-43-2	PS	Benzene	50.0	0.00	U	51.4	103	73-119
79-01-6	PS	Trichloroethylene	50.0	0.00	U	56.3	113	54-147
78-87-5	PS	1,2-Dichloropropane	50.0	0.00	U	50.1	100	78-123
75-27-4	PS	Bromodichloromethane	50.0	0.00	U	56.7	113	76-131
74-95-3	PS	Dibromomethane	50.0	0.00	U	53.8	108	79-120
108-10-1	PS	4-Methyl-2-pentanone	250	0.00	U	262	105	68-136
10061-01-5	PS	cis-1,3-Dichloropropylene	50.0	0.00	U	55.8	112	72-134
108-88-3	PS	Toluene	50.0	0.00	U	51.3	103	62-126
10061-02-6	PS	trans-1,3-Dichloropropylene	50.0	0.00	U	56.4	113	72-133
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	U	47.8	96	74-120
591-78-6	PS	2-Hexanone	250	0.00	U	202	81	31-132
142-28-9	PS	1,3-Dichloropropane	50.0	0.00	U	50.0	100	73-121
127-18-4	PS	Tetrachloroethylene	50.0	0.00	U	57.2	114	54-139
124-48-1	PS	Dibromochloromethane	50.0	0.00	U	57.7	115	74-128
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	U	53.1	106	80-120
108-90-7	PS	Chlorobenzene	50.0	0.540	J	52.3	103	73-119
100-41-4	PS	Ethylbenzene	50.0	0.00	U	54.9	110	66-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306** **Sample Type:** **Post Spike**

Client ID: **WST50-12-23903PS** **Matrix:** **W**

Lab Sample ID: **1202782451**

Instrument: **VOA1.I** **Analysis Date:** **11/16/2012 18:47** **Dilution: 1**

Analyst: **ACJ** **Prep Batch ID:** **1264307**

Purge Vol: **5 mL** **Batch ID:** **1264307**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	PS	m,p-Xylenes	100	0.00	U	111	111	56-134
95-47-6	PS	o-Xylene	50.0	0.00	U	56.4	113	68-126
100-42-5	PS	Styrene	50.0	0.00	U	1.74	3 *	57-138
75-25-2	PS	Bromoform	50.0	0.00	U	57.5	115	66-129
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	U	48.5	97	44-146
96-18-4	PS	1,2,3-Trichloropropane	50.0	0.00	U	52.4	105	68-129
108-86-1	PS	Bromobenzene	50.0	0.00	U	50.6	101	70-122
103-65-1	PS	n-Propylbenzene	50.0	0.00	U	54.8	110	61-131
95-49-8	PS	2-Chlorotoluene	50.0	0.00	U	52.6	105	66-126
98-82-8	PS	Isopropylbenzene	50.0	0.00	U	58.0	116	65-130
108-67-8	PS	1,3,5-Trimethylbenzene	50.0	0.00	U	56.8	114	58-134
106-43-4	PS	4-Chlorotoluene	50.0	0.00	U	52.7	105	63-125
98-06-6	PS	tert-Butylbenzene	50.0	0.00	U	58.9	118	66-129
95-63-6	PS	1,2,4-Trimethylbenzene	50.0	0.00	U	56.0	112	60-131
135-98-8	PS	sec-Butylbenzene	50.0	0.00	U	57.8	116	62-130
99-87-6	PS	4-Isopropyltoluene	50.0	0.00	U	59.1	118	62-132
541-73-1	PS	1,3-Dichlorobenzene	50.0	0.00	U	51.8	104	66-121
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	U	50.0	100	65-119
104-51-8	PS	n-Butylbenzene	50.0	0.00	U	57.9	116	55-134
96-12-8	PS	1,2-Dibromo-3-chloropropane	50.0	0.00	U	51.6	103	58-137
87-68-3	PS	Hexachlorobutadiene	50.0	0.00	U	54.5	109	49-139
91-20-3	PS	Naphthalene	50.0	0.00	U	49.2	98	46-145

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Sample Type: **Post Spike**
Client ID: **WST50-12-23903PS**
Matrix: **W**
Lab Sample ID: **1202782451**
Instrument: **VOA1.I**
Analysis Date: **11/16/2012 18:47**
Dilution: 1
Analyst: **ACJ**
Prep Batch ID: **1264307**
Purge Vol: **5 mL**
Batch ID: **1264307**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	PS	1,2,3-Trichlorobenzene	50.0	0.00	U	50.3	101	54-134
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	U	57.7	115	79-128
120-82-1	PS	1,2,4-Trichlorobenzene	50.0	0.00	U	52.8	106	55-128
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	U	51.5	103	68-121

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **WST50-12-23903PSD**
Lab Sample ID: **1202782452**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/16/2012 19:17**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
75-71-8	PSD	Dichlorodifluoromethane	50.0	0.00	U	58.2	116	36-123	12	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	U	52.1	104	47-134	10	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	U	43.3	87	49-129	17	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	U	51.6	103	56-127	6	0-20
75-00-3	PSD	Chloroethane	50.0	0.00	U	51.5	103	67-122	8	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	U	61.9	124 *	60-123	13	0-20
60-29-7	PSD	Ethyl ether	50.0	0.00	U	51.3	103	69-121	1	0-20
67-64-1	PSD	Acetone	250	4.75	J	127	49	30-143	2	0-20
75-05-8	PSD	Acetonitrile	1250	0.00	U	1200	96	60-133	0	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	U	57.2	114	67-132	10	0-20
74-88-4	PSD	Iodomethane	250	0.00	U	287	115	69-147	5	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	U	52.1	104	56-135	2	0-20
75-15-0	PSD	Carbon disulfide	250	0.00	U	279	111	65-153	7	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	U	55.5	111	73-126	1	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	U	53.2	106	69-128	7	0-20
108-05-4	PSD	Vinyl acetate	250	0.00	U	0.00	0 *	50-143	0	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	U	51.6	103	75-124	4	0-20
78-93-3	PSD	2-Butanone	250	0.00	U	170	68	30-140	2	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	U	52.7	105	52-147	4	0-20
594-20-7	PSD	2,2-Dichloropropane	50.0	0.00	U	60.9	122	67-143	9	0-20
67-66-3	PSD	Chloroform	50.0	0.00	U	52.4	105	75-125	6	0-20
74-97-5	PSD	Bromochloromethane	50.0	0.00	U	53.0	106	80-120	2	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306** **Sample Type:** **Post Spike Duplicate**

Client ID: **WST50-12-23903PSD** **Matrix:** **W**

Lab Sample ID: **1202782452**

Instrument: **VOA1.I** **Analysis Date:** **11/16/2012 19:17** **Dilution: 1**

Analyst: **ACJ** **Prep Batch ID:** **1264307**

Purge Vol: **5 mL** **Batch ID:** **1264307**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
71-55-6	PSD	1,1,1-Trichloroethane	50.0	0.00	U	60.0	120	69-140	10	0-20
563-58-6	PSD	1,1-Dichloropropene	50.0	0.00	U	54.7	109	71-130	11	0-20
71-36-3	PSD	n-Butyl alcohol	5000	0.00	U	6010	120	53-150	0	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	U	62.3	125	69-142	11	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	U	52.7	105	72-126	3	0-20
71-43-2	PSD	Benzene	50.0	0.00	U	48.4	97	73-119	6	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	U	52.2	104	54-147	8	0-20
78-87-5	PSD	1,2-Dichloropropane	50.0	0.00	U	47.7	95	78-123	5	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	U	54.5	109	76-131	4	0-20
74-95-3	PSD	Dibromomethane	50.0	0.00	U	52.5	105	79-120	2	0-20
108-10-1	PSD	4-Methyl-2-pentanone	250	0.00	U	264	105	68-136	1	0-20
10061-01-5	PSD	cis-1,3-Dichloropropylene	50.0	0.00	U	54.1	108	72-134	3	0-20
108-88-3	PSD	Toluene	50.0	0.00	U	49.4	99	62-126	4	0-20
10061-02-6	PSD	trans-1,3-Dichloropropylene	50.0	0.00	U	56.8	114	72-133	1	0-20
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	U	48.3	97	74-120	1	0-20
591-78-6	PSD	2-Hexanone	250	0.00	U	205	82	31-132	2	0-20
142-28-9	PSD	1,3-Dichloropropane	50.0	0.00	U	50.0	100	73-121	0	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	U	53.3	107	54-139	7	0-20
124-48-1	PSD	Dibromochloromethane	50.0	0.00	U	58.0	116	74-128	0	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	U	53.6	107	80-120	1	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.540	J	50.6	100	73-119	3	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	U	51.5	103	66-125	6	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **WST50-12-23903PSD**
Lab Sample ID: **1202782452**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/16/2012 19:17**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	PSD	m,p-Xylenes	100	0.00	U	106	106	56-134	5	0-20
95-47-6	PSD	o-Xylene	50.0	0.00	U	55.0	110	68-126	3	0-20
100-42-5	PSD	Styrene	50.0	0.00	U	1.87	4 *	57-138	7	0-20
75-25-2	PSD	Bromoform	50.0	0.00	U	58.0	116	66-129	1	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	U	48.2	96	44-146	1	0-20
96-18-4	PSD	1,2,3-Trichloropropane	50.0	0.00	U	51.9	104	68-129	1	0-20
108-86-1	PSD	Bromobenzene	50.0	0.00	U	49.2	98	70-122	3	0-20
103-65-1	PSD	n-Propylbenzene	50.0	0.00	U	51.3	103	61-131	7	0-20
95-49-8	PSD	2-Chlorotoluene	50.0	0.00	U	50.8	102	66-126	4	0-20
98-82-8	PSD	Isopropylbenzene	50.0	0.00	U	54.4	109	65-130	7	0-20
108-67-8	PSD	1,3,5-Trimethylbenzene	50.0	0.00	U	53.5	107	58-134	6	0-20
106-43-4	PSD	4-Chlorotoluene	50.0	0.00	U	50.5	101	63-125	4	0-20
98-06-6	PSD	tert-Butylbenzene	50.0	0.00	U	54.7	109	66-129	7	0-20
95-63-6	PSD	1,2,4-Trimethylbenzene	50.0	0.00	U	53.3	107	60-131	5	0-20
135-98-8	PSD	sec-Butylbenzene	50.0	0.00	U	53.8	108	62-130	7	0-20
99-87-6	PSD	4-Isopropyltoluene	50.0	0.00	U	55.0	110	62-132	7	0-20
541-73-1	PSD	1,3-Dichlorobenzene	50.0	0.00	U	49.5	99	66-121	5	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	U	48.5	97	65-119	3	0-20
104-51-8	PSD	n-Butylbenzene	50.0	0.00	U	53.7	107	55-134	7	0-20
96-12-8	PSD	1,2-Dibromo-3-chloropropane	50.0	0.00	U	53.0	106	58-137	3	0-20
87-68-3	PSD	Hexachlorobutadiene	50.0	0.00	U	51.5	103	49-139	6	0-20
91-20-3	PSD	Naphthalene	50.0	0.00	U	50.2	100	46-145	2	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Sample Type: **Post Spike Duplicate**
Client ID: **WST50-12-23903PSD**
Matrix: **W**
Lab Sample ID: **1202782452**
Instrument: **VOA1.I**
Analysis Date: **11/16/2012 19:17**
Dilution: 1
Analyst: **ACJ**
Prep Batch ID: **1264307**
Purge Vol: **5 mL**
Batch ID: **1264307**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
87-61-6	PSD	1,2,3-Trichlorobenzene	50.0	0.00	U	50.4	101	54-134	0	0-20
630-20-6	PSD	1,1,1,2-Tetrachloroethane	50.0	0.00	U	56.3	113	79-128	2	0-20
120-82-1	PSD	1,2,4-Trichlorobenzene	50.0	0.00	U	51.4	103	55-128	3	0-20
95-50-1	PSD	1,2-Dichlorobenzene	50.0	0.00	U	49.9	100	68-121	3	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202782453**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/16/2012 11:38**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	62.0	124	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	57.7	115	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	53.1	106	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	56.6	113	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	57.3	115	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	66.0	132 *	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	53.2	106	74-120
67-64-1	LCS	Acetone	250	0.0	344	138	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	1220	98	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	62.0	124	76-127
74-88-4	LCS	Iodomethane	250	0.0	304	121	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	53.9	108	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	301	121	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	56.9	114	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	57.6	115	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	276	111	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	54.4	109	79-120
78-93-3	LCS	2-Butanone	250	0.0	376	150	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	55.2	110	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	65.5	131	76-145
67-66-3	LCS	Chloroform	50.0	0.0	55.1	110	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	55.0	110	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202782453**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/16/2012 11:38**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	63.0	126	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	59.4	119	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	6140	123	66-138
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	64.5	129	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	53.6	107	75-121
71-43-2	LCS	Benzene	50.0	0.0	52.5	105	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	55.7	111	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	50.9	102	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	54.9	110	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	53.6	107	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	328	131	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	57.6	115	80-127
108-88-3	LCS	Toluene	50.0	0.0	53.8	108	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	58.4	117	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	51.0	102	79-120
591-78-6	LCS	2-Hexanone	250	0.0	409	164 *	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	52.0	104	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	56.9	114	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	57.7	115	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	55.5	111	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	53.7	107	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	56.8	114	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202782453**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/16/2012 11:38**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	115	115	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	59.3	119	80-120
100-42-5	LCS	Styrene	50.0	0.0	60.0	120	80-121
75-25-2	LCS	Bromoform	50.0	0.0	55.8	112	72-125
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	49.5	99	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	53.0	106	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	52.3	105	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	55.6	111	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	54.1	108	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	59.5	119	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	58.1	116	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	53.8	108	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	59.0	118	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	57.9	116	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	58.9	118	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	60.4	121	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	52.9	106	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	51.9	104	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	58.4	117	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	48.8	98	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	55.2	110	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	51.3	103	71-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202782453**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/16/2012 11:38**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	52.3	105	73-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	58.6	117	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	55.1	110	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	53.5	107	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202782454**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/16/2012 13:41**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS	Acrolein	250	0.0	239	96	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	300	120	65-157
107-05-1	LCS	Allyl chloride	250	0.0	260	104	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	236	94	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	56.1	112	45-159
107-12-0	LCS	Propionitrile	250	0.0	240	96	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	238	95	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2430	97	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	254	102	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	265	106	66-132

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202784991**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/17/2012 03:32**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	48.0	96	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	50.3	101	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	43.8	88	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	51.0	102	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	49.4	99	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	52.5	105	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	51.6	103	74-120
67-64-1	LCS	Acetone	250	0.0	299	120	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	1130	90	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	51.2	102	76-127
74-88-4	LCS	Iodomethane	250	0.0	277	111	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	50.6	101	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	258	103	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	55.8	112	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	50.1	100	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	224	89	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	49.7	99	79-120
78-93-3	LCS	2-Butanone	250	0.0	329	132	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	52.1	104	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	52.8	106	76-145
67-66-3	LCS	Chloroform	50.0	0.0	51.0	102	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	52.9	106	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202784991**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/17/2012 03:32**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	53.9	108	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	50.3	101	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	5620	112	66-138
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	53.6	107	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	51.1	102	75-121
71-43-2	LCS	Benzene	50.0	0.0	47.5	95	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	49.8	100	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	48.3	97	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	53.1	106	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	52.1	104	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	275	110	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	54.4	109	80-127
108-88-3	LCS	Toluene	50.0	0.0	47.3	95	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	54.7	109	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	48.7	97	79-120
591-78-6	LCS	2-Hexanone	250	0.0	322	129	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	49.7	99	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	47.8	96	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	55.6	111	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	53.0	106	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	49.2	98	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	49.3	99	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202784991**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/17/2012 03:32**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	102	102	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	52.9	106	80-120
100-42-5	LCS	Styrene	50.0	0.0	54.7	109	80-121
75-25-2	LCS	Bromoform	50.0	0.0	54.7	109	72-125
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	46.4	93	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	50.9	102	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	49.3	99	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	47.8	96	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	48.8	98	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	52.2	104	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	51.1	102	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	48.3	97	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	51.8	104	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	51.3	103	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	50.3	101	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	50.6	101	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	47.7	95	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	46.5	93	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	48.3	97	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	46.4	93	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	46.4	93	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	48.0	96	71-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202784991**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/17/2012 03:32**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	47.2	94	73-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	54.3	109	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	46.4	93	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	49.6	99	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202784992**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/17/2012 05:04**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS	Acrolein	250	0.0	211	85	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	259	104	65-157
107-05-1	LCS	Allyl chloride	250	0.0	240	96	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	226	91	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	50.5	101	45-159
107-12-0	LCS	Propionitrile	250	0.0	233	93	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	229	91	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2320	93	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	244	98	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	255	102	66-132

Method Blank Summary

SDG Number:	**2013-306**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1264307**	**Instrument ID:**	**VOA1.I**	**Data File:**	**111612V1\1M510BA.D**
Lab Sample ID:	**1202782450**	**Prep Date:**	**11/16/2012 15:13**	**Analyzed:**	**11/16/12 15:13**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1264307	1202782453	111612V1\1M503LA.D	11/16/12	1138
02 LCS for batch 1264307	1202782454	111612V1\1M507SA.D	11/16/12	1341
03 WST50-12-23903PS	1202782451	111612V1\1M517.D	11/16/12	1847
04 WST50-12-23903PSD	1202782452	111612V1\1M518.D	11/16/12	1917

Method Blank Summary

SDG Number:	**2013-306**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1264307**	**Instrument ID:**	**VOA1.I**	**Data File:**	**111612V1\1M532BA.D**
Lab Sample ID:	**1202784990**	**Prep Date:**	**11/17/2012 06:04**	**Analyzed:**	**11/17/12 06:04**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
06 LCS for batch 1264307	1202784991	111612V1\1M527LA.D	11/17/12	0332
07 LCS for batch 1264307	1202784992	111612V1\1M530SA.D	11/17/12	0504
08 CAMO-13-24250	315159003	111612V1\1M537.D	11/17/12	0838
09 CAMO-13-24233	315159005	111612V1\1M538.D	11/17/12	0909

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782450**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 15:13**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 15:13**				
Data File:	**111612V1\1M510BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782450**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 15:13**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 15:13**				
Data File:	**111612V1\1M510BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782450**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 15:13**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 15:13**				
Data File:	**111612V1\1M510BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	53.5	50.0	ug/L	107	(78%-124%)
Bromofluorobenzene	49.4	50.0	ug/L	98.9	(80%-120%)
Toluene-d8	51.4	50.0	ug/L	103	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782451**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 18:47**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 18:47**				
Data File:	**111612V1\1M517.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		65.3	ug/L	0.300	1.00
74-87-3	Chloromethane		57.4	ug/L	0.300	1.00
75-01-4	Vinyl chloride		51.3	ug/L	0.300	1.00
74-83-9	Bromomethane		54.7	ug/L	0.300	1.00
75-00-3	Chloroethane		55.6	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		70.4	ug/L	0.300	1.00
60-29-7	Ethyl ether		52.0	ug/L	0.300	1.00
67-64-1	Acetone		130	ug/L	3.00	10.0
75-05-8	Acetonitrile		1210	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		63.1	ug/L	0.300	1.00
74-88-4	Iodomethane		303	ug/L	1.50	5.00
75-09-2	Methylene chloride		53.1	ug/L	3.00	10.0
75-15-0	Carbon disulfide		300	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		56.3	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		56.9	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		53.9	ug/L	0.300	1.00
78-93-3	2-Butanone		173	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		54.8	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		66.7	ug/L	0.300	1.00
67-66-3	Chloroform		55.6	ug/L	0.300	1.00
74-97-5	Bromochloromethane		54.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		66.0	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		60.8	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		6010	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		69.7	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		54.5	ug/L	0.300	1.00
71-43-2	Benzene		51.4	ug/L	0.300	1.00
79-01-6	Trichloroethylene		56.3	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		50.1	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		56.7	ug/L	0.300	1.00
74-95-3	Dibromomethane		53.8	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		262	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		55.8	ug/L	0.300	1.00
108-88-3	Toluene		51.3	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		56.4	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		47.8	ug/L	0.300	1.00
591-78-6	2-Hexanone		202	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782451**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 18:47**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 18:47**				
Data File:	**111612V1\1M517.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		50.0	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		57.2	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		57.7	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		53.1	ug/L	0.300	1.00
108-90-7	Chlorobenzene		52.3	ug/L	0.300	1.00
100-41-4	Ethylbenzene		54.9	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		111	ug/L	0.300	2.00
95-47-6	o-Xylene		56.4	ug/L	0.300	1.00
100-42-5	Styrene		1.74	ug/L	0.300	1.00
75-25-2	Bromoform		57.5	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		48.5	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		52.4	ug/L	0.300	1.00
108-86-1	Bromobenzene		50.6	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		54.8	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		52.6	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		58.0	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		56.8	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		52.7	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		58.9	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		56.0	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		57.8	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		59.1	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		51.8	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		50.0	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		57.9	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		51.6	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		54.5	ug/L	0.300	1.00
91-20-3	Naphthalene		49.2	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		50.3	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782451**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 18:47**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 18:47**				
Data File:	**111612V1\1M517.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		57.7	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		52.8	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		51.5	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	55.2	50.0	ug/L	110	(78%-124%)
Bromofluorobenzene	47.2	50.0	ug/L	94.4	(80%-120%)
Toluene-d8	50.6	50.0	ug/L	101	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782452**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 19:17**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 19:17**				
Data File:	**111612V1\1M518.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		58.2	ug/L	0.300	1.00
74-87-3	Chloromethane		52.1	ug/L	0.300	1.00
75-01-4	Vinyl chloride		43.3	ug/L	0.300	1.00
74-83-9	Bromomethane		51.6	ug/L	0.300	1.00
75-00-3	Chloroethane		51.5	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		61.9	ug/L	0.300	1.00
60-29-7	Ethyl ether		51.3	ug/L	0.300	1.00
67-64-1	Acetone		127	ug/L	3.00	10.0
75-05-8	Acetonitrile		1200	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		57.2	ug/L	0.300	1.00
74-88-4	Iodomethane		287	ug/L	1.50	5.00
75-09-2	Methylene chloride		52.1	ug/L	3.00	10.0
75-15-0	Carbon disulfide		279	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		55.5	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		53.2	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		51.6	ug/L	0.300	1.00
78-93-3	2-Butanone		170	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		52.7	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		60.9	ug/L	0.300	1.00
67-66-3	Chloroform		52.4	ug/L	0.300	1.00
74-97-5	Bromochloromethane		53.0	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		60.0	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		54.7	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		6010	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		62.3	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		52.7	ug/L	0.300	1.00
71-43-2	Benzene		48.4	ug/L	0.300	1.00
79-01-6	Trichloroethylene		52.2	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		47.7	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		54.5	ug/L	0.300	1.00
74-95-3	Dibromomethane		52.5	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		264	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		54.1	ug/L	0.300	1.00
108-88-3	Toluene		49.4	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		56.8	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.3	ug/L	0.300	1.00
591-78-6	2-Hexanone		205	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782452**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 19:17**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 19:17**				
Data File:	**111612V1\1M518.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		50.0	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		53.3	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		58.0	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		53.6	ug/L	0.300	1.00
108-90-7	Chlorobenzene		50.6	ug/L	0.300	1.00
100-41-4	Ethylbenzene		51.5	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		106	ug/L	0.300	2.00
95-47-6	o-Xylene		55.0	ug/L	0.300	1.00
100-42-5	Styrene		1.87	ug/L	0.300	1.00
75-25-2	Bromoform		58.0	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		48.2	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		51.9	ug/L	0.300	1.00
108-86-1	Bromobenzene		49.2	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		51.3	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		50.8	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		54.4	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		53.5	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		50.5	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		54.7	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		53.3	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		53.8	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		55.0	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		49.5	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		48.5	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		53.7	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		53.0	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		51.5	ug/L	0.300	1.00
91-20-3	Naphthalene		50.2	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		50.4	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782452**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 19:17**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 19:17**				
Data File:	**111612V1\1M518.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		56.3	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		51.4	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		49.9	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	54.1	50.0	ug/L	108	(78%-124%)
Bromofluorobenzene	47.0	50.0	ug/L	94.0	(80%-120%)
Toluene-d8	51.4	50.0	ug/L	103	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782453**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 11:38**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 11:38**				
Data File:	**111612V1\1M503LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		62.0	ug/L	0.300	1.00
74-87-3	Chloromethane		57.7	ug/L	0.300	1.00
75-01-4	Vinyl chloride		53.1	ug/L	0.300	1.00
74-83-9	Bromomethane		56.6	ug/L	0.300	1.00
75-00-3	Chloroethane		57.3	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		66.0	ug/L	0.300	1.00
60-29-7	Ethyl ether		53.2	ug/L	0.300	1.00
67-64-1	Acetone		344	ug/L	3.00	10.0
75-05-8	Acetonitrile		1220	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		62.0	ug/L	0.300	1.00
74-88-4	Iodomethane		304	ug/L	1.50	5.00
75-09-2	Methylene chloride		53.9	ug/L	3.00	10.0
75-15-0	Carbon disulfide		301	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		56.9	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		57.6	ug/L	0.300	1.00
108-05-4	Vinyl acetate		276	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		54.4	ug/L	0.300	1.00
78-93-3	2-Butanone		376	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		55.2	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		65.5	ug/L	0.300	1.00
67-66-3	Chloroform		55.1	ug/L	0.300	1.00
74-97-5	Bromochloromethane		55.0	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		63.0	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		59.4	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		6140	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		64.5	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		53.6	ug/L	0.300	1.00
71-43-2	Benzene		52.5	ug/L	0.300	1.00
79-01-6	Trichloroethylene		55.7	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		50.9	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		54.9	ug/L	0.300	1.00
74-95-3	Dibromomethane		53.6	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		328	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		57.6	ug/L	0.300	1.00
108-88-3	Toluene		53.8	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		58.4	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		51.0	ug/L	0.300	1.00
591-78-6	2-Hexanone		409	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782453**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 11:38**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 11:38**				
Data File:	**111612V1\1M503LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		52.0	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		56.9	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		57.7	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		55.5	ug/L	0.300	1.00
108-90-7	Chlorobenzene		53.7	ug/L	0.300	1.00
100-41-4	Ethylbenzene		56.8	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		115	ug/L	0.300	2.00
95-47-6	o-Xylene		59.3	ug/L	0.300	1.00
100-42-5	Styrene		60.0	ug/L	0.300	1.00
75-25-2	Bromoform		55.8	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		49.5	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		53.0	ug/L	0.300	1.00
108-86-1	Bromobenzene		52.3	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		55.6	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		54.1	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		59.5	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		58.1	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		53.8	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		59.0	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		57.9	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		58.9	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		60.4	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		52.9	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		51.9	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		58.4	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		48.8	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		55.2	ug/L	0.300	1.00
91-20-3	Naphthalene		51.3	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		52.3	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782453**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 11:38**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 11:38**				
Data File:	**111612V1\1M503LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		58.6	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		55.1	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		53.5	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	53.2	50.0	ug/L	106	(78%-124%)
Bromofluorobenzene	47.4	50.0	ug/L	94.8	(80%-120%)
Toluene-d8	52.1	50.0	ug/L	104	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782454**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 13:41**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 13:41**				
Data File:	**111612V1\1M507SA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782454**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 13:41**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 13:41**				
Data File:	**111612V1\1M507SA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein		239	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		300	ug/L	1.50	5.00
107-05-1	Allyl chloride		260	ug/L	1.50	5.00
107-13-1	Acrylonitrile		236	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		56.1	ug/L	0.300	1.00
107-12-0	Propionitrile		240	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		238	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2430	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		254	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782454**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 13:41**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 13:41**				
Data File:	**111612V1\1M507SA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		265	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	52.0	50.0	ug/L	104	(78%-124%)
Bromofluorobenzene	49.3	50.0	ug/L	98.6	(80%-120%)
Toluene-d8	50.9	50.0	ug/L	102	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784990**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 06:04**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 06:04**				
Data File:	**111612V1\1M532BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784990**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 06:04**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 06:04**				
Data File:	**111612V1\1M532BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784990**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 06:04**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 06:04**				
Data File:	**111612V1\1M532BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	52.6	50.0	ug/L	105	(78%-124%)
Bromofluorobenzene	47.8	50.0	ug/L	95.5	(80%-120%)
Toluene-d8	50.9	50.0	ug/L	102	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784991**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 03:32**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 03:32**				
Data File:	**111612V1\1M527LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		48.0	ug/L	0.300	1.00
74-87-3	Chloromethane		50.3	ug/L	0.300	1.00
75-01-4	Vinyl chloride		43.8	ug/L	0.300	1.00
74-83-9	Bromomethane		51.0	ug/L	0.300	1.00
75-00-3	Chloroethane		49.4	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		52.5	ug/L	0.300	1.00
60-29-7	Ethyl ether		51.6	ug/L	0.300	1.00
67-64-1	Acetone		299	ug/L	3.00	10.0
75-05-8	Acetonitrile		1130	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		51.2	ug/L	0.300	1.00
74-88-4	Iodomethane		277	ug/L	1.50	5.00
75-09-2	Methylene chloride		50.6	ug/L	3.00	10.0
75-15-0	Carbon disulfide		258	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		55.8	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		50.1	ug/L	0.300	1.00
108-05-4	Vinyl acetate		224	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		49.7	ug/L	0.300	1.00
78-93-3	2-Butanone		329	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		52.1	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		52.8	ug/L	0.300	1.00
67-66-3	Chloroform		51.0	ug/L	0.300	1.00
74-97-5	Bromochloromethane		52.9	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		53.9	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		50.3	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5620	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		53.6	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		51.1	ug/L	0.300	1.00
71-43-2	Benzene		47.5	ug/L	0.300	1.00
79-01-6	Trichloroethylene		49.8	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.3	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		53.1	ug/L	0.300	1.00
74-95-3	Dibromomethane		52.1	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		275	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		54.4	ug/L	0.300	1.00
108-88-3	Toluene		47.3	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		54.7	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.7	ug/L	0.300	1.00
591-78-6	2-Hexanone		322	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784991**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 03:32**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 03:32**				
Data File:	**111612V1\1M527LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		49.7	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		47.8	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		55.6	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		53.0	ug/L	0.300	1.00
108-90-7	Chlorobenzene		49.2	ug/L	0.300	1.00
100-41-4	Ethylbenzene		49.3	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		102	ug/L	0.300	2.00
95-47-6	o-Xylene		52.9	ug/L	0.300	1.00
100-42-5	Styrene		54.7	ug/L	0.300	1.00
75-25-2	Bromoform		54.7	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		46.4	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		50.9	ug/L	0.300	1.00
108-86-1	Bromobenzene		49.3	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		47.8	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		48.8	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		52.2	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		51.1	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		48.3	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		51.8	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		51.3	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		50.3	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		50.6	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		47.7	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		46.5	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		48.3	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		46.4	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		46.4	ug/L	0.300	1.00
91-20-3	Naphthalene		48.0	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		47.2	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784991**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 03:32**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 03:32**				
Data File:	**111612V1\1M527LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		54.3	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		46.4	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		49.6	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	54.4	50.0	ug/L	109	(78%-124%)
Bromofluorobenzene	48.3	50.0	ug/L	96.6	(80%-120%)
Toluene-d8	51.7	50.0	ug/L	103	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784992**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 05:04**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 05:04**				
Data File:	**111612V1\1M530SA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784992**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 05:04**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 05:04**				
Data File:	**111612V1\1M530SA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein		211	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		259	ug/L	1.50	5.00
107-05-1	Allyl chloride		240	ug/L	1.50	5.00
107-13-1	Acrylonitrile		226	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		50.5	ug/L	0.300	1.00
107-12-0	Propionitrile		233	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		229	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2320	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		244	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784992**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 05:04**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 05:04**				
Data File:	**111612V1\1M530SA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		255	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	51.4	50.0	ug/L	103	(78%-124%)
Bromofluorobenzene	49.1	50.0	ug/L	98.2	(80%-120%)
Toluene-d8	50.2	50.0	ug/L	100	(80%-120%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
30-NOV-12	Federal	Client Contract	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
VOA GC/MS	SW846 8260B DOE-AL	Liquid	ESHL, LANL
Batch ID:	**Sample Numbers:**		
1264307	See Below		

Potentially affected work order(s)(SDG): 314987(2013-297),315159(2013-306),315285(2013-311)

Application Issues:

Failed Recovery for MS/PS

Failed Recovery for LCS/LCSD

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. The recoveries for 2-Hexanone and Trichlorofluoromethane were outside of acceptance limits in LCS 1202782453. Trichlorofluoromethane 132% limits: 65-123% 2-Hexanone 164% limits: 53-158% 2. The recoveries for Dichlorodifluoromethane, Trichlorofluoromethane, Vinyl Acetate and Styrene were outside of acceptance limits in the matrix spike (1202782451). Of these compounds, the recoveries for Trichlorofluoromethane, Vinyl Acetate and Styrene were outside of acceptance limits in the MSD (1202782452) as well. The calculated relative percent differences for all compounds were within acceptance limits.	1. Narrate and report data. The number of unacceptable recoveries was less than five percent of the total number of requested target analytes. The client's acceptance criteria was satisfied. 2. Narrate and report data.

Originator's Name:

Amy Jamison 30-NOV-12

Data Validator/Group Leader:

Crystal Stacey 06-DEC-12

Semi-Volatile Analysis

Case Narrative

Semi-Volatile Case Narrative
ARS International (ARSL)
SDG 2013-306

Method/Analysis Information

Procedure:	**Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method:	SW846 8270C
Prep Method:	SW846 3510C
Analytical Batch Number:	1263326
Prep Batch Number:	1263325

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8270C:

Sample ID	Client ID
315159003	CAMO-13-24250
1202780153	Method Blank (MB)
1202780154	Laboratory Control Sample (LCS)
1202780155	315159003(CAMO-13-24250) Matrix Spike (MS)
1202780156	315159003(CAMO-13-24250) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 30.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 18.2.

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in

the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

CCV Requirements
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG in this batch met the acceptance criteria.

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria for this SDG in this batch.

Laboratory Control Sample (LCS) Recovery
The LCS(1202780154) recovered 1,4-Dioxane at 35% (limits are 41%-69%) and Hexachlorocyclopentadiene at 36% (limits are 38%-79%). The LCS spike failures represent less than 5% of the requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported.

QC Sample Designation
Sample 315159003 (CAMO-13-24250) was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The MS(1202780155(CAMO-13-24250))/MSD(1202780156(CAMO-13-24250)) RPD value for Benzidine was 80%. The limit is 30%. Since Benzidine was individually within the acceptance limits for the MS and MSD, the non-conformance had no adverse impact on the data and the results have been reported.

Internal Standard (ISTD) Acceptance
The internal standard responses used to quantitate the requested target analytes were within the required acceptance criteria for the SDG associated samples in this batch.

Technical Information:

Holding Time Specifications
All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

Sample Dilutions
The samples in this SDG in this batch did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG in this analytical batch unless confirmations or dilutions were required.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception report 1142298 was generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

TIC Comment
Tentatively identified compounds (TIC) may be requested for samples in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

Additional Comments
Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

System Configuration

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
MSD3.I	Agilent 7890A/5975C GC/MS w/ 7683 Autosampler	HP7890A/HP5975C	DB-5MS	25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-306 GEL Work Order: 315159

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Barbara Bailey **Name: Barbara Bailey**

Date: 07 DEC 2012 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**315159003**	**Date Received:**	**11/14/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24250**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 16:03**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1919.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
62-53-3	Aniline	U	10.0	ug/L	3.00	10.0
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
78-59-1	Isophorone	U	10.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
65-85-0	Benzoic acid	U	20.0	ug/L	6.00	20.0
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene	U	10.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	10.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**315159003**	**Date Received:**	**11/14/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24250**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 16:03**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1919.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline	U	10.0	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene	U	10.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.0	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**315159003**	**Date Received:**	**11/14/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24250**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 16:03**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1919.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	70.5	100	ug/L	70.5	(23%-130%)
2-Fluorobiphenyl	28.8	50.0	ug/L	57.5	(30%-104%)
2-Fluorophenol	34.5	100	ug/L	34.5	(14%-77%)
Nitrobenzene-d5	30.2	50.0	ug/L	60.4	(34%-125%)
Phenol-d5	21.3	100	ug/L	21.3	(10%-78%)
p-Terphenyl-d14	34.5	50.0	ug/L	68.9	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.957	34.5	ug/L	0	J
	unknown	2.043	7.86	ug/L	0	J
002597-49-1	Cyclobutane, ethenyl-	2.074	12.2	ug/L	95	NJ

Quality Control Summary

Semi-Volatile

Surrogate Recovery Report

SDG Number: 2013-306

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1202780153	MB for batch 1263325	36	22	61	57	70	67
1202780154	LCS for batch 1263325	36	22	59	60	82	64
315159003	CAMO-13-24250	34	21	60	58	71	69
1202780155	CAMO-13-24250MS	50	38	64	62	84	72
1202780156	CAMO-13-24250MSD	51	39	65	66	92	72

Surrogate			Acceptance Limits
2FP	=	2-Fluorophenol	(14%-77%)
PHL	=	Phenol-d5	(10%-78%)
NBZ	=	Nitrobenzene-d5	(34%-125%)
FBP	=	2-Fluorobiphenyl	(30%-104%)
TBP	=	2,4,6-Tribromophenol	(23%-130%)
TPH	=	p-Terphenyl-d14	(33%-136%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **LCS for batch 1263325**
Lab Sample ID: **1202780154**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/19/2012 11:28**
Prep Batch ID: **1263325**
Batch ID: **1263326**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	LCS	N-Methyl-N-nitrosomethylam	50.0	0.0	17.7	35	29-86
110-86-1	LCS	Pyridine	50.0	0.0	16.5	33	25-96
62-53-3	LCS	Aniline	50.0	0.0	28.7	57	38-105
108-95-2	LCS	Phenol	50.0	0.0	11.9	24	13-137
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	30.7	61	37-110
95-57-8	LCS	2-Chlorophenol	50.0	0.0	30.5	61	41-98
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	24.5	49	33-86
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	24.7	49	33-87
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	25.3	51	34-86
39638-32-9	LCS	bis(2-Chloroisopropyl)ether	50.0	0.0	33.2	66	30-118
100-51-6	LCS	Benzyl alcohol	50.0	0.0	26.8	54	39-88
95-48-7	LCS	o-Cresol	50.0	0.0	26.5	53	37-89
65794-96-9	LCS	m,p-Cresols	50.0	0.0	30.7	61	33-99
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	32.1	64	40-112
67-72-1	LCS	Hexachloroethane	50.0	0.0	22.9	46	31-87
98-95-3	LCS	Nitrobenzene	50.0	0.0	32.7	65	42-118
78-59-1	LCS	Isophorone	50.0	0.0	36.7	73	50-132
88-75-5	LCS	2-Nitrophenol	50.0	0.0	35.8	72	45-109
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	27.2	54	44-98
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	31.7	63	45-109
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	35.7	71	46-106
65-85-0	LCS	Benzoic acid	100	0.0	32.8	33	4-134

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **LCS for batch 1263325**
Lab Sample ID: **1202780154**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/19/2012 11:28**
Prep Batch ID: **1263325**
Batch ID: **1263326**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	LCS	4-Chloroaniline	50.0	0.0	34.2	68	50-122
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	29.0	58	29-94
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	33.7	67	47-110
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	27.4	55	37-100
91-20-3	LCS	Naphthalene	50.0	0.0	26.2	52	35-97
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	29.3	59	38-105
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	18.0	36 *	38-79
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	39.2	78	43-108
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	40.2	80	43-110
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	29.4	59	40-96
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	33.5	67	45-116
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	37.1	74	46-123
131-11-3	LCS	Dimethylphthalate	50.0	0.0	41.7	83	53-111
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	43.8	88	52-117
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	44.7	89	46-124
208-96-8	LCS	Acenaphthylene	50.0	0.0	31.3	63	42-105
83-32-9	LCS	Acenaphthene	50.0	0.0	29.7	59	42-103
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	46.3	93	33-105
132-64-9	LCS	Dibenzofuran	50.0	0.0	37.3	75	46-106
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	46.1	92	46-119
84-66-2	LCS	Diethylphthalate	50.0	0.0	41.2	82	52-115
100-02-7	LCS	4-Nitrophenol	50.0	0.0	10.1	20	12-130

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **LCS for batch 1263325**
Lab Sample ID: **1202780154**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/19/2012 11:28**
Prep Batch ID: **1263325**
Batch ID: **1263326**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	LCS	Fluorene	50.0	0.0	35.1	70	44-110
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	37.2	74	41-113
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	38.1	76	39-132
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	49.7	99	39-111
122-39-4	LCS	Diphenylamine	50.0	0.0	36.2	72	47-111
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	31.7	63	41-111
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	38.9	78	42-113
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	38.8	78	44-115
87-86-5	LCS	Pentachlorophenol	50.0	0.0	38.8	78	36-99
85-01-8	LCS	Phenanthrene	50.0	0.0	37.1	74	47-111
120-12-7	LCS	Anthracene	50.0	0.0	36.3	73	46-109
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	40.6	81	49-115
206-44-0	LCS	Fluoranthene	50.0	0.0	39.7	79	45-118
129-00-0	LCS	Pyrene	50.0	0.0	39.6	79	39-126
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	37.4	75	41-121
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	38.1	76	38-124
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	40.1	80	49-110
218-01-9	LCS	Chrysene	50.0	0.0	39.2	78	45-117
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	33.9	68	34-121
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	38.8	78	47-116
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	39.3	79	47-119
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	38.3	77	48-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **LCS for batch 1263325**
Lab Sample ID: **1202780154**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/19/2012 11:28**
Prep Batch ID: **1263325**
Batch ID: **1263326**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	LCS	Indeno(1,2,3-cd)pyrene	50.0	0.0	43.7	87	38-124
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	38.8	78	38-124
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	45.9	92	36-124
123-91-1	LCS	1,4-Dioxane	50.0	0.0	17.6	35 *	41-69
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	32.6	65	42-105
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	28.6	57	40-93
1912-24-9	LCS	Atrazine	50.0	0.0	30.4	61	47-115
92-87-5	LCS	Benzidine	100	0.0	31.8	32	19-124
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	34.1	68	36-111
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	26.8	54	32-92

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306** **Sample Type:** **Matrix Spike**
Client ID: **CAMO-13-24250MS** **Matrix:** **W**
Lab Sample ID: **1202780155**
Instrument: **MSD3.I** **Analysis Date:** **11/19/2012 16:28** **Dilution: 1**
Analyst: **JLD1** **Prep Batch ID:** **1263325**
Inj. Vol: **1 uL** **Batch ID:** **1263326**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	MS	N-Methyl-N-nitrosomethylam	112	0.00	U	53.6	48	27-85
110-86-1	MS	Pyridine	112	0.00	U	59.4	53	21-93
62-53-3	MS	Aniline	112	0.00	U	72.5	65	28-108
108-95-2	MS	Phenol	112	0.00	U	46.3	41	15-100
111-44-4	MS	bis(2-Chloroethyl) ether	112	0.00	U	69.5	62	27-114
95-57-8	MS	2-Chlorophenol	112	0.00	U	72.6	65	32-103
541-73-1	MS	1,3-Dichlorobenzene	112	0.00	U	56.8	51	23-84
106-46-7	MS	1,4-Dichlorobenzene	112	0.00	U	56.7	50	23-88
95-50-1	MS	1,2-Dichlorobenzene	112	0.00	U	57.4	51	24-86
39638-32-9	MS	bis(2-Chloroisopropyl)ether	112	0.00	U	75.8	68	19-122
100-51-6	MS	Benzyl alcohol	112	0.00	U	71.0	63	34-98
95-48-7	MS	o-Cresol	112	0.00	U	68.8	61	29-96
65794-96-9	MS	m,p-Cresols	112	0.00	U	85.2	76	26-111
621-64-7	MS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	112	0.00	U	73.8	66	32-115
67-72-1	MS	Hexachloroethane	112	0.00	U	52.6	47	25-82
98-95-3	MS	Nitrobenzene	112	0.00	U	79.8	71	35-124
78-59-1	MS	Isophorone	112	0.00	U	88.2	78	37-140
88-75-5	MS	2-Nitrophenol	112	0.00	U	88.7	79	33-115
105-67-9	MS	2,4-Dimethylphenol	112	0.00	U	62.1	55	31-106
111-91-1	MS	bis(2-Chloroethoxy)methane	112	0.00	U	76.4	68	35-112
120-83-2	MS	2,4-Dichlorophenol	112	0.00	U	87.0	77	36-110
65-85-0	MS	Benzoic acid	225	0.00	U	138	61	12-108

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **CAMO-13-24250MS**
Lab Sample ID: **1202780155**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/19/2012 16:28**
Prep Batch ID: **1263325**
Batch ID: **1263326**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS	4-Chloroaniline	112	0.00	U	79.6	71	33-120
87-68-3	MS	Hexachlorobutadiene	112	0.00	U	67.9	60	19-96
59-50-7	MS	Parachlorometa cresol *4-Chloro-3-methylphenol*	112	0.00	U	83.6	74	36-116
91-57-6	MS	2-Methylnaphthalene	112	0.00	U	65.1	58	27-103
91-20-3	MS	Naphthalene	112	0.00	U	62.2	55	28-99
90-12-0	MS	1-Methylnaphthalene	112	0.00	U	69.6	62	29-107
77-47-4	MS	Hexachlorocyclopentadiene	112	0.00	U	43.4	39	25-75
88-06-2	MS	2,4,6-Trichlorophenol	112	0.00	U	89.2	79	36-111
95-95-4	MS	2,4,5-Trichlorophenol	112	0.00	U	92.9	83	34-115
91-58-7	MS	2-Chloronaphthalene	112	0.00	U	65.6	58	33-96
88-74-4	MS	2-Nitroaniline *o-Nitroaniline*	112	0.00	U	78.6	70	31-120
99-09-2	MS	3-Nitroaniline *m-Nitroaniline*	112	0.00	U	84.7	75	32-123
131-11-3	MS	Dimethylphthalate	112	0.00	U	94.8	84	43-115
606-20-2	MS	2,6-Dinitrotoluene	112	0.00	U	99.4	88	42-121
121-14-2	MS	2,4-Dinitrotoluene	112	0.00	U	102	91	37-125
208-96-8	MS	Acenaphthylene	112	0.00	U	70.4	63	34-103
83-32-9	MS	Acenaphthene	112	0.00	U	66.4	59	31-104
51-28-5	MS	2,4-Dinitrophenol	112	0.00	U	115	103	25-108
132-64-9	MS	Dibenzofuran	112	0.00	U	84.1	75	38-106
58-90-2	MS	2,3,4,6-Tetrachlorophenol	112	0.00	U	106	95	33-123
84-66-2	MS	Diethylphthalate	112	0.00	U	93.2	83	43-116
100-02-7	MS	4-Nitrophenol	112	0.00	U	59.4	53	26-72

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306** **Sample Type:** **Matrix Spike**

Client ID: **CAMO-13-24250MS** **Matrix:** **W**

Lab Sample ID: **1202780155**

Instrument: **MSD3.I** **Analysis Date:** **11/19/2012 16:28** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1263325**

Inj. Vol: **1 uL** **Batch ID:** **1263326**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	112	0.00	U	80.3	71	33-110
7005-72-3	MS	4-Chlorophenylphenylether	112	0.00	U	85.1	76	30-112
100-01-6	MS	4-Nitroaniline *p-Nitroaniline*	112	0.00	U	88.6	79	28-131
534-52-1	MS	2-Methyl-4,6-dinitrophenol	112	0.00	U	120	107	31-113
122-39-4	MS	Diphenylamine	112	0.00	U	85.3	76	36-110
122-66-7	MS	Azobenzene *1,2-Diphenylhydrazine*	112	0.00	U	74.3	66	33-110
101-55-3	MS	4-Bromophenylphenylether	112	0.00	U	90.6	81	33-111
118-74-1	MS	Hexachlorobenzene	112	0.00	U	89.9	80	36-113
87-86-5	MS	Pentachlorophenol	112	0.00	U	91.6	82	25-110
85-01-8	MS	Phenanthrene	112	0.00	U	86.9	77	36-111
120-12-7	MS	Anthracene	112	0.00	U	84.9	76	36-107
84-74-2	MS	Di-n-butylphthalate	112	0.00	U	90.5	81	38-116
206-44-0	MS	Fluoranthene	112	0.00	U	88.8	79	35-116
129-00-0	MS	Pyrene	112	0.00	U	95.7	85	28-126
85-68-7	MS	Butylbenzylphthalate	112	0.00	U	89.6	80	32-120
117-81-7	MS	bis(2-Ethylhexyl)phthalate	112	0.00	U	87.9	78	30-121
56-55-3	MS	Benzo(a)anthracene	112	0.00	U	94.2	84	38-110
218-01-9	MS	Chrysene	112	0.00	U	92.4	82	35-115
117-84-0	MS	Di-n-octylphthalate	112	0.00	U	74.9	67	30-115
205-99-2	MS	Benzo(b)fluoranthene	112	0.00	U	93.3	83	37-115
207-08-9	MS	Benzo(k)fluoranthene	112	0.00	U	96.1	86	36-118
50-32-8	MS	Benzo(a)pyrene	112	0.00	U	90.3	80	36-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **CAMO-13-24250MS**
Lab Sample ID: **1202780155**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/19/2012 16:28**
Prep Batch ID: **1263325**
Batch ID: **1263326**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	MS	Indeno(1,2,3-cd)pyrene	112	0.00	U	95.0	85	28-121
53-70-3	MS	Dibenzo(a,h)anthracene	112	0.00	U	76.4	68	26-124
191-24-2	MS	Benzo(ghi)perylene	112	0.00	U	100	89	25-122
123-91-1	MS	1,4-Dioxane	112	0.00	U	51.7	46	26-90
930-55-2	MS	N-Nitrosopyrrolidine	112	0.00	U	79.3	71	40-113
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	112	0.00	U	64.0	57	32-94
1912-24-9	MS	Atrazine	112	0.00	U	68.8	61	36-119
92-87-5	MS	Benzidine	225	0.00	U	61.6	27	10-125
91-94-1	MS	3,3'-Dichlorobenzidine	112	0.00	U	78.7	70	27-109
120-82-1	MS	1,2,4-Trichlorobenzene	112	0.00	U	63.2	56	23-90

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24250MSD** **Matrix:** **W**

Lab Sample ID: **1202780156**

Instrument: **MSD3.I** **Analysis Date:** **11/19/2012 16:53** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1263325**

Inj. Vol: **1 uL** **Batch ID:** **1263326**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
62-75-9	MSD	N-Methyl-N-nitrosomethylam	112	0.00	U	53.4	48	27-85	0	0-30
110-86-1	MSD	Pyridine	112	0.00	U	59.0	53	21-93	1	0-30
62-53-3	MSD	Aniline	112	0.00	U	72.6	65	28-108	0	0-30
108-95-2	MSD	Phenol	112	0.00	U	47.0	42	15-100	1	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	112	0.00	U	71.8	64	27-114	3	0-30
95-57-8	MSD	2-Chlorophenol	112	0.00	U	73.6	65	32-103	1	0-30
541-73-1	MSD	1,3-Dichlorobenzene	112	0.00	U	56.4	50	23-84	1	0-30
106-46-7	MSD	1,4-Dichlorobenzene	112	0.00	U	56.5	50	23-88	0	0-30
95-50-1	MSD	1,2-Dichlorobenzene	112	0.00	U	57.5	51	24-86	0	0-30
39638-32-9	MSD	bis(2-Chloroisopropyl)ether	112	0.00	U	75.8	68	19-122	0	0-30
100-51-6	MSD	Benzyl alcohol	112	0.00	U	72.6	65	34-98	2	0-30
95-48-7	MSD	o-Cresol	112	0.00	U	71.2	63	29-96	4	0-30
65794-96-9	MSD	m,p-Cresols	112	0.00	U	88.4	79	26-111	4	0-30
621-64-7	MSD	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	112	0.00	U	77.3	69	32-115	5	0-30
67-72-1	MSD	Hexachloroethane	112	0.00	U	52.5	47	25-82	0	0-30
98-95-3	MSD	Nitrobenzene	112	0.00	U	80.4	72	35-124	1	0-30
78-59-1	MSD	Isophorone	112	0.00	U	93.0	83	37-140	5	0-30
88-75-5	MSD	2-Nitrophenol	112	0.00	U	91.2	81	33-115	3	0-30
105-67-9	MSD	2,4-Dimethylphenol	112	0.00	U	63.1	56	31-106	2	0-30
111-91-1	MSD	bis(2-Chloroethoxy)methane	112	0.00	U	78.8	70	35-112	3	0-30
120-83-2	MSD	2,4-Dichlorophenol	112	0.00	U	89.5	80	36-110	3	0-30
65-85-0	MSD	Benzoic acid	225	0.00	U	140	62	12-108	2	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24250MSD** **Matrix:** **W**

Lab Sample ID: **1202780156**

Instrument: **MSD3.I** **Analysis Date:** **11/19/2012 16:53** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1263325**

Inj. Vol: **1 uL** **Batch ID:** **1263326**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
106-47-8	MSD	4-Chloroaniline	112	0.00	U	82.1	73	33-120	3	0-30
87-68-3	MSD	Hexachlorobutadiene	112	0.00	U	68.0	61	19-96	0	0-30
59-50-7	MSD	Parachlorometa cresol *4-Chloro-3-methylphenol*	112	0.00	U	89.3	79	36-116	7	0-30
91-57-6	MSD	2-Methylnaphthalene	112	0.00	U	67.6	60	27-103	4	0-30
91-20-3	MSD	Naphthalene	112	0.00	U	63.0	56	28-99	1	0-30
90-12-0	MSD	1-Methylnaphthalene	112	0.00	U	71.3	63	29-107	2	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	112	0.00	U	41.1	37	25-75	5	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	112	0.00	U	93.6	83	36-111	5	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	112	0.00	U	96.9	86	34-115	4	0-30
91-58-7	MSD	2-Chloronaphthalene	112	0.00	U	67.4	60	33-96	3	0-30
88-74-4	MSD	2-Nitroaniline *o-Nitroaniline*	112	0.00	U	81.4	72	31-120	4	0-30
99-09-2	MSD	3-Nitroaniline *m-Nitroaniline*	112	0.00	U	90.2	80	32-123	6	0-30
131-11-3	MSD	Dimethylphthalate	112	0.00	U	98.7	88	43-115	4	0-30
606-20-2	MSD	2,6-Dinitrotoluene	112	0.00	U	103	92	42-121	4	0-30
121-14-2	MSD	2,4-Dinitrotoluene	112	0.00	U	108	96	37-125	5	0-30
208-96-8	MSD	Acenaphthylene	112	0.00	U	73.1	65	34-103	4	0-30
83-32-9	MSD	Acenaphthene	112	0.00	U	69.7	62	31-104	5	0-30
51-28-5	MSD	2,4-Dinitrophenol	112	0.00	U	122	108	25-108	5	0-30
132-64-9	MSD	Dibenzofuran	112	0.00	U	87.1	78	38-106	4	0-30
58-90-2	MSD	2,3,4,6-Tetrachlorophenol	112	0.00	U	113	100	33-123	6	0-30
84-66-2	MSD	Diethylphthalate	112	0.00	U	97.3	87	43-116	4	0-30
100-02-7	MSD	4-Nitrophenol	112	0.00	U	50.9	45	26-72	15	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24250MSD** **Matrix:** **W**

Lab Sample ID: **1202780156**

Instrument: **MSD3.I** **Analysis Date:** **11/19/2012 16:53** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1263325**

Inj. Vol: **1 uL** **Batch ID:** **1263326**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
86-73-7	MSD	Fluorene	112	0.00	U	83.7	74	33-110	4	0-30
7005-72-3	MSD	4-Chlorophenylphenylether	112	0.00	U	88.5	79	30-112	4	0-30
100-01-6	MSD	4-Nitroaniline *p-Nitroaniline*	112	0.00	U	97.0	86	28-131	9	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	112	0.00	U	124	110	31-113	3	0-30
122-39-4	MSD	Diphenylamine	112	0.00	U	84.7	75	36-110	1	0-30
122-66-7	MSD	Azobenzene *1,2-Diphenylhydrazine*	112	0.00	U	73.5	65	33-110	1	0-30
101-55-3	MSD	4-Bromophenylphenylether	112	0.00	U	90.5	81	33-111	0	0-30
118-74-1	MSD	Hexachlorobenzene	112	0.00	U	91.2	81	36-113	1	0-30
87-86-5	MSD	Pentachlorophenol	112	0.00	U	97.7	87	25-110	7	0-30
85-01-8	MSD	Phenanthrene	112	0.00	U	88.4	79	36-111	2	0-30
120-12-7	MSD	Anthracene	112	0.00	U	87.0	77	36-107	2	0-30
84-74-2	MSD	Di-n-butylphthalate	112	0.00	U	95.7	85	38-116	6	0-30
206-44-0	MSD	Fluoranthene	112	0.00	U	96.9	86	35-116	9	0-30
129-00-0	MSD	Pyrene	112	0.00	U	93.4	83	28-126	2	0-30
85-68-7	MSD	Butylbenzylphthalate	112	0.00	U	89.8	80	32-120	0	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	112	0.00	U	92.2	82	30-121	5	0-30
56-55-3	MSD	Benzo(a)anthracene	112	0.00	U	96.7	86	38-110	3	0-30
218-01-9	MSD	Chrysene	112	0.00	U	95.5	85	35-115	3	0-30
117-84-0	MSD	Di-n-octylphthalate	112	0.00	U	84.7	75	30-115	12	0-30
205-99-2	MSD	Benzo(b)fluoranthene	112	0.00	U	95.7	85	37-115	3	0-30
207-08-9	MSD	Benzo(k)fluoranthene	112	0.00	U	96.4	86	36-118	0	0-30
50-32-8	MSD	Benzo(a)pyrene	112	0.00	U	91.9	82	36-109	2	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-306**
Client ID: **CAMO-13-24250MSD**
Lab Sample ID: **1202780156**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/19/2012 16:53**
Prep Batch ID: **1263325**
Batch ID: **1263326**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
193-39-5	MSD	Indeno(1,2,3-cd)pyrene	112	0.00	U	99.1	88	28-121	4	0-30
53-70-3	MSD	Dibenzo(a,h)anthracene	112	0.00	U	93.8	83	26-124	20	0-30
191-24-2	MSD	Benzo(ghi)perylene	112	0.00	U	100	89	25-122	0	0-30
123-91-1	MSD	1,4-Dioxane	112	0.00	U	51.9	46	26-90	0	0-30
930-55-2	MSD	N-Nitrosopyrrolidine	112	0.00	U	83.8	75	40-113	5	0-30
95-94-3	MSD	1,2,4,5-Tetrachlorobenzene	112	0.00	U	64.4	57	32-94	1	0-30
1912-24-9	MSD	Atrazine	112	0.00	U	69.8	62	36-119	1	0-30
92-87-5	MSD	Benzidine	225	0.00	U	144	64	10-125	80 *	0-30
91-94-1	MSD	3,3'-Dichlorobenzidine	112	0.00	U	87.4	78	27-109	11	0-30
120-82-1	MSD	1,2,4-Trichlorobenzene	112	0.00	U	63.4	56	23-90	0	0-30

Method Blank Summary

SDG Number:	**2013-306**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1263325**	**Instrument ID:**	**MSD3.I**	**Data File:**	**S111912.B\s3k1907.D**
Lab Sample ID:	**1202780153**	**Prep Date:**	**11/15/2012 10:50**	**Analyzed:**	**11/19/12 11:03**
Column:	**DB-5ms**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1263325	1202780154	S111912.B\s3k1908.D	11/19/12	1128
02 CAMO-13-24250	315159003	S111912.B\s3k1919.D	11/19/12	1603
03 CAMO-13-24250MS	1202780155	S111912.B\s3k1920.D	11/19/12	1628
04 CAMO-13-24250MSD	1202780156	S111912.B\s3k1921.D	11/19/12	1653

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780153**				
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1263325**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 11:03**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1907.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
62-53-3	Aniline	U	10.0	ug/L	3.00	10.0
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
78-59-1	Isophorone	U	10.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
65-85-0	Benzoic acid	U	20.0	ug/L	6.00	20.0
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene	U	10.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	10.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780153**				
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1263325**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 11:03**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1907.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline	U	10.0	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene	U	10.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.0	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780153**				
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1263325**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 11:03**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1907.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	69.9	100	ug/L	69.9	(23%-130%)
2-Fluorobiphenyl	28.7	50.0	ug/L	57.3	(30%-104%)
2-Fluorophenol	36.1	100	ug/L	36.1	(14%-77%)
Nitrobenzene-d5	30.3	50.0	ug/L	60.6	(34%-125%)
Phenol-d5	22.2	100	ug/L	22.2	(10%-78%)
p-Terphenyl-d14	33.4	50.0	ug/L	66.8	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.957	35.9	ug/L	0	J
	unknown	2.043	5.93	ug/L	0	J
000110-83-8	Cyclohexene	2.071	13.4	ug/L	94	NJ

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780154**				
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1263325**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 11:28**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1908.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		17.7	ug/L	3.00	10.0
110-86-1	Pyridine		16.5	ug/L	3.00	10.0
62-53-3	Aniline		28.7	ug/L	3.00	10.0
108-95-2	Phenol		11.9	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		30.7	ug/L	3.00	10.0
95-57-8	2-Chlorophenol		30.5	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		24.5	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		24.7	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		25.3	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether		33.2	ug/L	3.00	10.0
100-51-6	Benzyl alcohol		26.8	ug/L	3.00	10.0
95-48-7	o-Cresol		26.5	ug/L	3.00	10.0
65794-96-9	m,p-Cresols		30.7	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		32.1	ug/L	3.00	10.0
67-72-1	Hexachloroethane		22.9	ug/L	3.00	10.0
98-95-3	Nitrobenzene		32.7	ug/L	3.00	10.0
78-59-1	Isophorone		36.7	ug/L	3.00	10.0
88-75-5	2-Nitrophenol		35.8	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		27.2	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		31.7	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		35.7	ug/L	3.00	10.0
65-85-0	Benzoic acid		32.8	ug/L	6.00	20.0
106-47-8	4-Chloroaniline		34.2	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene		29.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		33.7	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		27.4	ug/L	0.300	1.00
91-20-3	Naphthalene		26.2	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene		29.3	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene		18.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		39.2	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		40.2	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		29.4	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*		33.5	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		37.1	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		41.7	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		43.8	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780154**				
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1263325**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 11:28**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1908.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		44.7	ug/L	3.00	10.0
208-96-8	Acenaphthylene		31.3	ug/L	0.300	1.00
83-32-9	Acenaphthene		29.7	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol		46.3	ug/L	5.00	20.0
132-64-9	Dibenzofuran		37.3	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol		46.1	ug/L	3.00	10.0
84-66-2	Diethylphthalate		41.2	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		10.1	ug/L	3.00	10.0
86-73-7	Fluorene		35.1	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether		37.2	ug/L	3.00	10.0
100-01-6	4-Nitroaniline		38.1	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		49.7	ug/L	3.00	10.0
122-39-4	Diphenylamine		36.2	ug/L	3.00	10.0
122-66-7	Azobenzene		31.7	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		38.9	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene		38.8	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		38.8	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene		37.1	ug/L	0.300	1.00
120-12-7	Anthracene		36.3	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		40.6	ug/L	3.00	10.0
206-44-0	Fluoranthene		39.7	ug/L	0.300	1.00
129-00-0	Pyrene		39.6	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate		37.4	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		38.1	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene		40.1	ug/L	0.300	1.00
218-01-9	Chrysene		39.2	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate		33.9	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene		38.8	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		39.3	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		38.3	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene		43.7	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene		38.8	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		45.9	ug/L	0.300	1.00
123-91-1	1,4-Dioxane		17.6	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		32.6	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780154**				
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1263325**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 11:28**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1908.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene		28.6	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine		30.4	ug/L	3.00	10.0
92-87-5	Benzidine		31.8	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		34.1	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		26.8	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	81.8	100	ug/L	81.8	(23%-130%)
2-Fluorobiphenyl	30.2	50.0	ug/L	60.4	(30%-104%)
2-Fluorophenol	35.7	100	ug/L	35.7	(14%-77%)
Nitrobenzene-d5	29.3	50.0	ug/L	58.5	(34%-125%)
Phenol-d5	21.7	100	ug/L	21.7	(10%-78%)
p-Terphenyl-d14	31.9	50.0	ug/L	63.8	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**1202780155**	**Date Received:**	**11/14/2012 09:00**		
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24250MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 16:28**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**445 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1920.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		53.6	ug/L	6.74	22.5
110-86-1	Pyridine		59.4	ug/L	6.74	22.5
62-53-3	Aniline		72.5	ug/L	6.74	22.5
108-95-2	Phenol		46.3	ug/L	6.74	22.5
111-44-4	bis(2-Chloroethyl) ether		69.5	ug/L	6.74	22.5
95-57-8	2-Chlorophenol		72.6	ug/L	6.74	22.5
541-73-1	1,3-Dichlorobenzene		56.8	ug/L	6.74	22.5
106-46-7	1,4-Dichlorobenzene		56.7	ug/L	6.74	22.5
95-50-1	1,2-Dichlorobenzene		57.4	ug/L	6.74	22.5
39638-32-9	bis(2-Chloroisopropyl)ether		75.8	ug/L	6.74	22.5
100-51-6	Benzyl alcohol		71.0	ug/L	6.74	22.5
95-48-7	o-Cresol		68.8	ug/L	6.74	22.5
65794-96-9	m,p-Cresols		85.2	ug/L	6.74	22.5
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		73.8	ug/L	6.74	22.5
67-72-1	Hexachloroethane		52.6	ug/L	6.74	22.5
98-95-3	Nitrobenzene		79.8	ug/L	6.74	22.5
78-59-1	Isophorone		88.2	ug/L	6.74	22.5
88-75-5	2-Nitrophenol		88.7	ug/L	6.74	22.5
105-67-9	2,4-Dimethylphenol		62.1	ug/L	6.74	22.5
111-91-1	bis(2-Chloroethoxy)methane		76.4	ug/L	6.74	22.5
120-83-2	2,4-Dichlorophenol		87.0	ug/L	6.74	22.5
65-85-0	Benzoic acid		138	ug/L	13.5	44.9
106-47-8	4-Chloroaniline		79.6	ug/L	7.42	22.5
87-68-3	Hexachlorobutadiene		67.9	ug/L	6.74	22.5
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		83.6	ug/L	6.74	22.5
91-57-6	2-Methylnaphthalene		65.1	ug/L	0.674	2.25
91-20-3	Naphthalene		62.2	ug/L	0.674	2.25
90-12-0	1-Methylnaphthalene		69.6	ug/L	0.674	2.25
77-47-4	Hexachlorocyclopentadiene		43.4	ug/L	6.74	22.5
88-06-2	2,4,6-Trichlorophenol		89.2	ug/L	6.74	22.5
95-95-4	2,4,5-Trichlorophenol		92.9	ug/L	6.74	22.5
91-58-7	2-Chloronaphthalene		65.6	ug/L	0.674	2.25
88-74-4	2-Nitroaniline *o-Nitroaniline*		78.6	ug/L	6.74	22.5
99-09-2	3-Nitroaniline *m-Nitroaniline*		84.7	ug/L	6.74	22.5
131-11-3	Dimethylphthalate		94.8	ug/L	6.74	22.5
606-20-2	2,6-Dinitrotoluene		99.4	ug/L	6.74	22.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**1202780155**	**Date Received:**	**11/14/2012 09:00**		
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24250MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 16:28**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**445 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1920.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		102	ug/L	6.74	22.5
208-96-8	Acenaphthylene		70.4	ug/L	0.674	2.25
83-32-9	Acenaphthene		66.4	ug/L	0.674	2.25
51-28-5	2,4-Dinitrophenol		115	ug/L	11.2	44.9
132-64-9	Dibenzofuran		84.1	ug/L	6.74	22.5
58-90-2	2,3,4,6-Tetrachlorophenol		106	ug/L	6.74	22.5
84-66-2	Diethylphthalate		93.2	ug/L	6.74	22.5
100-02-7	4-Nitrophenol		59.4	ug/L	6.74	22.5
86-73-7	Fluorene		80.3	ug/L	0.674	2.25
7005-72-3	4-Chlorophenylphenylether		85.1	ug/L	6.74	22.5
100-01-6	4-Nitroaniline		88.6	ug/L	6.74	22.5
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		120	ug/L	6.74	22.5
122-39-4	Diphenylamine		85.3	ug/L	6.74	22.5
122-66-7	Azobenzene		74.3	ug/L	6.74	22.5
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		90.6	ug/L	6.74	22.5
118-74-1	Hexachlorobenzene		89.9	ug/L	6.74	22.5
87-86-5	Pentachlorophenol		91.6	ug/L	6.74	22.5
88-85-7	Dinoseb	U	22.5	ug/L	6.74	22.5
85-01-8	Phenanthrene		86.9	ug/L	0.674	2.25
120-12-7	Anthracene		84.9	ug/L	0.674	2.25
84-74-2	Di-n-butylphthalate		90.5	ug/L	6.74	22.5
206-44-0	Fluoranthene		88.8	ug/L	0.674	2.25
129-00-0	Pyrene		95.7	ug/L	0.674	2.25
85-68-7	Butylbenzylphthalate		89.6	ug/L	6.74	22.5
117-81-7	bis(2-Ethylhexyl)phthalate		87.9	ug/L	6.74	22.5
56-55-3	Benzo(a)anthracene		94.2	ug/L	0.674	2.25
218-01-9	Chrysene		92.4	ug/L	0.674	2.25
117-84-0	Di-n-octylphthalate		74.9	ug/L	6.74	22.5
205-99-2	Benzo(b)fluoranthene		93.3	ug/L	0.674	2.25
207-08-9	Benzo(k)fluoranthene		96.1	ug/L	0.674	2.25
50-32-8	Benzo(a)pyrene		90.3	ug/L	0.989	2.25
193-39-5	Indeno(1,2,3-cd)pyrene		95.0	ug/L	0.674	2.25
53-70-3	Dibenzo(a,h)anthracene		76.4	ug/L	0.674	2.25
191-24-2	Benzo(ghi)perylene		100	ug/L	0.674	2.25
123-91-1	1,4-Dioxane		51.7	ug/L	6.74	22.5
55-18-5	N-Nitrosodiethylamine	U	22.5	ug/L	6.74	22.5
930-55-2	N-Nitrosopyrrolidine		79.3	ug/L	6.74	22.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**1202780155**	**Date Received:**	**11/14/2012 09:00**		
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24250MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 16:28**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**445 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1920.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	22.5	ug/L	6.74	22.5
95-94-3	1,2,4,5-Tetrachlorobenzene		64.0	ug/L	6.74	22.5
608-93-5	Pentachlorobenzene	U	22.5	ug/L	6.74	22.5
1912-24-9	Atrazine		68.8	ug/L	6.74	22.5
92-87-5	Benzidine		61.6	ug/L	6.74	22.5
91-94-1	3,3'-Dichlorobenzidine		78.7	ug/L	6.74	22.5
120-82-1	1,2,4-Trichlorobenzene		63.2	ug/L	6.74	22.5

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	188	225	ug/L	83.8	(23%-130%)
2-Fluorobiphenyl	69.4	112	ug/L	61.8	(30%-104%)
2-Fluorophenol	111	225	ug/L	49.6	(14%-77%)
Nitrobenzene-d5	71.3	112	ug/L	63.5	(34%-125%)
Phenol-d5	85.2	225	ug/L	37.9	(10%-78%)
p-Terphenyl-d14	80.9	112	ug/L	72.0	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**1202780156**	**Date Received:**	**11/14/2012 09:00**		
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24250MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 16:53**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**445 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1921.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		53.4	ug/L	6.74	22.5
110-86-1	Pyridine		59.0	ug/L	6.74	22.5
62-53-3	Aniline		72.6	ug/L	6.74	22.5
108-95-2	Phenol		47.0	ug/L	6.74	22.5
111-44-4	bis(2-Chloroethyl) ether		71.8	ug/L	6.74	22.5
95-57-8	2-Chlorophenol		73.6	ug/L	6.74	22.5
541-73-1	1,3-Dichlorobenzene		56.4	ug/L	6.74	22.5
106-46-7	1,4-Dichlorobenzene		56.5	ug/L	6.74	22.5
95-50-1	1,2-Dichlorobenzene		57.5	ug/L	6.74	22.5
39638-32-9	bis(2-Chloroisopropyl)ether		75.8	ug/L	6.74	22.5
100-51-6	Benzyl alcohol		72.6	ug/L	6.74	22.5
95-48-7	o-Cresol		71.2	ug/L	6.74	22.5
65794-96-9	m,p-Cresols		88.4	ug/L	6.74	22.5
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		77.3	ug/L	6.74	22.5
67-72-1	Hexachloroethane		52.5	ug/L	6.74	22.5
98-95-3	Nitrobenzene		80.4	ug/L	6.74	22.5
78-59-1	Isophorone		93.0	ug/L	6.74	22.5
88-75-5	2-Nitrophenol		91.2	ug/L	6.74	22.5
105-67-9	2,4-Dimethylphenol		63.1	ug/L	6.74	22.5
111-91-1	bis(2-Chloroethoxy)methane		78.8	ug/L	6.74	22.5
120-83-2	2,4-Dichlorophenol		89.5	ug/L	6.74	22.5
65-85-0	Benzoic acid		140	ug/L	13.5	44.9
106-47-8	4-Chloroaniline		82.1	ug/L	7.42	22.5
87-68-3	Hexachlorobutadiene		68.0	ug/L	6.74	22.5
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		89.3	ug/L	6.74	22.5
91-57-6	2-Methylnaphthalene		67.6	ug/L	0.674	2.25
91-20-3	Naphthalene		63.0	ug/L	0.674	2.25
90-12-0	1-Methylnaphthalene		71.3	ug/L	0.674	2.25
77-47-4	Hexachlorocyclopentadiene		41.1	ug/L	6.74	22.5
88-06-2	2,4,6-Trichlorophenol		93.6	ug/L	6.74	22.5
95-95-4	2,4,5-Trichlorophenol		96.9	ug/L	6.74	22.5
91-58-7	2-Chloronaphthalene		67.4	ug/L	0.674	2.25
88-74-4	2-Nitroaniline *o-Nitroaniline*		81.4	ug/L	6.74	22.5
99-09-2	3-Nitroaniline *m-Nitroaniline*		90.2	ug/L	6.74	22.5
131-11-3	Dimethylphthalate		98.7	ug/L	6.74	22.5
606-20-2	2,6-Dinitrotoluene		103	ug/L	6.74	22.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**1202780156**	**Date Received:**	**11/14/2012 09:00**		
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24250MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 16:53**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**445 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1921.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		108	ug/L	6.74	22.5
208-96-8	Acenaphthylene		73.1	ug/L	0.674	2.25
83-32-9	Acenaphthene		69.7	ug/L	0.674	2.25
51-28-5	2,4-Dinitrophenol		122	ug/L	11.2	44.9
132-64-9	Dibenzofuran		87.1	ug/L	6.74	22.5
58-90-2	2,3,4,6-Tetrachlorophenol		113	ug/L	6.74	22.5
84-66-2	Diethylphthalate		97.3	ug/L	6.74	22.5
100-02-7	4-Nitrophenol		50.9	ug/L	6.74	22.5
86-73-7	Fluorene		83.7	ug/L	0.674	2.25
7005-72-3	4-Chlorophenylphenylether		88.5	ug/L	6.74	22.5
100-01-6	4-Nitroaniline		97.0	ug/L	6.74	22.5
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		124	ug/L	6.74	22.5
122-39-4	Diphenylamine		84.7	ug/L	6.74	22.5
122-66-7	Azobenzene		73.5	ug/L	6.74	22.5
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		90.5	ug/L	6.74	22.5
118-74-1	Hexachlorobenzene		91.2	ug/L	6.74	22.5
87-86-5	Pentachlorophenol		97.7	ug/L	6.74	22.5
88-85-7	Dinoseb	U	22.5	ug/L	6.74	22.5
85-01-8	Phenanthrene		88.4	ug/L	0.674	2.25
120-12-7	Anthracene		87.0	ug/L	0.674	2.25
84-74-2	Di-n-butylphthalate		95.7	ug/L	6.74	22.5
206-44-0	Fluoranthene		96.9	ug/L	0.674	2.25
129-00-0	Pyrene		93.4	ug/L	0.674	2.25
85-68-7	Butylbenzylphthalate		89.8	ug/L	6.74	22.5
117-81-7	bis(2-Ethylhexyl)phthalate		92.2	ug/L	6.74	22.5
56-55-3	Benzo(a)anthracene		96.7	ug/L	0.674	2.25
218-01-9	Chrysene		95.5	ug/L	0.674	2.25
117-84-0	Di-n-octylphthalate		84.7	ug/L	6.74	22.5
205-99-2	Benzo(b)fluoranthene		95.7	ug/L	0.674	2.25
207-08-9	Benzo(k)fluoranthene		96.4	ug/L	0.674	2.25
50-32-8	Benzo(a)pyrene		91.9	ug/L	0.989	2.25
193-39-5	Indeno(1,2,3-cd)pyrene		99.1	ug/L	0.674	2.25
53-70-3	Dibenzo(a,h)anthracene		93.8	ug/L	0.674	2.25
191-24-2	Benzo(ghi)perylene		100	ug/L	0.674	2.25
123-91-1	1,4-Dioxane		51.9	ug/L	6.74	22.5
55-18-5	N-Nitrosodiethylamine	U	22.5	ug/L	6.74	22.5
930-55-2	N-Nitrosopyrrolidine		83.8	ug/L	6.74	22.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-306**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**1202780156**	**Date Received:**	**11/14/2012 09:00**		
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24250MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 16:53**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**445 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1921.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	22.5	ug/L	6.74	22.5
95-94-3	1,2,4,5-Tetrachlorobenzene		64.4	ug/L	6.74	22.5
608-93-5	Pentachlorobenzene	U	22.5	ug/L	6.74	22.5
1912-24-9	Atrazine		69.8	ug/L	6.74	22.5
92-87-5	Benzidine		144	ug/L	6.74	22.5
91-94-1	3,3'-Dichlorobenzidine		87.4	ug/L	6.74	22.5
120-82-1	1,2,4-Trichlorobenzene		63.4	ug/L	6.74	22.5

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	206	225	ug/L	91.7	(23%-130%)
2-Fluorobiphenyl	73.7	112	ug/L	65.6	(30%-104%)
2-Fluorophenol	114	225	ug/L	50.8	(14%-77%)
Nitrobenzene-d5	73.1	112	ug/L	65.1	(34%-125%)
Phenol-d5	87.6	225	ug/L	39.0	(10%-78%)
p-Terphenyl-d14	80.7	112	ug/L	71.8	(33%-136%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
20-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 8270C	Liquid	ARSL (ESHL)
Batch ID:	**Sample Numbers:**		
1263326	See Below		

Potentially affected work order(s)(SDG): 314987(2013-297),315159(2013-306)

Application Issues:

Failed RPD for MS/MSD, or PS/PSD

Failed Recovery for LCS/LCSD

Specification and Requirements Exception Description:	DER Disposition:
1. The LCS(1202780154) recovered 1,4-Dioxane at 35% (limits are 41%-69%) and Hexachlorocyclopentadiene at 36% (limits are 38%-79%).	1. The LCS spike failures represent less than 5% of the requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported.
2. The MS(1202780155)/MSD(1202780156) RPD value for Benzidine was 80%. The limit is 30%.	2. Since Benzidine was individually within the acceptance limits for the MS and MSD, the non-conformance had no adverse impact on the data and the results have been reported.

Originator's Name:

Jennifer Dunagan Jones 20-NOV-12

Data Validator/Group Leader:

Barbara Bailey 20-NOV-12

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC/MSMS
ARS International (ARSL)
SDG 2013-306

Method/Analysis Information

Procedure:	**Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method:	SW846 6850 Modified
Prep Method:	SW846 6850 Modified
Analytical Batch Number:	1263682
Prep Batch Number:	1263681

Sample Analysis

Sample ID	Client ID
315159002	CAMO-13-24266
315159004	CAMO-13-24267
1202780937	Interference Check Sample (ICS)
1202780933	Method Blank (MB)
1202780934	Laboratory Control Sample (LCS)
1202780935	315160002(CAMO-13-24262) Matrix Spike (MS)
1202780936	315160002(CAMO-13-24262) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 9.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

ICV Requirements
The initial calibration verification standard (ICV) met the acceptance criteria.

CCB Requirements
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

CCV Requirements
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

Low Level Standard (CRI) Requirements
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Interference Check Sample (ICS)
The interference check sample (ICS) met all recovery acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Client sample 315160002 (CAMO-13-24262) from SDG 2013-307 was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits.

Retention Time Standard Area Acceptance
The retention time standard areas were within the required acceptance criteria for all samples and QC.

Retention Time
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

A data exception report (DER) was not generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

Additional Comments
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples.

Please see the isotope ratio criteria in the Miscellaneous Section.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-306 GEL Work Order: 315159

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 20 NOV 2012 **Title: Group Leader**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1263681

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24266

Date Received: 14-NOV-12

GEL Job No (SDG): 2013-306

GEL Sample ID: 315159002

Date Filtered: 15-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.552	ug/L		1	15-NOV-12 13:55	per1115015a
	Perchlorate Isotope Ratio			3.19			1	15-NOV-12 13:55	per1115015a
14797-73-0	Perchlorate-101	.05	.2	0.535	ug/L		1	15-NOV-12 13:55	per1115015a
	Perchlorate-O(18)			0.495	ug/L		1	15-NOV-12 13:55	per1115015a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1263681

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24267

Date Received: 14-NOV-12

GEL Job No (SDG): 2013-306

GEL Sample ID: 315159004

Date Filtered: 15-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.330	ug/L		1	15-NOV-12 14:03	per1115016a
	Perchlorate Isotope Ratio			3.27			1	15-NOV-12 14:03	per1115016a
14797-73-0	Perchlorate-101	.05	.2	0.312	ug/L		1	15-NOV-12 14:03	per1115016a
	Perchlorate-O(18)			0.496	ug/L		1	15-NOV-12 14:03	per1115016a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2013-306

Extract Batch Code: 1263681

Date Filtered: 15-NOV-12

Matrix: WATER

Sample ID: 1202780934

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.215	ug/L	107		85 - 115
Perchlorate Isotope Ratio		3.24				-
Perchlorate-101	0.200	.205	ug/L	103		85 - 115
Perchlorate-O(18)		.504	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2013-306

Extract Batch Code: 1263681

Date Extracted: 15-NOV-12

GEL MS/PS ID: 1202780935

Client ID: CAMO-13-24262

GEL MSD/PSD ID: 1202780936

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec #	MSD Conc	MSD Rec #	RPD #	RPD Limit	Recovery Limit
Perchlorate	0.200	0.395	ug/L	0.625	115	.625	115	.0862	30	75 - 125
Perchlorate Isotope Ratio	0	3.13		3.1		3.19		3.08		-
Perchlorate-101	0.200	0.391	ug/L	0.625	117	.606	108	3.16	30	75 - 125
Perchlorate-O(18)	0	0.487	ug/L	0.490		.497		1.41		-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1263681

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 15-NOV-12

GEL Job No (SDG): 2013-306

GEL Sample ID: 1202780933

Date Filtered: 15-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	15-NOV-12 13:31	per1115012a
	Perchlorate Isotope Ratio						1	15-NOV-12 13:31	per1115012a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	15-NOV-12 13:31	per1115012a
	Perchlorate-O(18)			0.500	ug/L		1	15-NOV-12 13:31	per1115012a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1263681

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 15-NOV-12

GEL Job No (SDG): 2013-306

GEL Sample ID: 1202780934

Date Filtered: 15-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.215	ug/L		1	15-NOV-12 13:39	per1115013a
	Perchlorate Isotope Ratio			3.24			1	15-NOV-12 13:39	per1115013a
14797-73-0	Perchlorate-101	.05	.2	0.205	ug/L		1	15-NOV-12 13:39	per1115013a
	Perchlorate-O(18)			0.504	ug/L		1	15-NOV-12 13:39	per1115013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1263681

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2013-306

GEL Sample ID: 1202780937

Date Filtered: 15-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.223	ug/L		1	15-NOV-12 13:47	per1115014a
	Perchlorate Isotope Ratio			3.15			1	15-NOV-12 13:47	per1115014a
14797-73-0	Perchlorate-101	.05	.2	0.220	ug/L		1	15-NOV-12 13:47	per1115014a
	Perchlorate-O(18)			0.528	ug/L		1	15-NOV-12 13:47	per1115014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1263681

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24262MS

Date Received: 14-NOV-12

GEL Job No (SDG): 2013-306

GEL Sample ID: 1202780935

Date Filtered: 15-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.625	ug/L		1	15-NOV-12 14:19	per1115018a
	Perchlorate Isotope Ratio			3.1			1	15-NOV-12 14:19	per1115018a
14797-73-0	Perchlorate-101	.05	.2	0.625	ug/L		1	15-NOV-12 14:19	per1115018a
	Perchlorate-O(18)			0.490	ug/L		1	15-NOV-12 14:19	per1115018a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1263681

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24262MSD

Date Received: 14-NOV-12

GEL Job No (SDG): 2013-306

GEL Sample ID: 1202780936

Date Filtered: 15-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.625	ug/L		1	15-NOV-12 14:27	per1115019a
	Perchlorate Isotope Ratio			3.19			1	15-NOV-12 14:27	per1115019a
14797-73-0	Perchlorate-101	.05	.2	0.606	ug/L		1	15-NOV-12 14:27	per1115019a
	Perchlorate-O(18)			0.497	ug/L		1	15-NOV-12 14:27	per1115019a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-306

Sample Analysis

Sample ID	Client ID
315159002	CAMO-13-24266
315159004	CAMO-13-24267
1202780426	Method Blank (MB) **ICP**
1202780427	Laboratory Control Sample (LCS)
1202780430	315160002(CAMO-13-24262L) Serial Dilution (SD)
1202780428	315160002(CAMO-13-24262D) Sample Duplicate (DUP)
1202780429	315160002(CAMO-13-24262S) Matrix Spike (MS)
1202780421	Method Blank (MB) **ICP-MS**
1202780422	Laboratory Control Sample (LCS)
1202780425	315160002(CAMO-13-24262L) Serial Dilution (SD)
1202780423	315160002(CAMO-13-24262D) Sample Duplicate (DUP)
1202780424	315160002(CAMO-13-24262S) Matrix Spike (MS)
1202787644	Method Blank (MB) **CVAA**
1202787645	Laboratory Control Sample (LCS)
1202787648	315159002(CAMO-13-24266L) Serial Dilution (SD)
1202787646	315159002(CAMO-13-24266D) Sample Duplicate (DUP)
1202787647	315159002(CAMO-13-24266S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1263453, 1263451, 1266545 and 1268873
Prep Batch :	1263452, 1263450 and 1266544
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 7
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B
Prep Method :	SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 315160002 (CAMO-13-24262)-ICP and ICP-MS and 315159002 (CAMO-13-24266)-CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are

calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. This SDG did not require a DER.

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 12.11.12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-306 GEL Work Order: 315159

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 12.11.12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-306 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 315159002 **BASIS:** As Received **DATE COLLECTED** 09-NOV-12

CLIENT ID: CAMO-13-24266 **LEVEL:** Low **DATE RECEIVED** 14-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/29/12 10:17	112912W1-14	1266545

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-306 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 315159002 **BASIS:** As Received **DATE COLLECTED** 09-NOV-12

CLIENT ID: CAMO-13-24266 **LEVEL:** Low **DATE RECEIVED** 14-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/29/12 15:21	112912A-1	1263453
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/27/12 13:52	121127-3	1263451
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/27/12 13:52	121127-3	1263451
7440-39-3	Barium	17.6	ug/L		1	5	5	1	P	HSC	11/29/12 15:21	112912A-1	1263453
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/29/12 15:21	112912A-1	1263453
7440-42-8	Boron	22.2	ug/L	J	15	50	50	1	P	HSC	11/29/12 15:21	112912A-1	1263453
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/27/12 13:52	121127-3	1263451
7440-70-2	Calcium	16200	ug/L		50	200	200	1	P	HSC	11/29/12 15:21	112912A-1	1263453
7440-47-3	Chromium	3.79	ug/L	J	2	10	10	1	MS	BAJ	11/28/12 12:43	121128-4	1263451
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/29/12 15:21	112912A-1	1263453
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/30/12 15:20	113012-2	1263453
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/29/12 15:21	112912A-1	1263453
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/27/12 13:52	121127-3	1263451
7439-95-4	Magnesium	5090	ug/L		110	300	300	1	P	HSC	11/29/12 15:21	112912A-1	1263453
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/29/12 15:21	112912A-1	1263453
7439-98-7	Molybdenum	1.17	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/28/12 12:43	121128-4	1263451
7440-02-0	Nickel	1.7	ug/L	J	0.5	2	2	1	MS	BAJ	11/27/12 13:52	121127-3	1263451
7440-09-7	Potassium	1610	ug/L		50	150	150	1	P	HSC	11/29/12 15:21	112912A-1	1263453
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/27/12 13:52	121127-3	1263451
7631-86-9	Silica	75200	ug/L		53	213	213	1	P	HSC	11/29/12 15:21	112912A-1	1263453
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/27/12 13:52	121127-3	1263451
7440-23-5	Sodium	14400	ug/L		100	300	300	1	P	HSC	11/30/12 15:20	113012-2	1263453
7440-24-6	Strontium	65.8	ug/L		1	5	5	1	P	HSC	11/29/12 15:21	112912A-1	1263453
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/27/12 13:52	121127-3	1263451
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/30/12 15:20	113012-2	1263453
7440-61-1	Uranium	0.636	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/27/12 13:52	121127-3	1263451
7440-62-2	Vanadium	5.32	ug/L		1	5	5	1	P	HSC	11/29/12 15:21	112912A-1	1263453
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	11/29/12 15:21	112912A-1	1263453

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-306 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 315159002 **BASIS:** As Received **DATE COLLECTED** 09-NOV-12

CLIENT ID: CAMO-13-24266 **LEVEL:** Low **DATE RECEIVED** 14-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	61.4	mg/L		0.453	1.24	1.24	1		JJ2	12/06/12 16:59		1268873

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1263451	1263450	SW846 3005A	50	mL	50	mL	11/20/12	AXG2
1263453	1263452	SW846 3005A	50	mL	50	mL	11/20/12	AXG2
1266545	1266544	EPA 245.1/245.2 Prep	20	mL	20	mL	11/28/12	AXS5

***Analytical Methods:**

MS	**SW846 3005/6020 DOE-AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-306 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 315159004 **BASIS:** As Received **DATE COLLECTED** 09-NOV-12

CLIENT ID: CAMO-13-24267 **LEVEL:** Low **DATE RECEIVED** 14-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/29/12 10:27	112912W1-14	1266545

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-306 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 315159004 **BASIS:** As Received **DATE COLLECTED** 09-NOV-12

CLIENT ID: CAMO-13-24267 **LEVEL:** Low **DATE RECEIVED** 14-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/29/12 15:31	112912A-1	1263453
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/27/12 13:56	121127-3	1263451
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/27/12 13:56	121127-3	1263451
7440-39-3	Barium	19.9	ug/L		1	5	5	1	P	HSC	11/29/12 15:31	112912A-1	1263453
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/29/12 15:31	112912A-1	1263453
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	11/29/12 15:31	112912A-1	1263453
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/27/12 13:56	121127-3	1263451
7440-70-2	Calcium	12700	ug/L		50	200	200	1	P	HSC	11/29/12 15:31	112912A-1	1263453
7440-47-3	Chromium	14.6	ug/L		2	10	10	1	MS	BAJ	11/28/12 12:47	121128-4	1263451
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/29/12 15:31	112912A-1	1263453
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/30/12 15:23	113012-2	1263453
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/29/12 15:31	112912A-1	1263453
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/27/12 13:56	121127-3	1263451
7439-95-4	Magnesium	3660	ug/L		110	300	300	1	P	HSC	11/29/12 15:31	112912A-1	1263453
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/29/12 15:31	112912A-1	1263453
7439-98-7	Molybdenum	0.895	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/28/12 12:47	121128-4	1263451
7440-02-0	Nickel	0.866	ug/L	J	0.5	2	2	1	MS	BAJ	11/27/12 13:56	121127-3	1263451
7440-09-7	Potassium	1170	ug/L		50	150	150	1	P	HSC	11/29/12 15:31	112912A-1	1263453
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/27/12 13:56	121127-3	1263451
7631-86-9	Silica	71700	ug/L		53	213	213	1	P	HSC	11/29/12 15:31	112912A-1	1263453
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/27/12 13:56	121127-3	1263451
7440-23-5	Sodium	9390	ug/L		100	300	300	1	P	HSC	11/30/12 15:23	113012-2	1263453
7440-24-6	Strontium	55.4	ug/L		1	5	5	1	P	HSC	11/29/12 15:31	112912A-1	1263453
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/27/12 13:56	121127-3	1263451
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/30/12 15:23	113012-2	1263453
7440-61-1	Uranium	0.463	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/27/12 13:56	121127-3	1263451
7440-62-2	Vanadium	4.61	ug/L	J	1	5	5	1	P	HSC	11/29/12 15:31	112912A-1	1263453
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	11/29/12 15:31	112912A-1	1263453

METALS

INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-306 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 315159004 **BASIS:** As Received **DATE COLLECTED** 09-NOV-12

CLIENT ID: CAMO-13-24267 **LEVEL:** Low **DATE RECEIVED** 14-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	46.8	mg/L		0.453	1.24	1.24	1		JJ2	12/06/12 16:59		1268873

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1263451	1263450	SW846 3005A	50	mL	50	mL	11/20/12	AXG2
1263453	1263452	SW846 3005A	50	mL	50	mL	11/20/12	AXG2
1266545	1266544	EPA 245.1/245.2 Prep	20	mL	20	mL	11/28/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**
P **SW846 3005/6010B**
AV **EPA 245.1/245.2**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-306-1 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 317934001 **BASIS:** As Received **DATE COLLECTED** 09-NOV-12

CLIENT ID: CAMO-13-24266 **LEVEL:** Low **DATE RECEIVED** 14-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	PRB	01/11/13 01:42	130110-1	1274578
7440-38-2	Arsenic	2.23	ug/L	J	1.7	5	5	1	MS	PRB	01/11/13 01:42	130110-1	1274578
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	PRB	01/11/13 01:42	130110-1	1274578
7440-47-3	Chromium	96.3	ug/L		2	10	10	1	MS	PRB	01/11/13 01:42	130110-1	1274578
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	PRB	01/11/13 01:42	130110-1	1274578
7439-98-7	Molybdenum	1.65	ug/L		0.165	0.5	0.5	1	MS	PRB	01/11/13 01:42	130110-1	1274578
7440-02-0	Nickel	7.11	ug/L		0.5	2	2	1	MS	PRB	01/11/13 01:42	130110-1	1274578
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	PRB	01/11/13 01:42	130110-1	1274578
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	PRB	01/11/13 01:42	130110-1	1274578
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	PRB	01/11/13 01:42	130110-1	1274578
7440-61-1	Uranium	0.573	ug/L		0.067	0.2	0.2	1	MS	PRB	01/11/13 01:42	130110-1	1274578

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1274578	1274577	SW846 3005A	50	mL	50	mL	01/09/13	MTM1

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-306-1 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 317934002 **BASIS:** As Received **DATE COLLECTED** 09-NOV-12

CLIENT ID: CAMO-13-24267 **LEVEL:** Low **DATE RECEIVED** 14-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	PRB	01/11/13 02:00	130110-1	1274578
7440-38-2	Arsenic	2.26	ug/L	J	1.7	5	5	1	MS	PRB	01/11/13 02:00	130110-1	1274578
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	PRB	01/11/13 02:00	130110-1	1274578
7440-47-3	Chromium	4.25	ug/L	J	2	10	10	1	MS	PRB	01/11/13 02:00	130110-1	1274578
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	PRB	01/11/13 02:00	130110-1	1274578
7439-98-7	Molybdenum	1.25	ug/L		0.165	0.5	0.5	1	MS	PRB	01/11/13 02:00	130110-1	1274578
7440-02-0	Nickel	1.61	ug/L	J	0.5	2	2	1	MS	PRB	01/11/13 02:00	130110-1	1274578
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	PRB	01/11/13 02:00	130110-1	1274578
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	PRB	01/11/13 02:00	130110-1	1274578
7440-28-0	Thallium	0.477	ug/L	J	0.45	2	2	1	MS	PRB	01/11/13 02:00	130110-1	1274578
7440-61-1	Uranium	0.574	ug/L		0.067	0.2	0.2	1	MS	PRB	01/11/13 02:00	130110-1	1274578

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1274578	1274577	SW846 3005A	50	mL	50	mL	01/09/13	MTM1

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−306

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202780421								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202780426								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	50	ug/L	+/−150	U	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202787644								
	Mercury	0.067	ug/L	+/−0.2	U	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−306 **Client ID** CAMO−13−24262S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315160002 **Spike ID:** 1202780424

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	197		1	U	200	98.7		MS
Arsenic	ug/L	75−125	84.6		1.7	U	80	104		MS
Cadmium	ug/L	75−125	10.9		0.11	U	10	109		MS
Chromium	ug/L	75−125	64.3		14.5		50	99.5		MS
Lead	ug/L	75−125	43.3		0.5	U	40	108		MS
Molybdenum	ug/L	75−125	50.3		0.879		50	98.7		MS
Nickel	ug/L	75−125	54.2		0.864	J	50	107		MS
Selenium	ug/L	75−125	22.1		1.5	U	20	108		MS
Silver	ug/L	75−125	54.7		0.2	U	50	109		MS
Thallium	ug/L	75−125	95.5		0.45	U	100	95.4		MS
Uranium	ug/L	75−125	52.9		0.461		50	105		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−306 **Client ID** CAMO−13−24262S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315160002 **Spike ID:** 1202780429

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5150		68	U	5000	103		P
Barium	ug/L	75−125	529		21.3		500	102		P
Beryllium	ug/L	75−125	522		1	U	500	104		P
Boron	ug/L	75−125	532		15.5	J	500	103		P
Calcium	ug/L	75−125	18100		13600		5000	91.5		P
Cobalt	ug/L	75−125	511		1	U	500	102		P
Copper	ug/L	75−125	512		3	U	500	102		P
Iron	ug/L	75−125	5260		30	U	5000	105		P
Magnesium	ug/L	75−125	9220		3910		5000	106		P
Manganese	ug/L	75−125	519		2	U	500	104		P
Potassium	ug/L	75−125	6220		1200		5000	101		P
Silica	ug/L		85900		76300		10700	89.3	N/A	P
Sodium	ug/L	75−125	14700		9960		5000	94		P
Strontium	ug/L	75−125	583		59.5		500	105		P
Tin	ug/L	75−125	494		2.5	U	500	98.8		P
Vanadium	ug/L	75−125	527		4.95	J	500	104		P
Zinc	ug/L	75−125	517		3.3	U	500	103		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−306 **Client ID** CAMO−13−24266S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315159002 **Spike ID:** 1202787647

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.22		0.067	U	2	109		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−306 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24262D

Matrix: LIQUID **Level:** Low

Sample ID: 315160002 **Duplicate ID:** 1202780423 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	14.5		14.7		1.07		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	0.879		0.866		1.49		MS
Nickel	ug/L	+/−2	0.864	J	0.891	J	3.08		MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.461		0.469		1.72		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−306 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24262D

Matrix: LIQUID **Level:** Low

Sample ID: 315160002 **Duplicate ID:** 1202780428 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−5	21.3		21.4		.211		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15.5	J	15	U	200		P
Calcium	ug/L	+/−20%	13600		13600		.684		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L		3	U	3	U			P
Iron	ug/L		30	U	30	U			P
Magnesium	ug/L	+/−20%	3910		3950		1.02		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	1200		1220		2.08		P
Silica	ug/L	+/−20%	76300		76500		.196		P
Sodium	ug/L	+/−20%	9960		9990		.325		P
Strontium	ug/L	+/−20%	59.5		59.2		.529		P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L	+/−5	4.95	J	4.97	J	.349		P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−306 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24266D

Matrix: LIQUID **Level:** Low

Sample ID: 315159002 **Duplicate ID:** 1202787646 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−306

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202780422								
	Antimony	ug/L	50	50.7		101	80−120	MS
	Arsenic	ug/L	50	54.1		108	80−120	MS
	Cadmium	ug/L	50	52.1		104	80−120	MS
	Chromium	ug/L	50	52.2		104	80−120	MS
	Lead	ug/L	50	54		108	80−120	MS
	Molybdenum	ug/L	50	50		100	80−120	MS
	Nickel	ug/L	50	56.8		114	80−120	MS
	Selenium	ug/L	50	55		110	80−120	MS
	Silver	ug/L	50	56.7		113	80−120	MS
	Thallium	ug/L	50	50.8		102	80−120	MS
	Uranium	ug/L	50	52.9		106	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−306

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202780427								
	Aluminum	ug/L	5000	5150		103	80−120	P
	Barium	ug/L	500	506		101	80−120	P
	Beryllium	ug/L	500	513		103	80−120	P
	Boron	ug/L	500	507		101	80−120	P
	Calcium	ug/L	5000	5200		104	80−120	P
	Cobalt	ug/L	500	507		101	80−120	P
	Copper	ug/L	500	493		98.6	80−120	P
	Iron	ug/L	5000	5180		104	80−120	P
	Magnesium	ug/L	5000	5400		108	80−120	P
	Manganese	ug/L	500	515		103	80−120	P
	Potassium	ug/L	5000	5050		101	80−120	P
	Silica	ug/L	10700	10900		102	80−120	P
	Sodium	ug/L	5000	4990		99.8	80−120	P
	Strontium	ug/L	500	519		104	80−120	P
	Tin	ug/L	500	490		98	80−120	P
	Vanadium	ug/L	500	514		103	80−120	P
	Zinc	ug/L	500	502		100	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−306

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202787645								
	Mercury	ug/L	2	2.21		111	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−306 **Client ID** CAMO−13−24262L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315160002 **Serial Dilution ID:** 1202780425

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	14.5		15.5	J	6.39			MS
Lead	.5	U	2.5	U				MS
Molybdenum	.879		1.2	J	36.5			MS
Nickel	.864	J	2.5	U	100			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	4.29	J				MS
Uranium	.461		.53	J	15			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−306 **Client ID** CAMO−13−24262L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315160002 **Serial Dilution ID:** 1202780430

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	21.3		20.8	J	2.32			P
Beryllium	1	U	5	U				P
Boron	15.5	J	75	U	100			P
Calcium	13600		13000		3.85		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	3910		3920		.476			P
Manganese	2	U	10	U				P
Potassium	1200		1310		9.48			P
Silica	76300		75700		.811		10	P
Sodium	9960		9650		3.08		10	P
Strontium	59.5		55.6		6.59		10	P
Tin	2.5	U	12.5	U				P
Vanadium	4.95	J	6.05	J	22.3			P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−306 **Client ID** CAMO−13−24266L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315159002 **Serial Dilution ID:** 1202787648

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
05-DEC-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ICP	SW846 3005/6010B	Liquid	ESHL, LANL
Batch ID:	**Sample Numbers:**		
1263453	See Below		

Potentially affected work order(s)(SDG): 314987(2013-297),315158(2013-305-1),315159(2013-306),315160(2013-307)

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS/PS: QC 1202780429MS	1. The matrix spike recovery failed outside of the control limits for silver due to possible matrix interferences and/or non-homogeneity. Per GEL's accredited methods and SOPs, a corrective action is not required and the data is qualified and reported.

Originator's Name:

Helen Camello 05-DEC-12

Data Validator/Group Leader:

Theresa McKelvey 06-DEC-12

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-306

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1262822 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
315159001	CAMO-13-24249
315159003	CAMO-13-24250
1202778960	Method Blank (MB)
1202778961	315160001(CAMO-13-24245) Sample Duplicate (DUP)
1202778962	315160001(CAMO-13-24245) Post Spike (PS)
1202778963	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315160001 (CAMO-13-24245).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202778961 (CAMO-13-24245).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1266189	**Method:**	EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
315159002	CAMO-13-24266
315159004	CAMO-13-24267
1202786720	314987004(CAMO-13-24270) Sample Duplicate (DUP)
1202786721	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202786722	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314987004 (CAMO-13-24270) and 315159002 (CAMO-13-24266).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1263688 **Method:** EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
315159002	CAMO-13-24266
315159004	CAMO-13-24267
1202780948	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202780951	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315159002 (CAMO-13-24266).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following samples from this sample group were received by the lab outside of the method specified holding time: 315159002 (CAMO-13-24266) and 315159004 (CAMO-13-24267).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1141911 315159002 (CAMO-13-24266) and 315159004 (CAMO-13-24267).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1263381	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
315159002	CAMO-13-24266
315159004	CAMO-13-24267
1202780265	Method Blank (MB)
1202780266	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202780267	315159002(CAMO-13-24266) Post Spike (PS)
1202780268	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315159002 (CAMO-13-24266).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202780266 (CAMO-13-24266), 1202780267 (CAMO-13-24266), 315159002 (CAMO-13-24266) and 315159004 (CAMO-13-24267).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1263572	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1263571	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
315159002	CAMO-13-24266
315159004	CAMO-13-24267
1202780702	Method Blank (MB)
1202780703	314987010(CAMO-13-24229) Sample Duplicate (DUP)
1202780705	314987010(CAMO-13-24229) Matrix Spike (MS)
1202780707	314987010(CAMO-13-24229) Matrix Spike Duplicate (MSD)
1202780709	Laboratory Control Sample (LCS)
1202782504	315361001(SWWS46-13-24772) Sample Duplicate (DUP)
1202782505	315361001(SWWS46-13-24772) Matrix Spike (MS)
1202782506	315361001(SWWS46-13-24772) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314987010 (CAMO-13-24229) and 315361001 (SWWS46-13-24772).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The spike duplicate recovery falls outside of the established acceptance limits. Since both the spike recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported. 1202780707 (CAMO-13-24229).

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202780703 (CAMO-13-24229).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis

The following samples were re-analyzed to verify the results: 1202782504 (SWWS46-13-24772), 1202782505 (SWWS46-13-24772) and 1202782506 (SWWS46-13-24772).

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1142046 1202780707 (CAMO-13-24229).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1263581	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1263580	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
315159001	CAMO-13-24249
315159003	CAMO-13-24250
1202780728	Method Blank (MB)
1202780729	315159001(CAMO-13-24249) Sample Duplicate (DUP)
1202780731	315159001(CAMO-13-24249) Matrix Spike (MS)
1202780733	315159001(CAMO-13-24249) Matrix Spike Duplicate (MSD)
1202780735	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315159001 (CAMO-13-24249).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202780731 (CAMO-13-24249).

Matrix Spike Duplicate (MSD) Recovery Statement
The spike duplicate recovery falls outside of the established acceptance limits due to matrix interference: 1202780733 (CAMO-13-24249).

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202780729 (CAMO-13-24249).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following samples were re-analyzed due to instrument failure: 1202780728 (MB), 1202780735 (LCS) and 315159001 (CAMO-13-24249). The following samples were re-analyzed to verify the results: 1202780728 (MB), 1202780729 (CAMO-13-24249), 1202780731 (CAMO-13-24249), 1202780735 (LCS) and 315159001 (CAMO-13-24249).

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1141299 1202780731 (CAMO-13-24249) and 1202780733 (CAMO-13-24249).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1263016	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
315159002	CAMO-13-24266
315159004	CAMO-13-24267
1202779479	Method Blank (MB)
1202779484	Laboratory Control Sample (LCS)
1202780694	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202780695	315159002(CAMO-13-24266) Post Spike (PS)
1202782515	315361001(SWWS46-13-24772) Sample Duplicate (DUP)
1202782516	315361001(SWWS46-13-24772) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 315159002 (CAMO-13-24266) and 315361001 (SWWS46-13-24772).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202780694 (CAMO-13-24266), 1202780695 (CAMO-13-24266), 1202782515 (SWWS46-13-24772), 1202782516 (SWWS46-13-24772) and 315159002 (CAMO-13-24266).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1263577	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1263576	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
315159002	CAMO-13-24266
315159004	CAMO-13-24267
1202780715	Method Blank (MB)
1202780716	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202780717	315160002(CAMO-13-24262) Sample Duplicate (DUP)
1202780718	315159002(CAMO-13-24266) Matrix Spike (MS)
1202780719	315160002(CAMO-13-24262) Matrix Spike (MS)
1202780720	315159002(CAMO-13-24266) Matrix Spike Duplicate (MSD)
1202780721	315160002(CAMO-13-24262) Matrix Spike Duplicate (MSD)
1202780722	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 315159002 (CAMO-13-24266) and 315160002 (CAMO-13-24262).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries for this sample set were within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202780716 (CAMO-13-24266).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Solids, Total Dissolved**		
Analytical Batch:	1263692	**Method:**	EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
315159002	CAMO-13-24266
315159004	CAMO-13-24267
1202780960	Method Blank (MB)
1202780961	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202780962	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315159002 (CAMO-13-24266).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Alkalinity**

Analytical Batch: 1264841 **Method:** EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
315159002	CAMO-13-24266
315159004	CAMO-13-24267
1202784160	Laboratory Control Sample (LCS)
1202784164	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202784165	315159002(CAMO-13-24266) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315159002 (CAMO-13-24266).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____11Dec12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-306 GEL Work Order: 315159

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 6, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-306

Client Sample ID:	CAMO-13-24249	Project:	ESHL00210
Sample ID:	315159001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	09-NOV-12 12:17		
Receive Date:	14-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average		2.40	0.330	1.00	mg/L	1	TSM	11/16/12	1637	1262822	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	J	0.0786	0.035	0.100	mg/L	1	KLP1	11/16/12	1349	1263581	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/15/12	1700	1263580

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 6, 2012

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-306

Client Sample ID: CAMO-13-24266
Sample ID: 315159002
Matrix: W
Collect Date: 09-NOV-12 12:17
Receive Date: 14-NOV-12
Collector: Client
Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		187	1.00	1.00	umhos/cm	1	LXA1	11/27/12	1532	1266189	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 12.0C	H	8.02	0.010	0.100	SU	1	LYG1	11/15/12	0843	1263688	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	J	0.0775	0.067	0.200	mg/L	1	MAR1	11/26/12	1845	1263381	3
Chloride		7.07	0.067	0.200	mg/L	1					
Fluoride		0.337	0.033	0.100	mg/L	1					
Sulfate		10.7	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.0923	0.017	0.050	mg/L	1	KLP1	11/19/12	1227	1263572	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		1.50	0.085	0.250	mg/L	5	KLP1	11/19/12	1135	1263016	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	J	0.0482	0.017	0.050	mg/L	1	KLP1	11/16/12	1112	1263577	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		153	3.40	14.3	mg/L		LYG1	11/15/12	0800	1263692	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		63.8	0.725	1.00	mg/L		LXA1	11/20/12	1224	1264841	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/19/12	1045	1263571
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/15/12	1700	1263576

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 6, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-306
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24266	Project:	ESHL00210
Sample ID:	315159002	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 6, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-306

Client Sample ID:	CAMO-13-24250	Project:	ESHL00210
Sample ID:	315159003	Client ID:	ARSL001
Matrix:	W		
Collect Date:	09-NOV-12 16:04		
Receive Date:	14-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.761	0.330	1.00	mg/L	1	TSM	11/16/12	1711	1262822	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	J	0.0885	0.035	0.100	mg/L	1	KLP1	11/16/12	1352	1263581	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/15/12	1700	1263580

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 6, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-306

Client Sample ID:	CAMO-13-24267	Project:	ESHL00210
Sample ID:	315159004	Client ID:	ARSL001
Matrix:	W		
Collect Date:	09-NOV-12 16:04		
Receive Date:	14-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		138	1.00	1.00	umhos/cm	1	LXA1	11/27/12	1535	1266189	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 12.5C	H	8.11	0.010	0.100	SU	1	LYG1	11/15/12	0846	1263688	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	11/26/12	2012	1263381	3
Chloride		2.11	0.067	0.200	mg/L	1					
Fluoride		0.401	0.033	0.100	mg/L	1					
Sulfate		2.59	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.0694	0.017	0.050	mg/L	1	KLP1	11/19/12	1228	1263572	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.471	0.017	0.050	mg/L	1	KLP1	11/19/12	1144	1263016	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	J	0.0192	0.017	0.050	mg/L	1	KLP1	11/16/12	1115	1263577	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		137	3.40	14.3	mg/L		LYG1	11/15/12	0800	1263692	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		63.8	0.725	1.00	mg/L		LXA1	11/20/12	1243	1264841	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/19/12	1045	1263571
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/15/12	1700	1263576

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 6, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-306
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24267	Project:	ESHL00210
Sample ID:	315159004	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: December 6, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **315159**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis											
Batch 1262822											
QC1202778961 315160001 DUP											
Total Organic Carbon Average		J	0.707	J	0.887	mg/L	22.6 ^		(+/-1.00)	TSM	11/16/12 18:36
QC1202778963 LCS											
Total Organic Carbon Average	10.0				9.66	mg/L		96.6	(85%-115%)		11/16/12 14:17
QC1202778960 MB											
Total Organic Carbon Average				U	ND	mg/L					11/16/12 14:08
QC1202778962 315160001 PS											
Total Organic Carbon Average	10.0	J	0.707		10.5	mg/L		97.5	(65%-120%)		11/16/12 18:56
Conductivity Analysis											
Batch 1266189											
QC1202786720 314987004 DUP											
Conductivity			188		189	umhos/cm	0.212		(0%-10%)	LXA1	11/27/12 15:25
QC1202786721 315159002 DUP											
Conductivity			187		187	umhos/cm	0.00		(0%-10%)		11/27/12 15:33
QC1202786722 LCS											
Conductivity	1410				1430	umhos/cm		101	(95%-105%)		11/27/12 15:23
Electrode Analysis											
Batch 1263688											
QC1202780948 315159002 DUP											
pH		H	8.02	H	8.06	SU	0.498		(0%-10%)	LYG1	11/15/12 08:45
QC1202780951 LCS											
pH	7.00				7.01	SU		100	(99%-101%)		11/15/12 08:24
Ion Chromatography											
Batch 1263381											
QC1202780266 315159002 DUP											
Bromide		J	0.0775	J	0.0804	mg/L	3.67 ^		(+/-0.200)	MAR1	11/26/12 19:14
Chloride			7.07		7.09	mg/L	0.171		(0%-20%)		
Fluoride			0.337		0.325	mg/L	3.74 ^		(+/-0.100)		
Sulfate			10.7		10.7	mg/L	0.0168		(0%-20%)		
QC1202780268 LCS											
Bromide	2.50				2.65	mg/L		106	(90%-110%)		11/26/12 18:16
Chloride	10.0				9.53	mg/L		95.3	(90%-110%)		
Fluoride	5.00				5.11	mg/L		102	(90%-110%)		
Sulfate	20.0				20.0	mg/L		99.8	(90%-110%)		
QC1202780265 MB											
Bromide				U	ND	mg/L					11/26/12 17:47
Chloride				U	ND	mg/L					
Fluoride				U	ND	mg/L					
Sulfate				U	ND	mg/L					
QC1202780267 315159002 PS											

QC Summary

Workorder: 315159

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1263381											
Bromide	2.50	J	0.0775		2.62	mg/L		102	(90%-110%)		11/26/12 19:43
Chloride	10.0		7.07		17.5	mg/L		105	(90%-110%)	MAR1	
Fluoride	5.00		0.337		5.25	mg/L		98.3	(90%-110%)		
Sulfate	20.0		10.7		31.1	mg/L		102	(90%-110%)		
Nutrient Analysis											
Batch 1263016											
QC1202780694 315159002 DUP											
Nitrogen, Nitrate/Nitrite			1.50		1.57	mg/L	4.89		(0%-20%)	KLP1	11/19/12 11:37
QC1202782515 315361001 DUP											
Nitrogen, Nitrate/Nitrite			2.18		2.18	mg/L	0.00		(0%-20%)		11/19/12 12:04
QC1202779484 LCS											
Nitrogen, Nitrate/Nitrite	1.00				1.04	mg/L		104	(90%-110%)		11/19/12 11:28
QC1202779479 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					11/19/12 11:27
QC1202780695 315159002 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.299		1.28	mg/L		98.1	(90%-110%)		11/19/12 11:38
QC1202782516 315361001 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.435		1.47	mg/L		104	(90%-110%)		11/19/12 12:05
Batch 1263572											
QC1202780703 314987010 DUP											
Nitrogen, Ammonia			0.0606	J	0.0307	mg/L	65.5 ^		(+/-0.050)	KLP1	11/19/12 12:14
QC1202782504 315361001 DUP											
Nitrogen, Ammonia			0.257		0.254	mg/L	1.17		(0%-20%)		11/19/12 12:48
QC1202780709 LCS											
Nitrogen, Ammonia	1.00				0.980	mg/L		98	(90%-110%)		11/19/12 12:12
QC1202780702 MB											
Nitrogen, Ammonia				U	ND	mg/L					11/19/12 12:11
QC1202780705 314987010 MS											
Nitrogen, Ammonia	1.00		0.0606		1.01	mg/L		94.9	(90%-110%)		11/19/12 12:15
QC1202782505 315361001 MS											
Nitrogen, Ammonia	1.00		0.257		1.19	mg/L		93.3	(90%-110%)		11/19/12 12:49
QC1202780707 314987010 MSD											
Nitrogen, Ammonia	1.00		0.0606		0.953	mg/L	5.81	89.2 *	(0%-15%)		11/19/12 12:15
QC1202782506 315361001 MSD											
Nitrogen, Ammonia	1.00		0.257		1.20	mg/L	0.837	94.3	(0%-15%)		11/19/12 12:49
Batch 1263577											
QC1202780716 315159002 DUP											
Phosphorus, Total as P		J	0.0482	U	ND	mg/L	N/A ^			KLP1	11/16/12 11:13
QC1202780717 315160002 DUP											
Phosphorus, Total as P			0.0507	J	0.039	mg/L	26.1 ^		(+/-0.050)		11/16/12 11:21
QC1202780722 LCS											
Phosphorus, Total as P	1.00				1.04	mg/L		104	(76%-120%)		11/16/12 11:09
QC1202780715 MB											
Phosphorus, Total as P				U	ND	mg/L					11/16/12 11:08
QC1202780718 315159002 MS											
Phosphorus, Total as P	1.00	J	0.0482		1.07	mg/L		102	(62%-139%)		11/16/12 11:14
QC1202780719 315160002 MS											

QC Summary

Workorder: 315159

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis											
Batch 1263577											
Phosphorus, Total as P	1.00		0.0507		1.07	mg/L		102	(62%-139%)		11/16/12 11:22
QC1202780720 315159002 MSD											
Phosphorus, Total as P	1.00	J	0.0482		1.09	mg/L	1.85	104	(0%-20%)	KLP1	11/16/12 11:15
QC1202780721 315160002 MSD											
Phosphorus, Total as P	1.00		0.0507		1.07	mg/L	0.00	102	(0%-20%)		11/16/12 11:23
Batch 1263581											
QC1202780729 315159001 DUP											
Nitrogen, Total Kjeldahl		J	0.0786	J	0.0382	mg/L	69.2 ^		(+/-0.100)	KLP1	11/16/12 13:50
QC1202780735 LCS											
Nitrogen, Total Kjeldahl	1.00				1.08	mg/L		108	(90%-110%)		11/16/12 13:48
QC1202780728 MB											
Nitrogen, Total Kjeldahl				U	ND	mg/L					11/16/12 13:47
QC1202780731 315159001 MS											
Nitrogen, Total Kjeldahl	1.00	J	0.0786		1.36	mg/L		128 *	(90%-110%)		11/16/12 13:51
QC1202780733 315159001 MSD											
Nitrogen, Total Kjeldahl	1.00	J	0.0786		1.26	mg/L	7.63	118 *	(0%-20%)		11/16/12 13:52
Solids Analysis											
Batch 1263692											
QC1202780961 315159002 DUP											
Total Dissolved Solids			153		143	mg/L	6.76		(0%-10%)	LYG1	11/15/12 08:00
QC1202780962 LCS											
Total Dissolved Solids	300				296	mg/L		98.6	(95%-105%)		11/15/12 08:00
QC1202780960 MB											
Total Dissolved Solids				U	ND	mg/L					11/15/12 08:00
Titration Analysis											
Batch 1264841											
QC1202784164 315159002 DUP											
Alkalinity, Total as CaCO3			63.8		63.3	mg/L	0.844		(0%-20%)	LXA1	11/20/12 12:31
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A				
QC1202784160 LCS											
Alkalinity, Total as CaCO3	50.0				53.6	mg/L		107	(90%-110%)		11/20/12 10:45
QC1202784165 315159002 MS											
Alkalinity, Total as CaCO3	50.0		63.8		115	mg/L		103	(80%-120%)		11/20/12 12:36

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis

QC Summary

Workorder: **315159**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

QC Summary

Workorder: **315159**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
16-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL, ORNL, UCOR
Batch ID:	**Sample Numbers:**		
1263581	See below.		

Potentially affected work order(s)(SDG): 315159(2013-306),315160(2013-307),315189,315223

Application Issues:

Failed Recovery for MS/PS

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS/MSD: QC 1202780731MS, QC 1202780733MSD 2. Failed Recovery for MS: QC 1202780732MS	1. The MS recovery falls outside of the established acceptance limits. The MSD verifies the recovery failure with a passing RPD; therefore, the failure is attributed to matrix interference. 2. The spike recovery falls outside of the established acceptance limits. Since both the spike duplicate recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported.

Originator's Name:

Kristen Parson 16-NOV-12

Data Validator/Group Leader:

Julia Hamilton 27-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
19-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ESHL, NFSR
Batch ID:	**Sample Numbers:**		
1263688	See below.		

Potentially affected work order(s)(SDG): 315152(CAH-12-126),315155(CAH-12-118A),315159(2013-306),315160(2013-307)

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 315152 001 315155 001 315159 002,004 315160 002,004	1. Samples were received out of holding.

Originator's Name:

Lisa Gregory 19-NOV-12

Data Validator/Group Leader:

Julia Hamilton 27-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
19-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1263572	See below.		

Potentially affected work order(s)(SDG): **314987(2013-297),315085,315088,315155(CAH-12-118A),315159(2013-306),315160(2013-307),315212,315230,315361(2013-331),315362(2013-333)**

Application Issues:

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MSD: QC 1202780707MSD	1. The MSD recovery falls outside of the established acceptance limits. Since both the MS recovery and the RPD between the MS and MSD fall within acceptance limits, the data is reported.

Originator's Name:
Kristen Parson 19-NOV-12

Data Validator/Group Leader:
Julia Hamilton 20-NOV-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-306
Work Order 315159

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1263626

Sample ID	**Client ID**
315159001	CAMO-13-24249
315159003	CAMO-13-24250
1202780816	Method Blank (MB)
1202780817	315160001(CAMO-13-24245) Sample Duplicate (DUP)
1202780818	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202780816 (MB) and 1202780818 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315160001 (CAMO-13-24245). The QC was from ARSL work order 315160.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1263628

Sample ID	Client ID
315159001	CAMO-13-24249
315159003	CAMO-13-24250
1202780819	Method Blank (MB)
1202780820	315160001(CAMO-13-24245) Sample Duplicate (DUP)
1202780821	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202780819 (MB) and 1202780821 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315160001 (CAMO-13-24245). The QC was from ARSL work order 315160.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1263630

Sample ID	Client ID
315159001	CAMO-13-24249
315159003	CAMO-13-24250
1202780828	Method Blank (MB)
1202780829	315160001(CAMO-13-24245) Sample Duplicate (DUP)
1202780830	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202780828 (MB) and 1202780830 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315160001 (CAMO-13-24245). The QC was from ARSL work order 315160.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population. The aliquot for sample 1202780829 (CAMO-13-24245) was reduced due to limited sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1263255

Sample ID	Client ID
315159001	CAMO-13-24249
315159003	CAMO-13-24250
1202780038	Method Blank (MB)
1202780039	315159001(CAMO-13-24249) Sample Duplicate (DUP)
1202780040	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in June 2012, July 2012, August 2012 and October 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 315159001 (CAMO-13-24249). The QC was from ARSL work order 315159.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank 1202780038 (MB) result is greater than 1.65 times the CSU but less than the MDC for Co-60.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1264650

Sample ID	Client ID
315159001	CAMO-13-24249
315159003	CAMO-13-24250
1202783218	Method Blank (MB)
1202783219	315352005(CASA-13-24206) Sample Duplicate (DUP)
1202783220	315352005(CASA-13-24206) Matrix Spike (MS)
1202783221	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202783218 (MB) and 1202783221 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315352005 (CASA-13-24206). The QC was from ARSL work order 315352.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202783219 (CASA-13-24206) was recounted due to high relative percent difference/relative error ratio. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202783220 (CASA-13-24206), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1268150

Sample ID	Client ID
315159001	CAMO-13-24249
315159003	CAMO-13-24250
1202791495	Method Blank (MB)
1202791496	315159001(CAMO-13-24249) Sample Duplicate (DUP)
1202791497	315159001(CAMO-13-24249) Matrix Spike (MS)
1202791498	315159001(CAMO-13-24249) Matrix Spike Duplicate (MSD)
1202791499	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with

GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in December 2012. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202791495 (MB) and 1202791499 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315159001 (CAMO-13-24249). The QC was from ARSL work order 315159.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Samples were reprepped due to high relative percent difference/relative error ratio. The re-analysis is being reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced

SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike and matrix spike duplicate, 1202791497 (CAMO-13-24249) and 1202791498 (CAMO-13-24249), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-306 GEL Work Order: 315159

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Kate Gellatly**

Date: 11 DEC 2012 **Title: Analyst I**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24249
Sample ID: 315159001
Matrix: W
Collect Date: 09-NOV-12
Receive Date: 14-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.00187	+/-0.00619	0.0212	+/-0.00619	0.050	pCi/L		NXP2	11/23/12	1200	1263626	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	-0.00857	+/-0.00606	0.0206	+/-0.00606	0.050	pCi/L		NXP2	11/21/12	0937	1263628	2
Plutonium-239/240	U	0.0107	+/-0.00643	0.0342	+/-0.00644	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.420	+/-0.0372	0.0726	+/-0.0467	1.00	pCi/L		NXP2	11/21/12	0937	1263630	3
Uranium-235/236	U	0.0271	+/-0.0128	0.0453	+/-0.013	1.00	pCi/L						
Uranium-238		0.210	+/-0.0267	0.0493	+/-0.0301	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-2.37	+/-1.88	6.27	+/-1.88	8.00	pCi/L		KXG3	11/14/12	1243	1263255	4
Cobalt-60	U	0.222	+/-1.61	6.26	+/-1.61	8.00	pCi/L						
Neptunium-237	U	4.38	+/-3.63	13.2	+/-3.63	10.0	pCi/L						
Potassium-40	U	-2.43	+/-23.2	85.6	+/-23.2	10.0	pCi/L						
Sodium-22	U	1.35	+/-1.66	6.76	+/-1.66	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.0381	+/-0.139	0.494	+/-0.139	0.500	pCi/L		VXC2	11/30/12	1609	1264650	5
WSP-GrossA/B "As Received"													
Beta	U	1.67	+/-0.821	2.61	+/-0.833	3.00	pCi/L		DYT1	12/05/12	1617	1268150	6
Alpha	U	0.830	+/-0.612	2.08	+/-0.616	3.00	pCi/L		DYT1	12/06/12	1301	1268150	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1263626	99.5	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1263628	85.4	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1263630	69.4	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1264650	92.1	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24249
Sample ID: 315159001

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24250
Sample ID: 315159003
Matrix: W
Collect Date: 09-NOV-12
Receive Date: 14-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.00749	+/-0.0053	0.0213	+/-0.00531	0.050	pCi/L		NXP2	11/23/12	1200	1263626	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.00229	+/-0.00605	0.022	+/-0.00606	0.050	pCi/L		NXP2	11/21/12	0937	1263628	2
Plutonium-239/240	U	-0.00458	+/-0.00647	0.0365	+/-0.00647	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.328	+/-0.031	0.0614	+/-0.0378	1.00	pCi/L		NXP2	11/21/12	0937	1263630	3
Uranium-235/236	U	0.0294	+/-0.0109	0.0383	+/-0.011	1.00	pCi/L						
Uranium-238		0.188	+/-0.0238	0.0417	+/-0.0267	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	0.230	+/-1.11	4.33	+/-1.11	8.00	pCi/L		KXG3	11/14/12	1243	1263255	4
Cobalt-60	U	-2.77	+/-1.42	4.48	+/-1.42	8.00	pCi/L						
Neptunium-237	U	-1.02	+/-2.66	9.55	+/-2.66	10.0	pCi/L						
Potassium-40	U	-9.62	+/-14.8	56.5	+/-14.8	10.0	pCi/L						
Sodium-22	U	1.08	+/-1.46	5.99	+/-1.46	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.431	+/-0.156	0.485	+/-0.160	0.500	pCi/L		VXC2	11/30/12	1607	1264650	5
WSP-GrossA/B "As Received"													
Beta	U	0.933	+/-0.707	2.39	+/-0.711	3.00	pCi/L		DYT1	12/05/12	1618	1268150	6
Alpha	U	0.0227	+/-0.473	2.32	+/-0.474	3.00	pCi/L		DYT1	12/06/12	1304	1268150	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1263626	94.5	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1263628	76.3	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1263630	80.7	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1264650	93.5	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 11, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24250
Sample ID: 315159003

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

QC Summary

Report Date: December 11, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico
Contact: **Keith Greene**

Workorder: **315159**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1263626										
QC1202780817 315160001 DUP										
Americium-241	U	0.00252	U	0.00249	pCi/L	0.00129		(0-1)	NXP2	11/23/1212:00
	Uncert:	+/-0.00564		+/-0.00747						
	TPU:	+/-0.00564		+/-0.00747						
**Americium-243 Tracer	3.47	3.42		3.06	pCi/L		88.2	(50%-105%)		
	Uncert:	+/-0.0933		+/-0.0925						
	TPU:	+/-0.166		+/-0.165						
QC1202780818 LCS										
Americium-241	1.41			1.38	pCi/L		97.5	(80%-120%)	NXP2	11/23/1212:00
	Uncert:			+/-0.0476						
	TPU:			+/-0.0732						
**Americium-243 Tracer	2.08			1.81	pCi/L		86.8	(50%-105%)		
	Uncert:			+/-0.0579						
	TPU:			+/-0.102						
QC1202780816 MB										
Americium-241			U	0.00151	pCi/L				NXP2	11/23/1212:00
	Uncert:			+/-0.00585						
	TPU:			+/-0.00585						
**Americium-243 Tracer	2.08			1.88	pCi/L		90.4	(50%-105%)		
	Uncert:			+/-0.0558						
	TPU:			+/-0.0996						
Batch 1263628										
QC1202780820 315160001 DUP										
Plutonium-238	U	0.0066	U	-0.00258	pCi/L	0.290		(0-1)	NXP2	11/21/1209:37
	Uncert:	+/-0.00808		+/-0.00775						
	TPU:	+/-0.00809		+/-0.00775						
Plutonium-239/240	U	0.0462	U	0.0103	pCi/L	0.752		(0-1)		
	Uncert:	+/-0.0148		+/-0.00895						
	TPU:	+/-0.0149		+/-0.00896						
**Plutonium-242 Tracer	3.24	2.41		2.72	pCi/L		83.8	(50%-105%)		
	Uncert:	+/-0.105		+/-0.0919						
	TPU:	+/-0.175		+/-0.160						
QC1202780821 LCS										
Plutonium-238			U	-1.05E-09	pCi/L			(80%-120%)	NXP2	11/21/1209:37
	Uncert:			+/-0.005						
	TPU:			+/-0.005						
Plutonium-239/240	2.03			1.94	pCi/L		95.9	(80%-120%)		
	Uncert:			+/-0.0556						
	TPU:			+/-0.0963						
**Plutonium-242 Tracer	1.94			1.71	pCi/L		87.8	(50%-105%)		
	Uncert:			+/-0.0556						
	TPU:			+/-0.0963						
QC1202780819 MB										

QC Summary

Workorder: 315159

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1263628										
Plutonium-238			U	-0.00673	pCi/L				NXP2	11/21/1209:37
	Uncert:			+/-0.00532						
	TPU:			+/-0.00532						
Plutonium-239/240			U	-8.41E-10	pCi/L					
	Uncert:			+/-0.00476						
	TPU:			+/-0.00476						
**Plutonium-242 Tracer	1.94			1.56	pCi/L		80.1	(50%-105%)		
	Uncert:			+/-0.0572						
	TPU:			+/-0.0981						
Batch 1263630										
QC1202780829 315160001 DUP										
Uranium-234		0.213		0.244	pCi/L	0.220		(0-1)	NXP2	11/21/1209:38
	Uncert:	+/-0.0306		+/-0.0313						
	TPU:	+/-0.0338		+/-0.0354						
Uranium-235/236	U	0.00	U	0.0219	pCi/L	0.502		(0-1)		
	Uncert:	+/-0.0102		+/-0.0116						
	TPU:	+/-0.0102		+/-0.0117						
Uranium-238		0.121		0.156	pCi/L	0.365		(0-1)		
	Uncert:	+/-0.0207		+/-0.024						
	TPU:	+/-0.0221		+/-0.026						
**Uranium-232 Tracer	3.64	3.12		2.95	pCi/L		81.1	(50%-105%)		
	Uncert:	+/-0.111		+/-0.114						
	TPU:	+/-0.259		+/-0.261						
QC1202780830 LCS										
Uranium-234				2.67	pCi/L				NXP2	11/21/1209:38
	Uncert:			+/-0.0832						
	TPU:			+/-0.195						
Uranium-235/236				0.157	pCi/L					
	Uncert:			+/-0.0226						
	TPU:			+/-0.0249						
Uranium-238	2.70			2.70	pCi/L		99.9	(80%-120%)		
	Uncert:			+/-0.0831						
	TPU:			+/-0.197						
**Uranium-232 Tracer	2.19			1.52	pCi/L		69.4	(50%-105%)		
	Uncert:			+/-0.0752						
	TPU:			+/-0.163						
QC1202780828 MB										
Uranium-234			U	-0.00675	pCi/L				NXP2	11/21/1209:38
	Uncert:			+/-0.00731						
	TPU:			+/-0.00732						
Uranium-235/236			U	0.00261	pCi/L					
	Uncert:			+/-0.00452						
	TPU:			+/-0.00452						
Uranium-238			U	0.00633	pCi/L					
	Uncert:			+/-0.00633						
	TPU:			+/-0.00635						
**Uranium-232 Tracer	2.19			1.84	pCi/L		84	(50%-105%)		
	Uncert:			+/-0.0682						

QC Summary

Workorder: 315159

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1263630										
	TPU:			+/-0.157						
Rad Gamma Spec										
Batch 1263255										
QC1202780039 315159001 DUP										
Cesium-137	U	-2.37	U	0.346	pCi/L	0.420		(0-1)	KXG3	11/15/1208:06
	Uncert:	+/-1.88		+/-1.35						
	TPU:	+/-1.88		+/-1.35						
Cobalt-60	U	0.222	U	-0.469	pCi/L	0.115		(0-1)		
	Uncert:	+/-1.61		+/-1.40						
	TPU:	+/-1.61		+/-1.40						
Neptunium-237	U	4.38	U	-2.11	pCi/L	0.503		(0-1)		
	Uncert:	+/-3.63		+/-2.82						
	TPU:	+/-3.63		+/-2.82						
Potassium-40	U	-2.43	U	29.5	pCi/L	0.370		(0-1)		
	Uncert:	+/-23.2		+/-20.1						
	TPU:	+/-23.2		+/-20.1						
Sodium-22	U	1.35	U	0.532	pCi/L	0.143		(0-1)		
	Uncert:	+/-1.66		+/-1.19						
	TPU:	+/-1.66		+/-1.19						
QC1202780040 LCS										
Americium-241	2780			3070	pCi/L		110	(80%-120%)	KXG3	11/16/1208:06
	Uncert:			+/-247						
	TPU:			+/-247						
Cesium-137	6090			6190	pCi/L		102	(80%-120%)		
	Uncert:			+/-271						
	TPU:			+/-271						
Cobalt-60	5650			5840	pCi/L		103	(80%-120%)		
	Uncert:			+/-248						
	TPU:			+/-248						
Neptunium-237			U	8.42	pCi/L					
	Uncert:			+/-25.1						
	TPU:			+/-25.1						
Potassium-40			U	-39.5	pCi/L					
	Uncert:			+/-53.0						
	TPU:			+/-53.0						
Sodium-22			U	-7.85	pCi/L					
	Uncert:			+/-7.75						
	TPU:			+/-7.75						
QC1202780038 MB										
Cesium-137			U	-1.35	pCi/L				KXG3	11/14/1212:44
	Uncert:			+/-1.12						
	TPU:			+/-1.12						
Cobalt-60			U	2.06	pCi/L					
	Uncert:			+/-1.02						
	TPU:			+/-1.02						
Neptunium-237			U	-1.8	pCi/L					
	Uncert:			+/-2.16						
	TPU:			+/-2.16						

QC Summary

Workorder: 315159

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1263255										
Potassium-40			U	-7.66	pCi/L					
	Uncert:			+/-13.7						
	TPU:			+/-13.7						
Sodium-22			U	-0.201	pCi/L					
	Uncert:			+/-1.17						
	TPU:			+/-1.17						
Rad Gas Flow										
Batch 1264650										
QC1202783219 315352005 DUP										
Strontium-90	U	-0.0566	U	-0.266	pCi/L	0.500		(0-1)	VXC2	12/03/1212:39
	Uncert:	+/-0.120		+/-0.0895						
	TPU:	+/-0.120		+/-0.0896						
**Strontium Carrier	7.17	6.60		7.10	mg		99.1	(50%-105%)		
QC1202783221 LCS										
Strontium-90	24.8			22.4	pCi/L		90.1	(80%-120%)	VXC2	11/30/1216:05
	Uncert:			+/-0.604						
	TPU:			+/-1.95						
**Strontium Carrier	7.17			7.10	mg		99.1	(50%-105%)		
QC1202783218 MB										
Strontium-90			U	0.227	pCi/L				VXC2	11/30/1216:11
	Uncert:			+/-0.149						
	TPU:			+/-0.150						
**Strontium Carrier	7.17			6.90	mg		96.3	(50%-105%)		
QC1202783220 315352005 MS										
Strontium-90	124 U	-0.0566		113	pCi/L		91.1	(75%-125%)	VXC2	11/30/1216:04
	Uncert:	+/-0.120		+/-3.14						
	TPU:	+/-0.120		+/-9.63						
**Strontium Carrier	7.17	6.60		6.60	mg		92.1	(50%-105%)		
Batch 1268150										
QC1202791496 315159001 DUP										
Alpha	U	0.830	U	0.155	pCi/L	0.312		(0-1)	DYT1	12/06/1213:08
	Uncert:	+/-0.612		+/-0.463						
	TPU:	+/-0.616		+/-0.464						
Beta	U	1.67	U	1.12	pCi/L	0.184		(0-1)		12/05/1216:21
	Uncert:	+/-0.821		+/-0.671						
	TPU:	+/-0.833		+/-0.677						
QC1202791499 LCS										
Alpha	12.0			11.7	pCi/L		97.3	(80%-120%)	DYT1	12/06/1213:02
	Uncert:			+/-0.616						
	TPU:			+/-1.20						
Beta	49.6			51.8	pCi/L		104	(80%-120%)		12/05/1216:18
	Uncert:			+/-0.934						
	TPU:			+/-4.41						
QC1202791495 MB										
Alpha			U	-0.0368	pCi/L				DYT1	12/06/1213:07
	Uncert:			+/-0.0451						
	TPU:			+/-0.0452						
Beta			U	-0.135	pCi/L					12/05/1216:20

QC Summary

Workorder: 315159

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1268150										
	Uncert:			+/-0.106						
	TPU:			+/-0.106						
QC1202791497 315159001 MS										
Alpha	481	0.830	U	473	pCi/L		98.2	(75%-125%)	DYT1	12/06/1213:01
	Uncert:	+/-0.612		+/-24.9						
	TPU:	+/-0.616		+/-47.7						
Beta	1980	1.67	U	2190	pCi/L		110	(75%-125%)		12/05/1216:18
	Uncert:	+/-0.821		+/-39.0						
	TPU:	+/-0.833		+/-185						
QC1202791498 315159001 MSD										
Alpha	481	0.830	U	472	pCi/L	0.000951	98.1	(0-1)	DYT1	12/06/1213:01
	Uncert:	+/-0.612		+/-25.1						
	TPU:	+/-0.616		+/-48.5						
Beta	1980	1.67	U	2150	pCi/L	0.0534	108	(0-1)		12/05/1216:18
	Uncert:	+/-0.821		+/-38.8						
	TPU:	+/-0.833		+/-191						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.

QC Summary

Workorder: 315159

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Data Validation Report

Chain Of Custody No. 2013-306-1

1. Distribution Of Samples In EDD.

	Analytical	Regular	Field	Trip	Field	Equipment
SDG	Method	Samples	Duplicates	Blanks	Blanks	Blanks
317934	SW-846:6020	2				

	Analytical	Analysis	Prep	Regular	Field	Trip	Field	Equipment	Method	Matrix	Matrix
SDG	Method	Lot ID	Lot ID	Samples	Duplicates	Blanks	Blanks	Blanks	Blanks	Spikes	Spike Dups
317934	SW-846:6020	1274578	1274577	2					1	1	

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
SW-846:6020	INORGANIC	CAMO-13-24266	1202808652	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24266	1202808653	MS	0	0	11	0
SW-846:6020	INORGANIC	CAMO-13-24266	317934001	REG	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24267	317934002	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202808651	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202808650	MB	11	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202808650	METHOD BLANK	SW-846:6020	W	Molybdenum	0.191	J	ug/L	0.5

Any samples affected by the presence of contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

No.

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

Data Validation Report for: Chain Of Custody No. 2013-306-1

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				1			

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

No.

Reason Code	Description
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24266	R-50 S1	REG	SW-846:6020	0	11
CAMO-13-24267	R-50 S2	REG	SW-846:6020	0	11

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

January 10, 2013

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 317934
SDG: 2013-306-1

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 14, 2012, and analyzed for Metals. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-306
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 317934
SDG: 2013-306-1

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....9

Metals Analysis.....11

Case Narrative.....12

Sample Data Summary.....17

Quality Control Summary.....21

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 317934
SDG # : 2013-306-1

January 10, 2013

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 14, 2012 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
317934001	CAMO-13-24266
317934002	CAMO-13-24267

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Metals.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Hope Taylor for
Valerie Davis
Project Manager

List of current GEL Certifications as of 10 January 2013

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

Kelog 317934

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

~~315159~~

COC/Lab Request #: 2013-306

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAMO-13-24249	Nov 9 2012	12:17	W					1			1	1
CAMO-13-24266	Nov 9 2012	12:17	W			1	1		1	1		
CAMO-13-24250	Nov 9 2012	16:04	W	2	3			1			1	1
CAMO-13-24267	Nov 9 2012	16:04	W			1	1		1	1		
CAMO-13-24233	Nov 9 2012	16:04	W	2								

Special Instructions:

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
Melissa Martinez		11/13/12 3:00	P. Vent	11-14-12 0900
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/AR/COC/Work Order: 2013-306**
Received By: Patricia Dent	**Date Received:November 14, 2012**

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0CPM**
Classified Radioactive II or III by RSO?		X	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		X	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **3,4,17C**
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524646**
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?			X	Circle Applicable: Seals broken Damaged container Leaking container Other (describe) CAMO-13-24250 container received broken for SVOA
5	Samples requiring chemical preservation at proper pH?			X	Sample ID's, containers affected and observed pH:**CAMO-13-24249, 24250 for Gross A/B** If Preservation added, Lot#**L03022**
6	VOA vials free of headspace (defined as < 6mm bubble)?	X			Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?			X	Sample ID's affected: **CAMO-13-25233 the lab rec'd 1 8260b container instead of 2 as indicated on coc.**
12	Are sample containers identifiable as GEL provided?			X	**CLIENTS**
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.	X			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9832 5285 3C 5462 9832 5274 4C 5462 9832 5263 17C**

Comments (Use Continuation Form if needed):

PM (PMA) review Initials HP Date 111612 Page____ of____

Subject: FW: New Request: reanalysis needed, R-50 S1 ISSUE=273 PROJ=220
From: "Patel, Nita" <npatel@lanl.gov>
Date: 1/8/2013 10:05 AM
To: "Valerie Davis (vsd@gel.com)" <vsd@gel.com>
CC: "Greene, Keith R" <kgreene@lanl.gov>

Hello Valerie,

Happy New Year! J Hope the holidays treated you well.

Can we please have a reanalysis of all SW-846:6020 for CAMO-13-24266 and CAMO-13-24267? These results show inconsistency from prior results.

Can you please email Keith and me when the reanalysis are complete?

Thank you, Nita

From: ENV Data Systems [mailto:env_data_systems@lanl.gov]
Sent: Monday, January 07, 2013 3:21 PM
To: Patel, Nita
Subject: New Request: reanalysis needed, R-50 S1 ISSUE=273 PROJ=220

When replying, type your text above this line.

Notification of Request Registration

Workspace: ENV Data Systems
Request: reanalysis needed, R-50 S1
Request Number:273

Priority: 1 **Status:**Request
Date: 01/07/2013 **Time:** 15:21:51
Created By:115164

Click here to view Request in Browser

Description:
Entered on 01/07/2013 at 15:21:51 MST (GMT-0700) by 115164:
please provide a focused validation and also reanalyze all SW-846:6020 for CAMO-13-24266 and CAMO-13-24267

Current Assignees:

CC(s): (permanent) mding@lanl.gov, , katzman@lanl.gov

Request Information:

Request Type:: Focused Validation **Customer Priority::**Routine
System:: EIM/Intellus
Justification::
results inconsistent with prior values

Contact Information:

Z Number: 115164
Full Name: David B. Rogers
E-mail: slug@lanl.gov
Phone Number: +1 505 667 0313
Organization: ET-EI: ENVIRONMENTAL INVES TIGATIONS

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-306-1

Sample Analysis

Sample ID	Client ID
317934001	CAMO-13-24266
317934002	CAMO-13-24267
1202808650	Method Blank (MB) **ICP-MS**
1202808651	Laboratory Control Sample (LCS)
1202808654	317934001(CAMO-13-24266L) Serial Dilution (SD)
1202808652	317934001(CAMO-13-24266D) Sample Duplicate (DUP)
1202808653	317934001(CAMO-13-24266S) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Method/Analysis Information

Analytical Batch: 1274578
Prep Batch : 1274577
Standard Operating Procedures: GL-MA-E-014 REV# 24 and GL-MA-E-006 REV# 9
Analytical Method: SW846 3005/6020 DOE-AL
Prep Method : SW846 3005A

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium

were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 3607 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following sample was selected as the quality control (QC) sample for this SDG: 317934001 (CAMO-13-24266).

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Certification Statement
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:
GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 11/4/13

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-306-1 GEL Work Order: 317934

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 11/14/13

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013−306−1 **METHOD TYPE:** SW846

SAMPLE ID: 317934001 **CLIENT ID:** CAMO−13−24266

CONTRACT: ESHL00210

MATRIX:W **DATE RECEIVED** 14−NOV−12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−36−0	Antimony	1	ug/L	U		MS	1	1	ICPMS7	130110−1
7440−38−2	Arsenic	2.23	ug/L	J		MS	1.7	1	ICPMS7	130110−1
7440−43−9	Cadmium	0.11	ug/L	U		MS	0.11	1	ICPMS7	130110−1
7440−47−3	Chromium	96.3	ug/L			MS	2	1	ICPMS7	130110−1
7439−92−1	Lead	0.5	ug/L	U		MS	0.5	1	ICPMS7	130110−1
7439−98−7	Molybdenum	1.65	ug/L			MS	0.165	1	ICPMS7	130110−1
7440−02−0	Nickel	7.11	ug/L			MS	0.5	1	ICPMS7	130110−1
7782−49−2	Selenium	1.5	ug/L	U		MS	1.5	1	ICPMS7	130110−1
7440−22−4	Silver	0.2	ug/L	U		MS	0.2	1	ICPMS7	130110−1
7440−28−0	Thallium	0.45	ug/L	U		MS	0.45	1	ICPMS7	130110−1
7440−61−1	Uranium	0.573	ug/L			MS	0.067	1	ICPMS7	130110−1

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013−306−1 **METHOD TYPE:** SW846

SAMPLE ID: 317934002 **CLIENT ID:** CAMO−13−24267

CONTRACT: ESHL00210

MATRIX:W **DATE RECEIVED** 14−NOV−12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440−36−0	Antimony	1	ug/L	U		MS	1	1	ICPMS7	130110−1
7440−38−2	Arsenic	2.26	ug/L	J		MS	1.7	1	ICPMS7	130110−1
7440−43−9	Cadmium	0.11	ug/L	U		MS	0.11	1	ICPMS7	130110−1
7440−47−3	Chromium	4.25	ug/L	J		MS	2	1	ICPMS7	130110−1
7439−92−1	Lead	0.5	ug/L	U		MS	0.5	1	ICPMS7	130110−1
7439−98−7	Molybdenum	1.25	ug/L			MS	0.165	1	ICPMS7	130110−1
7440−02−0	Nickel	1.61	ug/L	J		MS	0.5	1	ICPMS7	130110−1
7782−49−2	Selenium	1.5	ug/L	U		MS	1.5	1	ICPMS7	130110−1
7440−22−4	Silver	0.2	ug/L	U		MS	0.2	1	ICPMS7	130110−1
7440−28−0	Thallium	0.477	ug/L	J		MS	0.45	1	ICPMS7	130110−1
7440−61−1	Uranium	0.574	ug/L			MS	0.067	1	ICPMS7	130110−1

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−306−1

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202808650								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.191	ug/L	+/−0.5	J	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−306−1 **Client ID** CAMO−13−24266S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 317934001 **Spike ID:** 1202808653

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	203		1	U	200	102		MS
Arsenic	ug/L	75−125	82.7		2.23	J	80	101		MS
Cadmium	ug/L	75−125	10.2		0.11	U	10	102		MS
Chromium	ug/L	75−125	141		96.3		50	90.2		MS
Lead	ug/L	75−125	40.2		0.5	U	40	100		MS
Molybdenum	ug/L	75−125	51.2		1.65		50	99.1		MS
Nickel	ug/L	75−125	53.1		7.11		50	92.1		MS
Selenium	ug/L	75−125	19.9		1.5	U	20	96.9		MS
Silver	ug/L	75−125	50.5		0.2	U	50	101		MS
Thallium	ug/L	75−125	85		0.45	U	100	84.7		MS
Uranium	ug/L	75−125	53.3		0.573		50	105		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−306−1 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24266D

Matrix: LIQUID **Level:** Low

Sample ID: 317934001 **Duplicate ID:** 1202808652 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L	+/−5	2.23	J	2.15	J	3.84		MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−20%	96.3		92		4.57		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.65		1.57		4.73		MS
Nickel	ug/L	+/−2	7.11		6.86		3.48		MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.573		0.559		2.47		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−306−1

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202808651								
	Antimony	ug/L	50	50.3		101	80−120	MS
	Arsenic	ug/L	50	51.9		104	80−120	MS
	Cadmium	ug/L	50	52.4		105	80−120	MS
	Chromium	ug/L	50	50.6		101	80−120	MS
	Lead	ug/L	50	52.2		104	80−120	MS
	Molybdenum	ug/L	50	50.2		100	80−120	MS
	Nickel	ug/L	50	52.7		105	80−120	MS
	Selenium	ug/L	50	53.4		107	80−120	MS
	Silver	ug/L	50	53.3		107	80−120	MS
	Thallium	ug/L	50	42.5		84.9	80−120	MS
	Uranium	ug/L	50	53.6		107	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−306−1 **Client ID** CAMO−13−24266L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 317934001 **Serial Dilution ID:** 1202808654

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	2.23	J	8.5	U	100			MS
Cadmium	.11	U	.55	U				MS
Chromium	96.3		100		4.24			MS
Lead	.5	U	2.5	U				MS
Molybdenum	1.65		1.91	J	15.8			MS
Nickel	7.11		7.68	J	8.06			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	7.22	J				MS
Uranium	.573		.675	J	17.8			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

Cape Fear Analytical
3306 Kitty Hawk Road, Suite 120
Wilmington NC 28405

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-298

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8290-D/F
CAMO-13-24253	Nov 8 2012	10:58	W	2
CAMO-13-24227	Nov 8 2012	10:58	W	2
CAMO-13-24228	Nov 8 2012	10:58	W	2

Special Instructions:

Special Instructions:

Relinquished by:		Date/Time: 11/9/12 3:00	Received by:	
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24227

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/08/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1058	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	DC
LOCATION ID:	R-62	↓	FIELD PREP:	UF	OK
LOCATION TYPE:		↓	FIELD QC TYPE:	FB	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	~~2~~ 1	ICE 11/6/12	Y	NA
↓	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	↓	↓
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	~~2~~ 1	ICE DF 11/6/12	↓	↓
↓	WSP-8290-D/F	1 LITER AMBER GLASS	2	ICE	↓	↓

SAMPLE COMMENTS:

LOCATION COMMENTS: See CAMO-13-24253

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) W. Shan

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) David Felleuz (Signature) [signature]	11/8/12 1735	(Printed Name) D. Sherwood (Signature) [signature]	11/8/12 1735
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24228 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/08/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1058	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-62	↓	FIELD PREP:	UF	OK
LOCATION TYPE:		↓	FIELD QC TYPE:	FD	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	~~2~~ 1	ICE DF 11/6/12	Y	NA
↓	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	↓	↓
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	~~3~~ 1	ICE DF 11/6/12	↓	↓
↓	WSP-8290-D/F	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-8321A-NMED HEXP	1 LITER AMBER GLASS	~~3~~ 1	ICE DF 11/6/12	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-HEXMOD	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

Analyses continued on next page

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24228

WORK ORDER:

See CAMO-13-24253

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) W. Shan

RELINQUISHED BY **(Printed Name)** D Woody **(Signature)** David Woody	**Date/Time** 11/08/12 1735	**RECEIVED BY** **(Printed Name)** S. Sherwood **(Signature)** Sheri Sherwood	**Date/Time** 11/08/12 1735
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24253

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/08/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1058	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-62	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	~~3~~ 2	ICE DF 11/6/12	Y	NA
↓	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	↓	↓
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	~~3~~ 2	ICE DF 11/6/12	↓	↓
↓	WSP-8290-D/F	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-8321A-NMED HEXP	1 LITER AMBER GLASS	~~3~~ 2	ICE DF 11/6/12	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-HEXMOD	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

Analyses continued on next page

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID:	4030	**EVENT NAME:**	Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD
SAMPLE ID:	CAMO-13-24253	**WORK ORDER:**	NA

SAMPLE COMMENTS: Sampled within 50' of running diesel generator

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 5.41 mg/L Oxidation-Reduction Potential 57.9 MV pH 8.77 SU

Specific Conductance 188 uS/cm Temperature 19.22 deg C Turbidity 0.55 NTU

COLLECTED BY (PRINT) D. Woody

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/08/12 1735	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	11/08/12 1735
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**
(Printed Name) (Signature)		(Printed Name) (Signature)	

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-298

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
4191	SW-846:8290	1	1		1	

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
4191	SW-846:8290	22274	22272	1	1		1		1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
SW-846:8290	DIOXINS FURANS	CAMO-13-24227	4191002	FB	25	9	0	0
SW-846:8290	DIOXINS FURANS	CAMO-13-24228	4191003	FD	25	9	0	0
SW-846:8290	DIOXINS FURANS	CAMO-13-24253	4191001	REG	25	9	0	0
SW-846:8290	DIOXINS FURANS	LCS	12007019	LCS	0	9	17	0
SW-846:8290	DIOXINS FURANS	LCSD	12007020	LCSD	0	9	17	0
SW-846:8290	DIOXINS FURANS	MB	12007018	MB	25	9	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

No.

Any samples affected by the presence of contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

No.

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

Data Validation Report for:

Chain Of Custody No. 2013-298

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1	1						

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

No.

Reason Code	Description
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24227	R-62	FB	SW-846:8290	0	25
CAMO-13-24228	R-62	FD	SW-846:8290	0	25
CAMO-13-24253	R-62	REG	SW-846:8290	0	25

CFA | Cape Fear Analytical LLC
an affiliate of The GEL Group INC

3306 Kitty Hawk Road, Suite 120 Wilmington, NC 28405
P 910.795.0421
www.capefearanalytical.com

November 28, 2012

Mr. Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: 2012 WQH with LOCUS EDD
Work Order: 4191
SDG: 2013-298

Dear Mr. Greene:

Cape Fear Analytical LLC (CFA) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on November 10, 2012. This original data report has been prepared and reviewed in accordance with CFAôs standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at 910-795-0421.

Sincerely,

Cynthia Larkins
Project Manager

Chain of Custody: 2013-298
Enclosures

Table Of Contents

Case Narrative.....3

Chain of Custody and Supporting Documentation.....6

High Resolution Dioxins and Furans Analysis.....10

Case Narrative.....11

Sample Data Summary.....15

Quality Control Summary.....20

Los Alamos National Laboratory
2012 WQH with LOCUS EDD
Workorder #: 4191
SDG # : 2013-298

Case Narrative

Receipt Narrative
for
Los Alamos National Laboratory
SDG: 2013-298
Work Order: 4191

Laboratory Identification
Cape Fear Analytical, LLC
3306 Kitty Hawk Road, Suite 120
Wilmington, North Carolina 28405
(910) 795-0421

Summary
Sample receipt: The samples arrived at Cape Fear Analytical LLC (CFA), Wilmington, North Carolina on November 10, 2012 for analysis. The samples were delivered with proper chain of custody documentation and signatures. Shipping container temperatures were checked, documented, and within specifications. All sample containers arrived without any visible signs of tampering or breakage. Appropriate sample containers were received. Sample containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Sufficient sample was received for analysis. There are no additional comments concerning sample receipt.

Sample Identification: The laboratory received the following samples:

Laboratory ID	Client ID
4191001	CAMO-13-24253
4191002	CAMO-13-24227
4191003	CAMO-13-24228

Case Narrative
Sample analyses were conducted using methodology as outlined in Cape Fear Analyticalôs Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package
The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist and data from the following fractions: High Resolution Dioxins and Furans.

Sincerely,

Cynthia Larkins
Project Manager

List of current CFA Certifications as of 16 November 2012

State	Certification
California (NELAC)	09270CA
New Jersey (NELAC)	NC013
North Carolina	NC01894
South Carolina	99063001
Utah (Primary NELAC)	CFAL

Chain of Custody and Supporting Documentation

Cape Fear Analytical

3306 Kitty Hawk Road, Suite 120
Wilmington NC 28405

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-298

Page 1 of 1

Client Contact:

Lab Agreement # : 63641-001-10
Project Number :
Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8290-D/F
CAMO-13-24253	Nov 8 2012	10:58	W	2
CAMO-13-24227	Nov 8 2012	10:58	W	2
CAMO-13-24228	Nov 8 2012	10:58	W	2

Special Instructions:

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 11/9/12 3:00	Received by: Cynde Larkins	10NOV12 1020
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

WO # 4191 temp. = 5.2°

SAMPLE RECEIPT CHECKLIST

Cape Fear Analytical

Client:	LANL	Work Order:	4191
Received By:	Cynde Larkins	Date/Time Received:	10NOV12 1020

Suspected Hazard Information	Yes	NA	No
Shipped as DOT Hazardous?		✓	
Samples identified as Foreign Soil?		✓	

DOE Site Sample Packages	Yes	NA	No*
Screened <0.5 mR/hr?	CL		
Samples < 2x background?	CL		

* Notify RSO of any responses in this column immediately.

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other(describe)
2	Chain of Custody documents included with shipment?	✓			
3	Samples requiring cold preservation within 0-6°C?	✓			Preservation Method: ice bags blue ice dry ice none other (describe) 5.2°
4	Samples requiring chemical preservation at proper pH?		✓		Sample IDs, containers affected and pH observed: pH = 7 on all samples If preservative added, Lot#:
5	Samples requiring preservation have no residual chlorine?	✓			Sample IDs, containers affected: If preservative added, Lot#:
6	Samples received within holding time?	✓			Sample IDs, tests affected:
7	Sample IDs on COC match IDs on containers?	✓			Sample IDs, containers affected:
8	Date & time of COC match date & time on containers?	✓			Sample IDs, containers affected:
9	Number of containers received match number indicated on COC?	✓			Sample IDs, containers affected:
10	COC form is properly signed in relinquished/received sections?	✓			

Comments:

Checklist performed by: Initials: 10NOV12 Date: CL

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 09NOV12
ACTWGT: 47.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO CHRIS CORNWELL
CAPE FEAR ANALYTICAL
3306 KITTY HAWK ROAD, SUITE 120

WILMINGTON NC 28405
(910) 795-0421
REF: MR1A015AGWKO

FedEx Express

SATURDAY ### AA
PRIORITY OVERNIGHT

TRK# 0201 5462 9832 5241

X0 ILMA

28405
NC-US GSO

Part # 156148-434 RIT2 06/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

Ship Date: 09NOV12
ActWgt: 47.0 LB MAN
CAD: 0014176/CAFE2511

TO CHRIS CORNWELL (910) 795-0421
CAPE FEAR ANALYTICAL
3306 KITTY HAWK ROAD, SUITE 120

FedEx Express

WILMINGTON, NC 28405 (US)

Trk# 5462 9832 5241

PRIORITY OVERNIGHT

3306 KITTY HAWK ROAD, SUITE 120

Part # 156148-434 RIT2 06/10

PLACE THIS LABEL ON PACKAGE
NEXT TO THE SHIPPING LABEL

High Resolution Dioxins and Furans Analysis

Case Narrative

HDOX Case Narrative
Los Alamos National Laboratory (LANL)
SDG 2013-298
Work Order 4191

Method/Analysis Information

Product:	**Dioxins/Furans by SW846 Method 8290A in Liquids**
Analytical Method:	SW846 8290A
Extraction Method:	SW846 3520C
Analytical Batch Number:	22274
Clean Up Batch Number:	22273
Extraction Batch Number:	22272

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8290A:

Sample ID	Client ID
4191001	CAMO-13-24253
4191002	CAMO-13-24227
4191003	CAMO-13-24228
12007018	Method Blank (MB)
12007019	Laboratory Control Sample (LCS)
12007020	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by Cape Fear Analytical LLC (CFA) as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with CF-OA-E-002 REV# 10.

Raw data reports are processed and reviewed by the analyst using the TargetLynx software package.

Calibration Information

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Certification Statement
The test results presented in this document are certified to meet all requirements of the 2003 NELAC Standard.

Method Blank (MB) Statement
The MB(s) analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Laboratory Control Sample Duplicate (LCSD) Recovery
The LCSD spike recoveries met the acceptance limits.

LCS/LCSD Relative Percent Difference (RPD) Statement
The RPD(s) between the LCS and LCSD met the acceptance limits.

QC Sample Designation
A matrix spike and matrix spike duplicate analysis was not required for this SDG.

Technical Information

Holding Time Specifications
CFA assigns holding times based on the associated methodology, which assigns the date and time from sample collection. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG.

Miscellaneous Information

Nonconformance (NCR) Documentation
A NCR was not required for this SDG.

Manual Integrations
Certain standards and QC samples required manual integrations to correctly position the baseline as set in the calibration standard injections. Where manual integrations were performed, copies of all manual integration peak profiles are included in the raw data section of this fraction. Manual integrations were required for data files in this SDG.

System Configuration
This analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
HRP750_2	High-Resolution GC/MS System	Dioxin Analysis	DB-5MS	60m x 0.25mm, 0.25um

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted: Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Sample Data Summary

Cape Fear Analytical, LLC

3306 Kitty Hawk Road Suite 120, Wilmington, NC 28405 - (910) 795-0421 - www.capefearanalytical.com

Qualifier Definition Report
for

LANL001 Los Alamos National Laboratory

Client SDG: 2013-298 CFA Work Order: 4191

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

K Estimated Maximum Possible Concentration

U Analyte was analyzed for , but not detected above the specified detection limit.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

Cape Fear Analytical requires all analytical data to be verified by a qualified data reviewer.

The following data validator verified the information presented in this case narrative:

Signature: Heather Patterson **Name: Heather Patterson**

Date: 28 NOV 2012 **Title: Analyst III**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**2013-298**	**Client:**	**LANL001**	**Project:**	**LANL00112**
Lab Sample ID:	**4191001**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**WATER**
Client Sample:	**8290 Water**	**Date Received:**	**11/10/2012 10:20**		
Client ID:	**CAMO-13-24253**			**Prep Basis:**	**As Received**
Batch ID:	**22274**	**Method:**	**SW846 8290A**		
Run Date:	**11/15/2012 13:58**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A14NOV12A_4-6**			**Dilution:**	**1**
Prep Batch:	**22272**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**12-NOV-12**	**Aliquot:**	**871.5 mL**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	1.33		pg/L	1.33	11.5
40321-76-4	1,2,3,7,8-PeCDD	U	5.74		pg/L	5.74	57.4
39227-28-6	1,2,3,4,7,8-HxCDD	U	5.74		pg/L	5.74	57.4
57653-85-7	1,2,3,6,7,8-HxCDD	U	5.74		pg/L	5.74	57.4
19408-74-3	1,2,3,7,8,9-HxCDD	U	5.74		pg/L	5.74	57.4
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	6.06		pg/L	6.06	57.4
3268-87-9	1,2,3,4,6,7,8,9-OCDD	U	12.4		pg/L	12.4	115
51207-31-9	2,3,7,8-TCDF	U	1.62		pg/L	1.62	11.5
57117-41-6	1,2,3,7,8-PeCDF	U	5.74		pg/L	5.74	57.4
57117-31-4	2,3,4,7,8-PeCDF	U	5.74		pg/L	5.74	57.4
70648-26-9	1,2,3,4,7,8-HxCDF	U	5.74		pg/L	5.74	57.4
57117-44-9	1,2,3,6,7,8-HxCDF	U	5.74		pg/L	5.74	57.4
60851-34-5	2,3,4,6,7,8-HxCDF	U	5.74		pg/L	5.74	57.4
72918-21-9	1,2,3,7,8,9-HxCDF	U	5.74		pg/L	5.74	57.4
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	5.74		pg/L	5.74	57.4
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	5.74		pg/L	5.74	57.4
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	11.5		pg/L	11.5	115
41903-57-5	Total TCDDs	U	1.33		pg/L	1.33	11.5
36088-22-9	Total PeCDDs	U	5.74		pg/L	5.74	57.4
34465-46-8	Total HxCDDs	U	5.74		pg/L	5.74	57.4
37871-00-4	Total HpCDDs	U	6.06		pg/L	6.06	57.4
30402-14-3	Total TCDFs	U	1.62		pg/L	1.62	11.5
30402-15-4	Total PeCDFs	U	5.74		pg/L	5.74	57.4
55684-94-1	Total HxCDFs	U	5.74		pg/L	5.74	57.4
38998-75-3	Total HpCDFs	U	5.74		pg/L	5.74	57.4
3333-30-0	TEQ WHO2005 ND=0		0.00	0.00	pg/L		
3333-30-1	TEQ WHO2005 ND=0.5		6.66	6.66	pg/L		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1600	2290	pg/L	69.8	(40%-135%)
13C-1,2,3,7,8-PeCDD		1610	2290	pg/L	70.1	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		1720	2290	pg/L	74.9	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		1740	2290	pg/L	75.6	(40%-135%)
13C-OCDD		3030	4590	pg/L	66.0	(40%-135%)
13C-2,3,7,8-TCDF		1770	2290	pg/L	77.1	(40%-135%)
13C-1,2,3,7,8-PeCDF		1750	2290	pg/L	76.4	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		1890	2290	pg/L	82.4	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		1970	2290	pg/L	86.0	(40%-135%)

Comments:

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**2013-298**	**Client:**	**LANL001**	**Project:**	**LANL00112**
Lab Sample ID:	**4191002**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**WATER**
Client Sample:	**8290 Water**	**Date Received:**	**11/10/2012 10:20**		
Client ID:	**CAMO-13-24227**			**Prep Basis:**	**As Received**
Batch ID:	**22274**	**Method:**	**SW846 8290A**		
Run Date:	**11/15/2012 14:47**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A14NOV12A_4-7**			**Dilution:**	**1**
Prep Batch:	**22272**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**12-NOV-12**	**Aliquot:**	**928.8 mL**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	1.48		pg/L	1.48	10.8
40321-76-4	1,2,3,7,8-PeCDD	U	5.38		pg/L	5.38	53.8
39227-28-6	1,2,3,4,7,8-HxCDD	U	5.38		pg/L	5.38	53.8
57653-85-7	1,2,3,6,7,8-HxCDD	U	5.38		pg/L	5.38	53.8
19408-74-3	1,2,3,7,8,9-HxCDD	U	5.38		pg/L	5.38	53.8
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	7.39		pg/L	7.39	53.8
3268-87-9	1,2,3,4,6,7,8,9-OCDD	U	10.8		pg/L	10.8	108
51207-31-9	2,3,7,8-TCDF	U	1.49		pg/L	1.49	10.8
57117-41-6	1,2,3,7,8-PeCDF	U	5.38		pg/L	5.38	53.8
57117-31-4	2,3,4,7,8-PeCDF	U	5.38		pg/L	5.38	53.8
70648-26-9	1,2,3,4,7,8-HxCDF	U	5.38		pg/L	5.38	53.8
57117-44-9	1,2,3,6,7,8-HxCDF	U	5.38		pg/L	5.38	53.8
60851-34-5	2,3,4,6,7,8-HxCDF	U	5.38		pg/L	5.38	53.8
72918-21-9	1,2,3,7,8,9-HxCDF	U	5.38		pg/L	5.38	53.8
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	5.38		pg/L	5.38	53.8
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	5.38		pg/L	5.38	53.8
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	10.8		pg/L	10.8	108
41903-57-5	Total TCDDs	U	1.48		pg/L	1.48	10.8
36088-22-9	Total PeCDDs	U	5.38		pg/L	5.38	53.8
34465-46-8	Total HxCDDs	U	5.38		pg/L	5.38	53.8
37871-00-4	Total HpCDDs	U	7.39		pg/L	7.39	53.8
30402-14-3	Total TCDFs	U	1.49		pg/L	1.49	10.8
30402-15-4	Total PeCDFs	U	5.38		pg/L	5.38	53.8
55684-94-1	Total HxCDFs	U	5.38		pg/L	5.38	53.8
38998-75-3	Total HpCDFs	U	5.38		pg/L	5.38	53.8
3333-30-0	TEQ WHO2005 ND=0		0.00	0.00	pg/L		
3333-30-1	TEQ WHO2005 ND=0.5		6.37	6.37	pg/L		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1360	2150	pg/L	63.4	(40%-135%)
13C-1,2,3,7,8-PeCDD		1390	2150	pg/L	64.7	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		1510	2150	pg/L	70.3	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		1560	2150	pg/L	72.5	(40%-135%)
13C-OCDD		2810	4310	pg/L	65.4	(40%-135%)
13C-2,3,7,8-TCDF		1540	2150	pg/L	71.5	(40%-135%)
13C-1,2,3,7,8-PeCDF		1540	2150	pg/L	71.7	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		1630	2150	pg/L	75.7	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		1740	2150	pg/L	80.7	(40%-135%)

Comments:

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**2013-298**	**Client:**	**LANL001**	**Project:**	**LANL00112**
Lab Sample ID:	**4191003**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**WATER**
Client Sample:	**8290 Water**	**Date Received:**	**11/10/2012 10:20**		
Client ID:	**CAMO-13-24228**			**Prep Basis:**	**As Received**
Batch ID:	**22274**	**Method:**	**SW846 8290A**		
Run Date:	**11/15/2012 15:35**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A14NOV12A_4-8**			**Dilution:**	**1**
Prep Batch:	**22272**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**12-NOV-12**	**Aliquot:**	**892.9 mL**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	1.33		pg/L	1.33	11.2
40321-76-4	1,2,3,7,8-PeCDD	U	5.6		pg/L	5.60	56.0
39227-28-6	1,2,3,4,7,8-HxCDD	U	5.6		pg/L	5.60	56.0
57653-85-7	1,2,3,6,7,8-HxCDD	U	5.6		pg/L	5.60	56.0
19408-74-3	1,2,3,7,8,9-HxCDD	U	5.6		pg/L	5.60	56.0
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	7.97		pg/L	7.97	56.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD	U	11.2		pg/L	11.2	112
51207-31-9	2,3,7,8-TCDF	U	1.57		pg/L	1.57	11.2
57117-41-6	1,2,3,7,8-PeCDF	U	5.6		pg/L	5.60	56.0
57117-31-4	2,3,4,7,8-PeCDF	U	5.6		pg/L	5.60	56.0
70648-26-9	1,2,3,4,7,8-HxCDF	U	5.6		pg/L	5.60	56.0
57117-44-9	1,2,3,6,7,8-HxCDF	U	5.6		pg/L	5.60	56.0
60851-34-5	2,3,4,6,7,8-HxCDF	U	5.6		pg/L	5.60	56.0
72918-21-9	1,2,3,7,8,9-HxCDF	U	5.6		pg/L	5.60	56.0
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	5.6		pg/L	5.60	56.0
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	5.6		pg/L	5.60	56.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	11.2		pg/L	11.2	112
41903-57-5	Total TCDDs	U	1.33		pg/L	1.33	11.2
36088-22-9	Total PeCDDs	U	5.6		pg/L	5.60	56.0
34465-46-8	Total HxCDDs	U	5.6		pg/L	5.60	56.0
37871-00-4	Total HpCDDs	U	7.97		pg/L	7.97	56.0
30402-14-3	Total TCDFs	U	1.57		pg/L	1.57	11.2
30402-15-4	Total PeCDFs	U	5.6		pg/L	5.60	56.0
55684-94-1	Total HxCDFs	U	5.6		pg/L	5.60	56.0
38998-75-3	Total HpCDFs	U	5.6		pg/L	5.60	56.0
3333-30-0	TEQ WHO2005 ND=0		0.00	0.00	pg/L		
3333-30-1	TEQ WHO2005 ND=0.5		6.53	6.53	pg/L		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1480	2240	pg/L	66.1	(40%-135%)
13C-1,2,3,7,8-PeCDD		1620	2240	pg/L	72.1	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		1700	2240	pg/L	75.8	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		1740	2240	pg/L	77.6	(40%-135%)
13C-OCDD		3030	4480	pg/L	67.7	(40%-135%)
13C-2,3,7,8-TCDF		1710	2240	pg/L	76.4	(40%-135%)
13C-1,2,3,7,8-PeCDF		1760	2240	pg/L	78.5	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		1850	2240	pg/L	82.8	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		1930	2240	pg/L	86.4	(40%-135%)

Comments:

U Analyte was analyzed for , but not detected above the specified detection limit.

Quality Control Summary

Hi-Res Dioxins/Furans

Surrogate Recovery Report

SDG Number: 2013-298

Matrix Type: LIQUID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12007018	MB for batch 22272	13C-2,3,7,8-TCDD		79.9	(40%-135%)
		13C-1,2,3,7,8-PeCDD		70.6	(40%-135%)
		13C-1,2,3,6,7,8-HxCDD		76.4	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDD		84.5	(40%-135%)
		13C-OCDD		77.4	(40%-135%)
		13C-2,3,7,8-TCDF		85.8	(40%-135%)
		13C-1,2,3,7,8-PeCDF		80.1	(40%-135%)
		13C-1,2,3,6,7,8-HxCDF		83.8	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDF		94.5	(40%-135%)
12007019	LCS for batch 22272	13C-2,3,7,8-TCDD		69.8	(40%-135%)
		13C-1,2,3,7,8-PeCDD		66.2	(40%-135%)
		13C-1,2,3,6,7,8-HxCDD		70.3	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDD		74.5	(40%-135%)
		13C-OCDD		65.2	(40%-135%)
		13C-2,3,7,8-TCDF		73.6	(40%-135%)
		13C-1,2,3,7,8-PeCDF		72.3	(40%-135%)
		13C-1,2,3,6,7,8-HxCDF		78.9	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDF		77.9	(40%-135%)
12007020	LCSD for batch 22272	13C-2,3,7,8-TCDD		69.1	(40%-135%)
		13C-1,2,3,7,8-PeCDD		73.8	(40%-135%)
		13C-1,2,3,6,7,8-HxCDD		76.8	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDD		81.1	(40%-135%)
		13C-OCDD		71.6	(40%-135%)
		13C-2,3,7,8-TCDF		77.2	(40%-135%)
		13C-1,2,3,7,8-PeCDF		80.2	(40%-135%)
		13C-1,2,3,6,7,8-HxCDF		82.3	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDF		82.9	(40%-135%)
4191001	CAMO-13-24253	13C-2,3,7,8-TCDD		69.8	(40%-135%)
		13C-1,2,3,7,8-PeCDD		70.1	(40%-135%)
		13C-1,2,3,6,7,8-HxCDD		74.9	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDD		75.6	(40%-135%)
		13C-OCDD		66.0	(40%-135%)
		13C-2,3,7,8-TCDF		77.1	(40%-135%)
		13C-1,2,3,7,8-PeCDF		76.4	(40%-135%)
		13C-1,2,3,6,7,8-HxCDF		82.4	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDF		86.0	(40%-135%)
4191002	CAMO-13-24227	13C-2,3,7,8-TCDD		63.4	(40%-135%)
		13C-1,2,3,7,8-PeCDD		64.7	(40%-135%)
		13C-1,2,3,6,7,8-HxCDD		70.3	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDD		72.5	(40%-135%)
		13C-OCDD		65.4	(40%-135%)
		13C-2,3,7,8-TCDF		71.5	(40%-135%)
		13C-1,2,3,7,8-PeCDF		71.7	(40%-135%)
		13C-1,2,3,6,7,8-HxCDF		75.7	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDF		80.7	(40%-135%)
4191003	CAMO-13-24228	13C-2,3,7,8-TCDD		66.1	(40%-135%)
		13C-1,2,3,7,8-PeCDD		72.1	(40%-135%)

Hi-Res Dioxins/Furans

Surrogate Recovery Report

SDG Number: 2013-298

Matrix Type: LIQUID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
4191003	CAMO-13-24228	13C-1,2,3,6,7,8-HxCDD		75.8	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDD		77.6	(40%-135%)
		13C-OCDD		67.7	(40%-135%)
		13C-2,3,7,8-TCDF		76.4	(40%-135%)
		13C-1,2,3,7,8-PeCDF		78.5	(40%-135%)
		13C-1,2,3,6,7,8-HxCDF		82.8	(40%-135%)
		13C-1,2,3,4,6,7,8-HpCDF		86.4	(40%-135%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-298
Client ID: LCS for batch 22272
Lab Sample ID: 12007019
Instrument: HRP750
Analyst: MJC

Sample Type: Laboratory Control Sample
Matrix: WATER
Analysis Date: 11/15/2012 10:45
Dilution: 1
Prep Batch ID: 22272
Batch ID: 22274

CAS No.		Parmname	Amount Added pg/L	Spike Conc. pg/L	Recovery %	Acceptance Limits
1746-01-6	LCS	2,3,7,8-TCDD	200	202	101	70-130
40321-76-4	LCS	1,2,3,7,8-PeCDD	1000	1010	101	70-130
39227-28-6	LCS	1,2,3,4,7,8-HxCDD	1000	1000	100	70-130
57653-85-7	LCS	1,2,3,6,7,8-HxCDD	1000	1120	112	70-130
19408-74-3	LCS	1,2,3,7,8,9-HxCDD	1000	1120	112	70-130
35822-46-9	LCS	1,2,3,4,6,7,8-HpCDD	1000	972	97.2	70-130
3268-87-9	LCS	1,2,3,4,6,7,8,9-OCDD	2000	1930	96.3	70-130
51207-31-9	LCS	2,3,7,8-TCDF	200	201	100	70-130
57117-41-6	LCS	1,2,3,7,8-PeCDF	1000	1010	101	70-130
57117-31-4	LCS	2,3,4,7,8-PeCDF	1000	998	99.8	70-130
70648-26-9	LCS	1,2,3,4,7,8-HxCDF	1000	973	97.3	70-130
57117-44-9	LCS	1,2,3,6,7,8-HxCDF	1000	1100	110	70-130
60851-34-5	LCS	2,3,4,6,7,8-HxCDF	1000	1010	101	70-130
72918-21-9	LCS	1,2,3,7,8,9-HxCDF	1000	965	96.5	70-130
67562-39-4	LCS	1,2,3,4,6,7,8-HpCDF	1000	961	96.1	70-130
55673-89-7	LCS	1,2,3,4,7,8,9-HpCDF	1000	901	90.1	70-130
39001-02-0	LCS	1,2,3,4,6,7,8,9-OCDF	2000	1960	97.9	70-130

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: 2013-298
Client ID: LCSD for batch 22272
Lab Sample ID: 12007020
Instrument: HRP750
Analyst: MJC

Sample Type: Laboratory Control Sample Duplicate
Matrix: WATER
Analysis Date: 11/15/2012 11:33
Dilution: 1
Prep Batch ID: 22272
Batch ID: 22274

CAS No.		Parmname	Amount Added pg/L	Spike Conc. pg/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD	2,3,7,8-TCDD	200	210	105	70-130	4.03	0-20
40321-76-4	LCSD	1,2,3,7,8-PeCDD	1000	1070	107	70-130	5.99	0-20
39227-28-6	LCSD	1,2,3,4,7,8-HxCDD	1000	1060	106	70-130	5.97	0-20
57653-85-7	LCSD	1,2,3,6,7,8-HxCDD	1000	1200	120	70-130	6.58	0-20
19408-74-3	LCSD	1,2,3,7,8,9-HxCDD	1000	1140	114	70-130	1.37	0-20
35822-46-9	LCSD	1,2,3,4,6,7,8-HpCDD	1000	1010	101	70-130	3.96	0-20
3268-87-9	LCSD	1,2,3,4,6,7,8,9-OCDD	2000	1960	97.8	70-130	1.55	0-20
51207-31-9	LCSD	2,3,7,8-TCDF	200	203	102	70-130	1.29	0-20
57117-41-6	LCSD	1,2,3,7,8-PeCDF	1000	1050	105	70-130	3.49	0-20
57117-31-4	LCSD	2,3,4,7,8-PeCDF	1000	1080	108	70-130	7.86	0-20
70648-26-9	LCSD	1,2,3,4,7,8-HxCDF	1000	1030	103	70-130	5.56	0-20
57117-44-9	LCSD	1,2,3,6,7,8-HxCDF	1000	1150	115	70-130	4.53	0-20
60851-34-5	LCSD	2,3,4,6,7,8-HxCDF	1000	1060	106	70-130	4.71	0-20
72918-21-9	LCSD	1,2,3,7,8,9-HxCDF	1000	1010	101	70-130	4.78	0-20
67562-39-4	LCSD	1,2,3,4,6,7,8-HpCDF	1000	1020	102	70-130	5.89	0-20
55673-89-7	LCSD	1,2,3,4,7,8,9-HpCDF	1000	984	98.4	70-130	8.81	0-20
39001-02-0	LCSD	1,2,3,4,6,7,8,9-OCDF	2000	2110	106	70-130	7.70	0-20

Method Blank Summary

SDG Number:	**2013-298**	**Client:**	**LANL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 22272**	**Instrument ID:**	**HRP750**	**Data File:**	**A14NOV12A_4-1**
Lab Sample ID:	**12007018**	**Prep Date:**	**12-NOV-12**	**Analyzed:**	**11/15/12 09:57**
Column:					

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 22272	12007019	A14NOV12A_4-2	11/15/12	1045
02	LCSD for batch 22272	12007020	A14NOV12A_4-3	11/15/12	1133
03	CAMO-13-24253	4191001	A14NOV12A_4-6	11/15/12	1358
04	CAMO-13-24227	4191002	A14NOV12A_4-7	11/15/12	1447
05	CAMO-13-24228	4191003	A14NOV12A_4-8	11/15/12	1535

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**2013-298**	**Client:**	**LANL001**	**Project:**	**LANL00112**
Lab Sample ID:	**12007018**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 22272**				
Client ID:	**MB for batch 22272**			**Prep Basis:**	**As Received**
Batch ID:	**22274**	**Method:**	**SW846 8290A**		
Run Date:	**11/15/2012 09:57**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A14NOV12A_4-1**			**Dilution:**	**1**
Prep Batch:	**22272**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**12-NOV-12**	**Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	1.06		pg/L	1.06	10.0
40321-76-4	1,2,3,7,8-PeCDD	U	5		pg/L	5.00	50.0
39227-28-6	1,2,3,4,7,8-HxCDD	U	5		pg/L	5.00	50.0
57653-85-7	1,2,3,6,7,8-HxCDD	U	5		pg/L	5.00	50.0
19408-74-3	1,2,3,7,8,9-HxCDD	U	5		pg/L	5.00	50.0
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	5		pg/L	5.00	50.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD	J	15.2		pg/L	14.9	100
51207-31-9	2,3,7,8-TCDF	U	1.25		pg/L	1.25	10.0
57117-41-6	1,2,3,7,8-PeCDF	U	5		pg/L	5.00	50.0
57117-31-4	2,3,4,7,8-PeCDF	U	5		pg/L	5.00	50.0
70648-26-9	1,2,3,4,7,8-HxCDF	U	5		pg/L	5.00	50.0
57117-44-9	1,2,3,6,7,8-HxCDF	U	5		pg/L	5.00	50.0
60851-34-5	2,3,4,6,7,8-HxCDF	U	5		pg/L	5.00	50.0
72918-21-9	1,2,3,7,8,9-HxCDF	U	5		pg/L	5.00	50.0
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	5		pg/L	5.00	50.0
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	5		pg/L	5.00	50.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	10		pg/L	10.0	100
41903-57-5	Total TCDDs	U	1.06		pg/L	1.06	10.0
36088-22-9	Total PeCDDs	U	5		pg/L	5.00	50.0
34465-46-8	Total HxCDDs	U	5	5.08	pg/L	5.00	50.0
37871-00-4	Total HpCDDs	U	5	5.62	pg/L	5.00	50.0
30402-14-3	Total TCDFs	U	1.25		pg/L	1.25	10.0
30402-15-4	Total PeCDFs	U	5		pg/L	5.00	50.0
55684-94-1	Total HxCDFs	U	5		pg/L	5.00	50.0
38998-75-3	Total HpCDFs	U	5		pg/L	5.00	50.0
3333-30-0	TEQ WHO2005 ND=0		0.00457	0.00457	pg/L		
3333-30-1	TEQ WHO2005 ND=0.5		5.75	5.75	pg/L		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1600	2000	pg/L	79.9	(40%-135%)
13C-1,2,3,7,8-PeCDD		1410	2000	pg/L	70.6	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		1530	2000	pg/L	76.4	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		1690	2000	pg/L	84.5	(40%-135%)
13C-OCDD		3100	4000	pg/L	77.4	(40%-135%)
13C-2,3,7,8-TCDF		1720	2000	pg/L	85.8	(40%-135%)
13C-1,2,3,7,8-PeCDF		1600	2000	pg/L	80.1	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		1680	2000	pg/L	83.8	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		1890	2000	pg/L	94.5	(40%-135%)

Comments:

J Value is estimated

K Estimated Maximum Possible Concentration

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**2013-298**	**Client:**	**LANL001**	**Project:**	**LANL00112**
Lab Sample ID:	**12007019**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 22272**				
Client ID:	**LCS for batch 22272**			**Prep Basis:**	**As Received**
Batch ID:	**22274**	**Method:**	**SW846 8290A**		
Run Date:	**11/15/2012 10:45**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A14NOV12A_4-2**			**Dilution:**	**1**
Prep Batch:	**22272**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**12-NOV-12**	**Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		202		pg/L	1.69	10.0
40321-76-4	1,2,3,7,8-PeCDD		1010		pg/L	9.22	50.0
39227-28-6	1,2,3,4,7,8-HxCDD		1000		pg/L	10.6	50.0
57653-85-7	1,2,3,6,7,8-HxCDD		1120		pg/L	9.74	50.0
19408-74-3	1,2,3,7,8,9-HxCDD		1120		pg/L	10.5	50.0
35822-46-9	1,2,3,4,6,7,8-HpCDD		972		pg/L	17.0	50.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1930		pg/L	28.6	100
51207-31-9	2,3,7,8-TCDF		201		pg/L	2.02	10.0
57117-41-6	1,2,3,7,8-PeCDF		1010		pg/L	8.82	50.0
57117-31-4	2,3,4,7,8-PeCDF		998		pg/L	8.72	50.0
70648-26-9	1,2,3,4,7,8-HxCDF		973		pg/L	16.9	50.0
57117-44-9	1,2,3,6,7,8-HxCDF		1100		pg/L	14.7	50.0
60851-34-5	2,3,4,6,7,8-HxCDF		1010		pg/L	16.0	50.0
72918-21-9	1,2,3,7,8,9-HxCDF		965		pg/L	19.0	50.0
67562-39-4	1,2,3,4,6,7,8-HpCDF		961		pg/L	12.6	50.0
55673-89-7	1,2,3,4,7,8,9-HpCDF		901		pg/L	16.5	50.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF		1960		pg/L	51.6	100

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1400	2000	pg/L	69.8	(40%-135%)
13C-1,2,3,7,8-PeCDD		1320	2000	pg/L	66.2	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		1410	2000	pg/L	70.3	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		1490	2000	pg/L	74.5	(40%-135%)
13C-OCDD		2610	4000	pg/L	65.2	(40%-135%)
13C-2,3,7,8-TCDF		1470	2000	pg/L	73.6	(40%-135%)
13C-1,2,3,7,8-PeCDF		1450	2000	pg/L	72.3	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		1580	2000	pg/L	78.9	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		1560	2000	pg/L	77.9	(40%-135%)

Comments:

U Analyte was analyzed for , but not detected above the specified detection limit.

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**2013-298**	**Client:**	**LANL001**	**Project:**	**LANL00112**
Lab Sample ID:	**12007020**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 22272**				
Client ID:	**LCSD for batch 22272**			**Prep Basis:**	**As Received**
Batch ID:	**22274**	**Method:**	**SW846 8290A**		
Run Date:	**11/15/2012 11:33**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A14NOV12A_4-3**			**Dilution:**	**1**
Prep Batch:	**22272**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**12-NOV-12**	**Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	EMPC	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		210		pg/L	2.20	10.0
40321-76-4	1,2,3,7,8-PeCDD		1070		pg/L	5.60	50.0
39227-28-6	1,2,3,4,7,8-HxCDD		1060		pg/L	17.8	50.0
57653-85-7	1,2,3,6,7,8-HxCDD		1200		pg/L	16.3	50.0
19408-74-3	1,2,3,7,8,9-HxCDD		1140		pg/L	17.6	50.0
35822-46-9	1,2,3,4,6,7,8-HpCDD		1010		pg/L	12.4	50.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD		1960		pg/L	37.4	100
51207-31-9	2,3,7,8-TCDF		203		pg/L	1.88	10.0
57117-41-6	1,2,3,7,8-PeCDF		1050		pg/L	6.94	50.0
57117-31-4	2,3,4,7,8-PeCDF		1080		pg/L	6.84	50.0
70648-26-9	1,2,3,4,7,8-HxCDF		1030		pg/L	16.4	50.0
57117-44-9	1,2,3,6,7,8-HxCDF		1150		pg/L	14.4	50.0
60851-34-5	2,3,4,6,7,8-HxCDF		1060		pg/L	15.5	50.0
72918-21-9	1,2,3,7,8,9-HxCDF		1010		pg/L	18.5	50.0
67562-39-4	1,2,3,4,6,7,8-HpCDF		1020		pg/L	12.5	50.0
55673-89-7	1,2,3,4,7,8,9-HpCDF		984		pg/L	16.3	50.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF		2110		pg/L	36.8	100

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1380	2000	pg/L	69.1	(40%-135%)
13C-1,2,3,7,8-PeCDD		1480	2000	pg/L	73.8	(40%-135%)
13C-1,2,3,6,7,8-HxCDD		1540	2000	pg/L	76.8	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDD		1620	2000	pg/L	81.1	(40%-135%)
13C-OCDD		2860	4000	pg/L	71.6	(40%-135%)
13C-2,3,7,8-TCDF		1540	2000	pg/L	77.2	(40%-135%)
13C-1,2,3,7,8-PeCDF		1600	2000	pg/L	80.2	(40%-135%)
13C-1,2,3,6,7,8-HxCDF		1650	2000	pg/L	82.3	(40%-135%)
13C-1,2,3,4,6,7,8-HpCDF		1660	2000	pg/L	82.9	(40%-135%)

Comments:

U Analyte was analyzed for , but not detected above the specified detection limit.

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-297

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8082-PCB	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-8321A-NMED HEXP	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-HEXMOD	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CAMO-13-24253	Nov 8 2012	10:58	W	3	2	3	3			1	2			1	1	
CAMO-13-24270	Nov 8 2012	10:58	W					1	1			1	1			
CAMO-13-24227	Nov 8 2012	10:58	W	3	2	3										
CAMO-13-24228	Nov 8 2012	10:58	W	3	2	3	3			1	2			1	1	
CAMO-13-24229	Nov 8 2012	10:58	W					1	1			1	1			
CAMO-13-24236	Nov 8 2012	10:58	W		2											

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 11/9/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24253

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/08/2012	**FIELD MATRIX:**	WG	OK
TIME COLLECTED (HH:MM):		1058	**MEDIA:**	UA	↓
PRS ID:		OK	**SAMPLE TECH CODE:**	UA	GSP
LOCATION ID:	R-62	↓	**FIELD PREP:**	UF	OK
LOCATION TYPE:	MON	↓	**FIELD QC TYPE:**	REG	↓
PORT:	SINGLE COMPLETION	↓	**SAMPLE USAGE:**	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	~~2~~ 2	ICE DF 11/6/12	Y	NA
↓	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	↓	↓
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	~~2~~ 2	ICE DF 11/6/12	↓	↓
↓	WSP-8290-D/F	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-8321A-NMED HEXP	1 LITER AMBER GLASS	~~2~~ 2	ICE DF 11/6/12	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-HEXMOD	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

Analyses continued on next page

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID:	4030	**EVENT NAME:**	Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD
SAMPLE ID:	CAMO-13-24253	**WORK ORDER:**	NA

SAMPLE COMMENTS: Sampled within 50' of running diesel generator

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 5.41 mg/L Oxidation-Reduction Potential 57.9 MV pH 8.77 SU

Specific Conductance 188 uS/cm Temperature 19.22 deg C Turbidity 0.55 NTU

COLLECTED BY (PRINT) D. Woody

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/08/12 1735	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	11/08/12 1735
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24228

WORK ORDER:

		AS PLANNED	AS COLLECTED			AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):			11/08/2012	FIELD MATRIX:	WG		OK
TIME COLLECTED (HH:MM):			1058	MEDIA:	UA		↓
PRS ID:			OK	SAMPLE TECH CODE:	UA		GSP
LOCATION ID:	R-62		↓	FIELD PREP:	UF		OK
LOCATION TYPE:			↓	FIELD QC TYPE:	FD		↓
PORT:	SINGLE COMPLETION		↓	SAMPLE USAGE:	QC		↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	~~2~~ 1	ICE DF 11/6/12	Y	NA
↓	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	↓	↓
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	~~2~~ 1	ICE DF 11/6/12	↓	↓
↓	WSP-8290-D/F	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-8321A-NMED HEXP	1 LITER AMBER GLASS	~~2~~ 1	ICE DF 11/6/12	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-HEXMOD	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

Analyses continued on next page

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID:	4030	**EVENT NAME:**	Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD
SAMPLE ID:	CAMO-13-24228	**WORK ORDER:**	

See CAMO-13-24253

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY **(Printed Name)** D Woody **(Signature)** David Woody	**Date/Time** 11/08/12 1735	**RECEIVED BY** **(Printed Name)** S. Sherwood **(Signature)** Sheri Sherwood	**Date/Time** 11/08/12 1735
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24236 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/08/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1058	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	DC
LOCATION ID:	R-62	↓	FIELD PREP:	UF	OK
LOCATION TYPE:		↓	FIELD QC TYPE:	FTB	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	~~2~~ 1	HCL DF 11/6/12	Y	NA

SAMPLE COMMENTS:

LOCATION COMMENTS: See CAMO-13-24253

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) W. Shan

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) David Felleur (Signature) [signature]	11/8/12 1735	(Printed Name) S. Sherwood (Signature) [signature]	11/8/12 1735
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24227 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/08/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1058	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	DC
LOCATION ID:	R-62	↓	FIELD PREP:	UF	OK
LOCATION TYPE:		↓	FIELD QC TYPE:	FB	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	~~2~~ 1	ICE 11/6/12	Y	NA
↓	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	↓	↓
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	~~2~~ 1	ICE DF 11/6/12	↓	↓
↓	WSP-8290-D/F	1 LITER AMBER GLASS	2	ICE	↓	↓

SAMPLE COMMENTS:

LOCATION COMMENTS: See CAMO-13-24253

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) W. Shan

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) David Fellenz (Signature) [signature]	11/8/12 1735	(Printed Name) S. Sherwood (Signature) [signature]	11/8/12 1735
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24270

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/08/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1058	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-62	↓	FIELD PREP:	F	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
↓	WSP-GENINORG	1 LITER POLY	1	ICE	↓	↓
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	↓
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS:

LOCATION COMMENTS: See CAMO-13-24253

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) D. Woody

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D. Woody (Signature) David Woody	11/08/12 1735	(Printed Name) D. Sherwood (Signature) Sherwood	11/08/12 1735
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24229

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/08/2012	FIELD MATRIX:	W	OK
TIME COLLECTED (HH:MM):		1058	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID: R-62		↓	FIELD PREP:	F	OK
LOCATION TYPE:		↓	FIELD QC TYPE:	FD	↓
TOP DEPTH:		↓	SAMPLE USAGE:	QC	↓
BOTTOM DEPTH:		↓	EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
↓	WSP-GENINORG	1 LITER POLY	1	ICE	↓	↓
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS:

LOCATION COMMENTS:

See CAMO-13-24253

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) D Woody (Signature) David Woody	**Date/Time** 11/08/12 1735	**RECEIVED BY** (Printed Name) S Sherwood (Signature) Sheri Sherwood	**Date/Time** 11/08/12 1735
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-297

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
314987	EPA:120.1	1	1			
314987	EPA:150.1	1	1			
314987	EPA:160.1	1	1			
314987	EPA:245.2	1	1			
314987	EPA:300.0	1	1			
314987	EPA:310.1	1	1			
314987	EPA:350.1	1	1			
314987	EPA:351.2	1	1			
314987	EPA:353.2	1	1			
314987	EPA:365.4	1	1			
314987	EPA:900	1	1			
314987	EPA:901.1	1	1			
314987	EPA:905.0	1	1			
314987	HASL-300:AM-241	1	1			
314987	HASL-300:ISOPU	1	1			
314987	HASL-300:ISOU	1	1			
314987	SM:A2340B	1	1			
314987	SW-846:6010B	1	1			
314987	SW-846:6020	1	1			
314987	SW-846:6850	1	1			
314987	SW-846:8082	1	1		1	
314987	SW-846:8260B	1	1	1	1	
314987	SW-846:8270C	1	1		1	
314987	SW-846:8321A_MOD	1	1			
314987	SW-846:9060	1	1			

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
314987	EPA:120.1	1266189	1266189	1	1						
314987	EPA:150.1	1262400	1262400	1	1						
314987	EPA:160.1	1262397	1262397	1	1				1		
314987	EPA:245.2	1266834	1266827	1	1				1	1	
314987	EPA:300.0	1262061	1262061	1	1				1		
314987	EPA:310.1	1264657	1264657	1	1				1	1	
314987	EPA:350.1	1261640	1261639	1					1	1	1
314987	EPA:350.1	1263572	1263571		1				1	2	2
314987	EPA:351.2	1261638	1261637	1	1				1	1	1
314987	EPA:353.2	1262537	1262537	1					1		
314987	EPA:353.2	1263016	1263016		1				1		
314987	EPA:365.4	1261643	1261641	1					1	1	1
314987	EPA:365.4	1263577	1263576		1				1	2	2
314987	EPA:900	1263054	1263054	1	1				1	1	1
314987	EPA:901.1	1262434	1262434	1	1				1		
314987	EPA:905.0	1263026	1263026	1	1				1	1	
314987	HASL-300:AM-241	1261192	1261192	1	1				1		
314987	HASL-300:ISOPU	1261194	1261194	1	1				1		
314987	HASL-300:ISOU	1261195	1261195	1	1				1		

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				2			
		1				1			
		1				1			
		1				2			
		1				1			
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			

314987	SM:A2340B	1268873	1268873	1	1						
314987	SW-846:6010B	1263453	1263452	1	1				1	1	
314987	SW-846:6020	1263451	1263450	1	1				1	1	
314987	SW-846:6850	1262376	1262373	1	1				1	1	1
314987	SW-846:8082	1265739	1265738	1	1		1		1	1	1
314987	SW-846:8260B	1264307	1264307	1	1	1	1		2		
314987	SW-846:8270C	1263326	1263325	1	1		1		1	1	1
314987	SW-846:8321A_MOD	1262852	1262851	1	1				1	1	1
314987	SW-846:9060	1262822	1262822	1	1				1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24229	314987010	FD	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24266	1202786721	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24270	1202786720	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24270	314987004	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202786722	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24229	314987010	FD	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24270	314987004	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202777999	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	WST05-12-23562	1202777998	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24229	314987010	FD	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24270	1202778389	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24270	314987004	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202777984	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202777982	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24229	314987010	FD	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24270	314987004	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24281	1202788351	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24281	1202788352	MS	0	0	1	0
EPA:245.2	INORGANIC	LCS	1202788350	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202788349	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24229	314987010	FD	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24270	314987004	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202777153	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202777150	MB	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	WST05-12-23562	1202777151	DUP	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24229	314987010	FD	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24270	1202783251	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24270	1202783256	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24270	314987004	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202783259	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202783247	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24229	1202780703	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24229	1202780705	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24229	1202780707	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24229	314987010	FD	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776123	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776124	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776125	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24270	314987004	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202776126	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202780709	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202776122	MB	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202780702	MB	1	0	0	0

		1				1			
		1				1			
		1							
		1							
		4							
		1							
		1							
		1				1			

EPA:350.1	GENERAL CHEMISTRY	SWWS46-13-24772	1202782504	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	SWWS46-13-24772	1202782505	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	SWWS46-13-24772	1202782506	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24228	314987009	FD	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776118	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776119	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776120	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24253	314987003	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202776121	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202776117	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24229	314987010	FD	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24266	1202780694	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24270	314987004	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202778274	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202779484	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202778267	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202779479	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	SWWS46-13-24772	1202782515	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	WST05-12-23562	1202778269	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24229	314987010	FD	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776128	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776130	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776132	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24262	1202780717	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24262	1202780719	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24262	1202780721	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24266	1202780716	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24266	1202780718	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24266	1202780720	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24270	314987004	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202776134	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202780722	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202776127	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202780715	MB	1	0	0	0
EPA:900	RAD	CAMO-13-24228	314987009	FD	2	0	0	0
EPA:900	RAD	CAMO-13-24253	314987003	REG	2	0	0	0
EPA:900	RAD	CASA-13-24214	1202779587	DUP	2	0	0	0
EPA:900	RAD	CASA-13-24214	1202779588	MS	0	0	2	0
EPA:900	RAD	CASA-13-24214	1202779589	MSD	0	0	2	0
EPA:900	RAD	LCS	1202779590	LCS	0	0	2	0
EPA:900	RAD	MB	1202779586	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24228	314987009	FD	5	0	0	0
EPA:901.1	RAD	CAMO-13-24253	314987003	REG	5	0	0	0
EPA:901.1	RAD	CASA-13-24213	1202778039	DUP	6	0	0	0
EPA:901.1	RAD	LCS	1202778040	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202778038	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24228	314987009	FD	1	0	0	0
EPA:905.0	RAD	CAMO-13-24253	1202779528	DUP	1	0	0	0
EPA:905.0	RAD	CAMO-13-24253	1202779529	MS	0	0	1	0
EPA:905.0	RAD	CAMO-13-24253	314987003	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202779530	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202779527	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24228	314987009	FD	1	0	0	0

HASL-300:AM-241	RAD	CAMO-13-24253	314987003	REG	1	0	0	0
HASL-300:AM-241	RAD	CASA-13-24209	1202775076	DUP	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202775077	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202775075	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24228	314987009	FD	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24253	314987003	REG	2	0	0	0
HASL-300:ISOPU	RAD	CASA-13-24209	1202775079	DUP	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202775080	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202775078	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24228	314987009	FD	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24253	314987003	REG	3	0	0	0
HASL-300:ISOU	RAD	CASA-13-24209	1202775082	DUP	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202775083	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202775081	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24229	314987010	FD	1	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24270	314987004	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24229	314987010	FD	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24262	1202780428	DUP	22	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24262	1202780429	MS	0	0	22	0
SW-846:6010B	INORGANIC	CAMO-13-24270	314987004	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202780427	LCS	0	0	22	0
SW-846:6010B	INORGANIC	MB	1202780426	MB	22	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24229	314987010	FD	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24262	1202780423	DUP	13	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24262	1202780424	MS	0	0	13	0
SW-846:6020	INORGANIC	CAMO-13-24270	314987004	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202780422	LCS	0	0	13	0
SW-846:6020	INORGANIC	MB	1202780421	MB	13	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24229	314987010	FD	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24270	314987004	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24224	1202777946	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24224	1202777947	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202777945	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202777944	MB	1	0	0	0
SW-846:8082	PESTPCB	CAMO-13-24227	314987005	FB	8	2	0	0
SW-846:8082	PESTPCB	CAMO-13-24228	314987007	FD	8	2	0	0
SW-846:8082	PESTPCB	CAMO-13-24253	1202785590	MS	0	2	2	0
SW-846:8082	PESTPCB	CAMO-13-24253	1202785591	MSD	0	2	2	0
SW-846:8082	PESTPCB	CAMO-13-24253	314987001	REG	8	2	0	0
SW-846:8082	PESTPCB	LCS	1202785592	LCS	0	2	2	0
SW-846:8082	PESTPCB	MB	1202785589	MB	8	2	0	0
SW-846:8260B	VOC	CAMO-13-24227	314987006	FB	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24228	314987008	FD	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24236	314987011	FTB	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24253	314987002	REG	80	3	0	0
SW-846:8260B	VOC	LCS	1202782453	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202782454	LCS	0	3	10	0
SW-846:8260B	VOC	LCS	1202784991	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202784992	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1202782450	MB	80	3	0	0
SW-846:8260B	VOC	MB	1202784990	MB	80	3	0	0

SW-846:8270C	SVOC	CAMO-13-24227	314987006	FB	80	6	0	0
SW-846:8270C	SVOC	CAMO-13-24228	314987008	FD	80	6	0	0
SW-846:8270C	SVOC	CAMO-13-24250	1202780155	MS	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24250	1202780156	MSD	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24253	314987002	REG	80	6	0	0
SW-846:8270C	SVOC	LCS	1202780154	LCS	0	6	76	0
SW-846:8270C	SVOC	MB	1202780153	MB	80	6	0	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAMO-13-24228	314987009	FD	23	2	0	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAMO-13-24253	1202779026	MS	0	2	23	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAMO-13-24253	1202779027	MSD	0	2	23	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAMO-13-24253	314987003	REG	23	2	0	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	LCS	1202779025	LCS	0	2	23	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	MB	1202779024	MB	23	2	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24228	314987009	FD	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24245	1202778961	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24253	314987003	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202778963	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202778960	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202783247	METHOD BLANK	EPA:310.1	W	Alkalinity-CO3+HCO3	1.07		mg/L	1
MB	1202788349	METHOD BLANK	EPA:245.2	W	Mercury	-0.081	J	ug/L	0.2

Any samples affected by the presence of contaminants in blanks?

Field Sample ID	Blank Field Sample ID	Blank Lab Sample ID	Blank Type	Analytical Method	Parameter Name	Units	Blank Result	Sample Result	Lab Qualifier	Detect Limit	Detected
CAMO-13-24270	MB	1202788349	METHOD BLANK	EPA:245.2	Mercury	ug/L	-0.081	0.067	U	0.2	N
CAMO-13-24229	MB	1202788349	METHOD BLANK	EPA:245.2	Mercury	ug/L	-0.081	0.067	U	0.2	N

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit

Correction Factor (ND)	Correction Factor (J)	Use Factors
5		Y
5		Y

Rejection Limit	RPD	RPD Limit

CAMO-13-24229	1202780705	1202780707	EPA:350.1	Ammonia as Nitrogen	1263571	11/19/2012	W	94.9	89.2	110	90
CAMO-13-24229	1202780705	1202780707	EPA:350.1	Ammonia as Nitrogen	1263571	11/19/2012	W	94.9	89.2	110	90
CAMO-13-24256	1202776124	1202776125	EPA:350.1	Ammonia as Nitrogen	1261639	11/13/2012	W	114	95.1	110	90
CAMO-13-24239	1202776119	1202776120	EPA:351.2	Total Kjeldahl Nitrogen	1261637	11/14/2012	W	89.7	90.7	110	90
CASA-13-24214	1202779588	1202779589	EPA:900	Gross alpha	1263054	11/27/2012	W	86.3	103	125	75
CAMO-13-24262	1202780429		SW-846:6010B	Silver	1263452	11/29/2012	W	58.2		125	75

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

LCS Sample ID	LCSD Sample ID	Analytical Method	Parameter Name	Lab Lot ID	Analysis Date	Sample Matrix	LCS Recovery	LCSD Recovery	Upper Limit	Lower Limit	Lower Reject Limit
1202782453		SW-846:8260B	Hexanone[2-]	1264307	11/16/2012	W	164		158	53	10
1202782453		SW-846:8260B	Trichlorofluoromethane	1264307	11/16/2012	W	132		123	65	10
1202780154		SW-846:8270C	Dioxane[1,4-]	1263325	11/19/2012	W	35		69	41	10
1202780154		SW-846:8270C	Hexachlorocyclopentadiene	1263325	11/19/2012	W	36		79	38	10

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-62	2013-297	CAMO-13-24227	FB	INIT	SVOC	SW-846:8270C	Dioxane[1,4-]	U	UJ	SV12a	N
R-62	2013-297	CAMO-13-24227	FB	INIT	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	UJ	SV12a	N
R-62	2013-297	CAMO-13-24228	FD	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-62	2013-297	CAMO-13-24228	FD	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-62	2013-297	CAMO-13-24228	FD	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-62	2013-297	CAMO-13-24228	FD	INIT	SVOC	SW-846:8270C	Dioxane[1,4-]	U	UJ	SV12a	N
R-62	2013-297	CAMO-13-24228	FD	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-62	2013-297	CAMO-13-24228	FD	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-62	2013-297	CAMO-13-24228	FD	INIT	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	UJ	SV12a	N
R-62	2013-297	CAMO-13-24228	FD	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-62	2013-297	CAMO-13-24228	FD	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N

10	5.81	15
10	5.81	15
10	17.2	15
10	0.939	20
10	17.6	11.5
10		

Upper Reject Limit	RPD	RPD Limit

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
3.19	ug/L	3.19	ug/L			W	11/8/2012		1263326	VAL	Y
3.19	ug/L	3.19	ug/L			W	11/8/2012		1263326	VAL	Y
0.00436	pCi/L	0.00436	pCi/L	0.0248	0.00534	W	11/8/2012		1261192	VAL	Y
2.46	pCi/L	2.46	pCi/L	6.07	1.47	W	11/8/2012		1262434	VAL	Y
0.877	pCi/L	0.877	pCi/L	6.63	1.64	W	11/8/2012		1262434	VAL	Y
3.19	ug/L	3.19	ug/L			W	11/8/2012		1263326	VAL	Y
0.671	pCi/L	0.671	pCi/L	2.32	0.626	W	11/8/2012		1263054	VAL	Y
1.04	pCi/L	1.04	pCi/L	2.26	0.678	W	11/8/2012		1263054	VAL	Y
3.19	ug/L	3.19	ug/L			W	11/8/2012		1263326	VAL	Y
-2.39	pCi/L	-2.39	pCi/L	12.2	3.6	W	11/8/2012		1262434	VAL	Y
-0.0125	pCi/L	-0.0125	pCi/L	0.024	0.00969	W	11/8/2012		1261194	VAL	Y

R-62	2013-297	CAMO-13-24228	FD	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-62	2013-297	CAMO-13-24228	FD	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-62	2013-297	CAMO-13-24228	FD	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-62	2013-297	CAMO-13-24228	FD	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-62	2013-297	CAMO-13-24228	FD	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-62	2013-297	CAMO-13-24229	FD	INIT	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen		J-	I6a	Y
R-62	2013-297	CAMO-13-24253	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-62	2013-297	CAMO-13-24253	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-62	2013-297	CAMO-13-24253	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-62	2013-297	CAMO-13-24253	REG	INIT	SVOC	SW-846:8270C	Dioxane[1,4-]	U	UJ	SV12a	N
R-62	2013-297	CAMO-13-24253	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-62	2013-297	CAMO-13-24253	REG	INIT	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	UJ	SV12a	N
R-62	2013-297	CAMO-13-24253	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-62	2013-297	CAMO-13-24253	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-62	2013-297	CAMO-13-24253	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-62	2013-297	CAMO-13-24253	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-62	2013-297	CAMO-13-24253	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-62	2013-297	CAMO-13-24253	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-62	2013-297	CAMO-13-24253	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N

Reason Code	Description
I6a	The associated matrix spike recovery was below the lower acceptance limit (LAL) but >10%. Follow the external laboratory limits located within the associated data package.
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.
SV12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24227	R-62	FB	SW-846:8082	0	8
CAMO-13-24227	R-62	FB	SW-846:8260B	0	80
CAMO-13-24227	R-62	FB	SW-846:8270C	0	80
CAMO-13-24228	R-62	FD	EPA:351.2	0	1
CAMO-13-24228	R-62	FD	EPA:900	0	2
CAMO-13-24228	R-62	FD	EPA:901.1	0	5
CAMO-13-24228	R-62	FD	EPA:905.0	0	1
CAMO-13-24228	R-62	FD	HASL-300:AM-241	0	1
CAMO-13-24228	R-62	FD	HASL-300:ISOPU	0	2
CAMO-13-24228	R-62	FD	HASL-300:ISOU	0	3
CAMO-13-24228	R-62	FD	SW-846:8082	0	8
CAMO-13-24228	R-62	FD	SW-846:8260B	0	80
CAMO-13-24228	R-62	FD	SW-846:8270C	0	80
CAMO-13-24228	R-62	FD	SW-846:8321A_MOD	0	23
CAMO-13-24228	R-62	FD	SW-846:9060	0	1
CAMO-13-24229	R-62	FD	EPA:120.1	0	1
CAMO-13-24229	R-62	FD	EPA:150.1	0	1

-0.0025	pCi/L	-0.0025	pCi/L	0.0399	0.00662	W	11/8/2012		1261194	VAL	Y
-36	pCi/L	-36	pCi/L	64.7	19.7	W	11/8/2012		1262434	VAL	Y
-1.12	pCi/L	-1.12	pCi/L	6.46	1.8	W	11/8/2012		1262434	VAL	Y
0.0518	pCi/L	0.0518	pCi/L	0.486	0.138	W	11/8/2012		1263026	VAL	Y
0.0319	pCi/L	0.0319	pCi/L	0.0416	0.0128	W	11/8/2012		1261195	VAL	Y
0.0606	mg/L	0.0606	mg/L			W	11/8/2012		1263572	VAL	Y
3.43E-10	pCi/L	3.43E-10	pCi/L	0.0234	0.00411	W	11/8/2012		1261192	VAL	Y
-0.881	pCi/L	-0.881	pCi/L	6.96	1.89	W	11/8/2012		1262434	VAL	Y
-2.34	pCi/L	-2.34	pCi/L	7.35	2.11	W	11/8/2012		1262434	VAL	Y
3.3	ug/L	3.3	ug/L			W	11/8/2012		1263326	VAL	Y
-0.256	pCi/L	-0.256	pCi/L	2.88	0.631	W	11/8/2012		1263054	VAL	Y
3.3	ug/L	3.3	ug/L			W	11/8/2012		1263326	VAL	Y
2.32	pCi/L	2.32	pCi/L	13.5	3.63	W	11/8/2012		1262434	VAL	Y
-0.0029	pCi/L	-0.0029	pCi/L	0.0278	0.00502	W	11/8/2012		1261194	VAL	Y
-0.0029	pCi/L	-0.0029	pCi/L	0.0462	0.00766	W	11/8/2012		1261194	VAL	Y
-31.7	pCi/L	-31.7	pCi/L	89.2	23.8	W	11/8/2012		1262434	VAL	Y
1.35	pCi/L	1.35	pCi/L	8.82	2.08	W	11/8/2012		1262434	VAL	Y
0.0275	pCi/L	0.0275	pCi/L	0.462	0.123	W	11/8/2012		1263026	VAL	Y
0.0304	pCi/L	0.0304	pCi/L	0.0445	0.0132	W	11/8/2012		1261195	VAL	Y

CAMO-13-24229	R-62	FD	EPA:160.1	0	1
CAMO-13-24229	R-62	FD	EPA:245.2	0	1
CAMO-13-24229	R-62	FD	EPA:300.0	0	4
CAMO-13-24229	R-62	FD	EPA:310.1	0	2
CAMO-13-24229	R-62	FD	EPA:350.1	0	1
CAMO-13-24229	R-62	FD	EPA:353.2	0	1
CAMO-13-24229	R-62	FD	EPA:365.4	0	1
CAMO-13-24229	R-62	FD	SM:A2340B	0	1
CAMO-13-24229	R-62	FD	SW-846:6010B	0	17
CAMO-13-24229	R-62	FD	SW-846:6020	0	11
CAMO-13-24229	R-62	FD	SW-846:6850	0	1
CAMO-13-24236	R-62	FTB	SW-846:8260B	0	80
CAMO-13-24253	R-62	REG	EPA:351.2	0	1
CAMO-13-24253	R-62	REG	EPA:900	0	2
CAMO-13-24253	R-62	REG	EPA:901.1	0	5
CAMO-13-24253	R-62	REG	EPA:905.0	0	1
CAMO-13-24253	R-62	REG	HASL-300:AM-241	0	1
CAMO-13-24253	R-62	REG	HASL-300:ISOPU	0	2
CAMO-13-24253	R-62	REG	HASL-300:ISOU	0	3
CAMO-13-24253	R-62	REG	SW-846:8082	0	8
CAMO-13-24253	R-62	REG	SW-846:8260B	0	80
CAMO-13-24253	R-62	REG	SW-846:8270C	0	80
CAMO-13-24253	R-62	REG	SW-846:8321A_MOD	0	23
CAMO-13-24253	R-62	REG	SW-846:9060	0	1
CAMO-13-24270	R-62	REG	EPA:120.1	0	1
CAMO-13-24270	R-62	REG	EPA:150.1	0	1
CAMO-13-24270	R-62	REG	EPA:160.1	0	1
CAMO-13-24270	R-62	REG	EPA:245.2	0	1
CAMO-13-24270	R-62	REG	EPA:300.0	0	4
CAMO-13-24270	R-62	REG	EPA:310.1	0	2
CAMO-13-24270	R-62	REG	EPA:350.1	0	1
CAMO-13-24270	R-62	REG	EPA:353.2	0	1
CAMO-13-24270	R-62	REG	EPA:365.4	0	1
CAMO-13-24270	R-62	REG	SM:A2340B	0	1
CAMO-13-24270	R-62	REG	SW-846:6010B	0	17
CAMO-13-24270	R-62	REG	SW-846:6020	0	11
CAMO-13-24270	R-62	REG	SW-846:6850	0	1

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

December 04, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 314987
SDG: 2013-297

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 10, 2012, and analyzed for Explosives by LCMSMS, GC Semivolatile PCB, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-297
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 314987
SDG: 2013-297

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....5

Data Review Qualifier Flag Definition Sheet.....11

Volatile Analysis.....13

Case Narrative.....14

Sample Data Summary.....20

Quality Control Summary.....33

Quality Control Data.....55

Miscellaneous.....80

Semi-Volatile Analysis.....82

Case Narrative.....83

Sample Data Summary.....89

Quality Control Summary.....99

Quality Control Data.....114

Miscellaneous.....127

Perchlorates by LCMSMS Analysis.....129

Case Narrative.....130

Sample Data Summary.....136

Quality Control Summary.....139

Quality Control Data.....142

Explosives by LCMSMS Analysis.....148
Case Narrative.....149
Sample Data Summary.....156
Quality Control Summary.....163
Quality Control Data.....169
Miscellaneous.....193
PCB Analysis.....195
Case Narrative.....196
Sample Data Summary.....202
Quality Control Summary.....206
Quality Control Data.....212
Metals Analysis.....217
Case Narrative.....218
Sample Data Summary.....224
Quality Control Summary.....230
General Chem Analysis.....244
Case Narrative.....245
Sample Data Summary.....273
Quality Control Summary.....281
Miscellaneous.....287
Radiological Analysis.....293

Sample Data Summary.....305

Quality Control Data.....310

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 314987
SDG # : 2013-297

December 04, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 10, 2012 for analysis. Please see attached email for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. The containers for Gross A/B were preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
314987001	CAMO-13-24253
314987002	CAMO-13-24253
314987003	CAMO-13-24253
314987004	CAMO-13-24270
314987005	CAMO-13-24227
314987006	CAMO-13-24227
314987007	CAMO-13-24228
314987008	CAMO-13-24228
314987009	CAMO-13-24228
314987010	CAMO-13-24229
314987011	CAMO-13-24236

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Explosives by LCMSMS, GC Semivolatile PCB, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Hope Taylor for
Valerie Davis
Project Manager

List of current GEL Certifications as of 04 December 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

314987

COC/Lab Request #: 2013-297

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Special Instructions:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8082-PCB	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-8321A-NMED HEXP	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-HEXMOD	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAMO-13-24253	Nov 8 2012	10:58	W	3	2	3	3			1	2			1	1
CAMO-13-24270	Nov 8 2012	10:58	W					1	1			1	1		
CAMO-13-24227	Nov 8 2012	10:58	W	3	2	3									
CAMO-13-24228	Nov 8 2012	10:58	W	3	2	3	3			1	2			1	1
CAMO-13-24229	Nov 8 2012	10:58	W					1	1			1	1		
CAMO-13-24236	Nov 8 2012	10:58	W		2										

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 11/9/12 3:00	Received by: P. Alvarez	11-10-12 0915
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/AR/COC/Work Order: 2013-297**
Received By: Patricia Dent	**Date Received:November 10, 2012**

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0CPM**
Classified Radioactive II or III by RSO?		X	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		X	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **4,5C**
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524646**
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			X	Sample ID's, containers affected and observed pH: **CAMO-13-24253, 24228 for Gross A/B** If Preservation added, Lot#**L03022**
6	VOA vials free of headspace (defined as < 6mm bubble)?	X			Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?			X	Sample ID's affected: **SEE BELOW**
12	Are sample containers identifiable as GEL provided?			X	**CLIENTS**
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.	X			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9832 5220 4C 5462 9832 5230 4C 5462 9832 5219 5C**

Comments (Use Continuation Form if needed): **CAMO-13-24236 the lab rec'd 1 8260b container coc indicates 2.**
CAMO-13-24229 for NH3+NO3/NO2+PO4 container received broken
CAMO-13-24253 the lab rec'd 2 containers each for PCB, NMED-HEXP coc indicates 3.
CAMO-13-24253 for SVOA the lab rec'd 1 broken, 1 not rec'd coc indicates 3.
CAMO-13-24227 for SVOA, PCB the lab rec'd 1 container each coc indicates 3.
CAMO-13-24228 for SVOA, NMED-HEXP, PCB the lab rec'd 1 container each coc indicates 3 each.

PM (PMA) review Initials PH Date 11/13/12 Page 1 of 1

Subject: Re: Issues from today 11,10,12
From: Pat Dent <Pat.Dent@gel.com>
Date: 11/10/2012 3:58 PM
To: "Keith R. Greene" <kgreene@lanl.gov>
CC: "team.davis" <team.davis@gel.com>, LANL@amrad.com

In addition to the first E-mail RN#2013-297
Sample ID-CAMO-13-24253 the lab received 2 containers each for NMED-HEXP, PCB coc indicates 3.

Patricia Dent
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Rd.
Charleston, S.C. 29407
Main: 843-556-8171 Ext 4264
Fax: 843-766-1178
Email: pad@gel.com
Web: www.gel.com

On 11/10/2012 3:37 PM, Pat Dent wrote:

> Good Afternoon all listed below are today's issues
> Containers received for Gross A/B was preserved prior to analysis.
>
> RN#2013-297
> Sample ID-**CAMO-13-24229 for NH3+NO3/NO2+PO4 container was received broken, please advise**.
> CAMO-13-24253 for SVOA 1-container not received, 1 received broken.
> CAMO-13-24227 for SVOA, PCB the lab rec'd 1 container each coc indicates 3
> CAMO-13-24228 for SVOA, PCB, NMED-HEXP the lab rec'd 1 container each coc indicates 3.
> CAMO-13-24236 for 8260b the lab rec'd 1 container coc indicates 2.
>
> Thanks!!
>
> --
> Patricia Dent
> Project Manager Assistant
> GEL Laboratories, LLC
> 2040 Savage Rd.
> Charleston, S.C. 29407
> Main: 843-556-8171 Ext 4264
> Fax: 843-766-1178
> Email: pad@gel.com
> Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 09NOV12
ACTWGT: 56.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

5c

50DC3/EE3B/10BC

FedEx Express

J111311060601 25

1 of 3

TRK# 0201 5462 9832 5219

MASTER

SATURDAY ### A1
PRIORITY OVERNIGHT

X0 CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 09NOV12
ACTWGT: 42.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

4c

50DC3/EE3B/10BC

FedEx Express

J111311060601 25

3 of 3

MPS# 0263 5462 9832 5230

Mstr# 5462 9832 5219

0201

SATURDAY ### A1
PRIORITY OVERNIGHT

X0 CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 09NOV12
ACTWGT: 48.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

4c

50DC7/EE38/10BC

FedEx Express

J111311060601 25

2 of 3

MPS# 0263 5462 9832 5220

Mstr# 5462 9832 5219

0201

SATURDAY ### A1
PRIORITY OVERNIGHT

X0 CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Volatile Analysis

Case Narrative

ChemStation Case Narrative
ARS International (ARSL)
SDG 2013-297

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 8260B DOE-AL
Analytical Batch Number:	1264307

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

Sample ID	Client ID
314987002	CAMO-13-24253
314987006	CAMO-13-24227
314987008	CAMO-13-24228
314987011	CAMO-13-24236
1202782450	Method Blank (MB)
1202782451	315285002(WST50-12-23903) Post Spike (PS)
1202782452	315285002(WST50-12-23903) Post Spike Duplicate (PSD)
1202782453	Laboratory Control Sample (LCS)
1202782454	Laboratory Control Sample (LCS)
1202784990	Method Blank (MB)
1202784991	Laboratory Control Sample (LCS)
1202784992	Laboratory Control Sample (LCS)

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 18.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 19.1.2. False positive analytes are designated on the quantitation report with a ’d’ qualifier.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package.

The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement
The blanks analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
Surrogate recoveries in all client and quality control samples were within the acceptance limits.

Laboratory Control Sample (LCS) Recovery
The LCS 1202782453 (LCS) recoveries were not all within the acceptance limits. The unacceptable recoveries were less than 5% of the requested analyte list. This satisfies the client criteria. The results are reported. See the Data Exception Report in the miscellaneous section of the data package.

QC Sample Designation
Sample 315285002 (WST50-12-23903) was designated for spike analysis.

Matrix Spike (PS) Recovery Statement
The spike 1202782451 (WST50-12-23903) recoveries were not all within the acceptance limits. See the Data Exception Report in the miscellaneous section of the data package.

Matrix Spike Duplicate (PSD) Recovery Statement
The spike duplicate 1202782452 (WST50-12-23903) recoveries were not all within the acceptance limits. See the Data Exception Report in the miscellaneous section of the data package.

Relative Percent Difference (RPD) Statement
The RPDs between the matrix spike pair met the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-analyses were not required for samples in this SDG.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1145021.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) may be requested for this sample delivery group/work order. Please note that non-requested target analytes that are reported on the quantitation reports will be present on the Form I. These detected analytes are included in the calibrated method and as a result will be reported on the Sample Data Summary (Form I) or Certificate of Analysis (C of A). TIC data, if requested, are included on the Sample Data Summary (Form I) and are also included with the sample raw data.

Additional Comments
Additional comments were not required for this SDG.

Residual Chlorine
Residual Chlorine was not detected in any of the samples in this SDG.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOA1.I	Agilent 6890/5973 GC/MS w/ OI 4560/Archon Autosampler	HP6890/HP5973	RTX-624	Restek, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-297 GEL Work Order: 314987

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Erin Haubert **Name:** **Erin Haubert**

Date: **06 DEC 2012** **Title:** **Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987002**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24253**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 06:35**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 06:35**				
Data File:	**111612V1\1M533.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987002**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24253**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 06:35**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 06:35**				
Data File:	**111612V1\1M533.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987002**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24253**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 06:35**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 06:35**				
Data File:	**111612V1\1M533.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	53.9	50.0	ug/L	108	(78%-124%)
Bromofluorobenzene	49.1	50.0	ug/L	98.2	(80%-120%)
Toluene-d8	51.8	50.0	ug/L	104	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987006**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24227**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 07:05**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 07:05**				
Data File:	**111612V1\1M534.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987006**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24227**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 07:05**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 07:05**				
Data File:	**111612V1\1M534.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987006**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24227**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 07:05**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 07:05**				
Data File:	**111612V1\1M534.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	54.4	50.0	ug/L	109	(78%-124%)
Bromofluorobenzene	49.2	50.0	ug/L	98.4	(80%-120%)
Toluene-d8	52.0	50.0	ug/L	104	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987008**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24228**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 07:36**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 07:36**				
Data File:	**111612V1\1M535.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987008**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24228**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 07:36**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 07:36**				
Data File:	**111612V1\1M535.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987008**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24228**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 07:36**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 07:36**				
Data File:	**111612V1\1M535.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	53.6	50.0	ug/L	107	(78%-124%)
Bromofluorobenzene	48.4	50.0	ug/L	96.7	(80%-120%)
Toluene-d8	50.3	50.0	ug/L	101	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987011**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24236**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 08:07**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 08:07**				
Data File:	**111612V1\1M536.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987011**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24236**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 08:07**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 08:07**				
Data File:	**111612V1\1M536.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987011**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24236**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 08:07**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 08:07**				
Data File:	**111612V1\1M536.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	55.8	50.0	ug/L	112	(78%-124%)
Bromofluorobenzene	48.7	50.0	ug/L	97.4	(80%-120%)
Toluene-d8	52.0	50.0	ug/L	104	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2013-297

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1202782453	LCS for batch 1264307	106	104	95
1202782454	LCS for batch 1264307	104	102	99
1202782450	MB for batch 1264307	107	103	99
1202782451	WST50-12-23903PS	110	101	94
1202782452	WST50-12-23903PSD	108	103	94
1202784991	LCS for batch 1264307	109	103	97
1202784992	LCS for batch 1264307	103	100	98
1202784990	MB for batch 1264307	105	102	96
314987002	CAMO-13-24253	108	104	98
314987006	CAMO-13-24227	109	104	98
314987008	CAMO-13-24228	107	101	97
314987011	CAMO-13-24236	112	104	97

Surrogate		Acceptance Limits
DCED4	= 1,2-Dichloroethane-d4	(78%-124%)
TOL	= Toluene-d8	(80%-120%)
BFB	= Bromofluorobenzene	(80%-120%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **WST50-12-23903PS**
Lab Sample ID: **1202782451**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/16/2012 18:47**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	PS	Dichlorodifluoromethane	50.0	0.00	U	65.3	131 *	36-123
74-87-3	PS	Chloromethane	50.0	0.00	U	57.4	115	47-134
75-01-4	PS	Vinyl chloride	50.0	0.00	U	51.3	103	49-129
74-83-9	PS	Bromomethane	50.0	0.00	U	54.7	109	56-127
75-00-3	PS	Chloroethane	50.0	0.00	U	55.6	111	67-122
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	U	70.4	141 *	60-123
60-29-7	PS	Ethyl ether	50.0	0.00	U	52.0	104	69-121
67-64-1	PS	Acetone	250	4.75	J	130	50	30-143
75-05-8	PS	Acetonitrile	1250	0.00	U	1210	97	60-133
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	U	63.1	126	67-132
74-88-4	PS	Iodomethane	250	0.00	U	303	121	69-147
75-09-2	PS	Methylene chloride	50.0	0.00	U	53.1	106	56-135
75-15-0	PS	Carbon disulfide	250	0.00	U	300	120	65-153
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	U	56.3	113	73-126
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	U	56.9	114	69-128
108-05-4	PS	Vinyl acetate	250	0.00	U	0.00	0 *	50-143
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	U	53.9	108	75-124
78-93-3	PS	2-Butanone	250	0.00	U	173	69	30-140
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	U	54.8	110	52-147
594-20-7	PS	2,2-Dichloropropane	50.0	0.00	U	66.7	133	67-143
67-66-3	PS	Chloroform	50.0	0.00	U	55.6	111	75-125
74-97-5	PS	Bromochloromethane	50.0	0.00	U	54.2	108	80-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **WST50-12-23903PS**
Lab Sample ID: **1202782451**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/16/2012 18:47**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	PS	1,1,1-Trichloroethane	50.0	0.00	U	66.0	132	69-140
563-58-6	PS	1,1-Dichloropropene	50.0	0.00	U	60.8	122	71-130
71-36-3	PS	n-Butyl alcohol	5000	0.00	U	6010	120	53-150
56-23-5	PS	Carbon tetrachloride	50.0	0.00	U	69.7	139	69-142
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	U	54.5	109	72-126
71-43-2	PS	Benzene	50.0	0.00	U	51.4	103	73-119
79-01-6	PS	Trichloroethylene	50.0	0.00	U	56.3	113	54-147
78-87-5	PS	1,2-Dichloropropane	50.0	0.00	U	50.1	100	78-123
75-27-4	PS	Bromodichloromethane	50.0	0.00	U	56.7	113	76-131
74-95-3	PS	Dibromomethane	50.0	0.00	U	53.8	108	79-120
108-10-1	PS	4-Methyl-2-pentanone	250	0.00	U	262	105	68-136
10061-01-5	PS	cis-1,3-Dichloropropylene	50.0	0.00	U	55.8	112	72-134
108-88-3	PS	Toluene	50.0	0.00	U	51.3	103	62-126
10061-02-6	PS	trans-1,3-Dichloropropylene	50.0	0.00	U	56.4	113	72-133
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	U	47.8	96	74-120
591-78-6	PS	2-Hexanone	250	0.00	U	202	81	31-132
142-28-9	PS	1,3-Dichloropropane	50.0	0.00	U	50.0	100	73-121
127-18-4	PS	Tetrachloroethylene	50.0	0.00	U	57.2	114	54-139
124-48-1	PS	Dibromochloromethane	50.0	0.00	U	57.7	115	74-128
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	U	53.1	106	80-120
108-90-7	PS	Chlorobenzene	50.0	0.540	J	52.3	103	73-119
100-41-4	PS	Ethylbenzene	50.0	0.00	U	54.9	110	66-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297** **Sample Type:** **Post Spike**
Client ID: **WST50-12-23903PS** **Matrix:** **W**
Lab Sample ID: **1202782451**
Instrument: **VOA1.I** **Analysis Date:** **11/16/2012 18:47** **Dilution: 1**
Analyst: **ACJ** **Prep Batch ID:** **1264307**
Purge Vol: **5 mL** **Batch ID:** **1264307**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	PS	m,p-Xylenes	100	0.00	U	111	111	56-134
95-47-6	PS	o-Xylene	50.0	0.00	U	56.4	113	68-126
100-42-5	PS	Styrene	50.0	0.00	U	1.74	3 *	57-138
75-25-2	PS	Bromoform	50.0	0.00	U	57.5	115	66-129
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	U	48.5	97	44-146
96-18-4	PS	1,2,3-Trichloropropane	50.0	0.00	U	52.4	105	68-129
108-86-1	PS	Bromobenzene	50.0	0.00	U	50.6	101	70-122
103-65-1	PS	n-Propylbenzene	50.0	0.00	U	54.8	110	61-131
95-49-8	PS	2-Chlorotoluene	50.0	0.00	U	52.6	105	66-126
98-82-8	PS	Isopropylbenzene	50.0	0.00	U	58.0	116	65-130
108-67-8	PS	1,3,5-Trimethylbenzene	50.0	0.00	U	56.8	114	58-134
106-43-4	PS	4-Chlorotoluene	50.0	0.00	U	52.7	105	63-125
98-06-6	PS	tert-Butylbenzene	50.0	0.00	U	58.9	118	66-129
95-63-6	PS	1,2,4-Trimethylbenzene	50.0	0.00	U	56.0	112	60-131
135-98-8	PS	sec-Butylbenzene	50.0	0.00	U	57.8	116	62-130
99-87-6	PS	4-Isopropyltoluene	50.0	0.00	U	59.1	118	62-132
541-73-1	PS	1,3-Dichlorobenzene	50.0	0.00	U	51.8	104	66-121
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	U	50.0	100	65-119
104-51-8	PS	n-Butylbenzene	50.0	0.00	U	57.9	116	55-134
96-12-8	PS	1,2-Dibromo-3-chloropropane	50.0	0.00	U	51.6	103	58-137
87-68-3	PS	Hexachlorobutadiene	50.0	0.00	U	54.5	109	49-139
91-20-3	PS	Naphthalene	50.0	0.00	U	49.2	98	46-145

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Sample Type: **Post Spike**
Client ID: **WST50-12-23903PS**
Matrix: **W**
Lab Sample ID: **1202782451**
Instrument: **VOA1.I**
Analysis Date: **11/16/2012 18:47**
Dilution: 1
Analyst: **ACJ**
Prep Batch ID: **1264307**
Purge Vol: **5 mL**
Batch ID: **1264307**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	PS	1,2,3-Trichlorobenzene	50.0	0.00	U	50.3	101	54-134
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	U	57.7	115	79-128
120-82-1	PS	1,2,4-Trichlorobenzene	50.0	0.00	U	52.8	106	55-128
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	U	51.5	103	68-121

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **WST50-12-23903PSD**
Lab Sample ID: **1202782452**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/16/2012 19:17**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
75-71-8	PSD	Dichlorodifluoromethane	50.0	0.00	U	58.2	116	36-123	12	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	U	52.1	104	47-134	10	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	U	43.3	87	49-129	17	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	U	51.6	103	56-127	6	0-20
75-00-3	PSD	Chloroethane	50.0	0.00	U	51.5	103	67-122	8	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	U	61.9	124 *	60-123	13	0-20
60-29-7	PSD	Ethyl ether	50.0	0.00	U	51.3	103	69-121	1	0-20
67-64-1	PSD	Acetone	250	4.75	J	127	49	30-143	2	0-20
75-05-8	PSD	Acetonitrile	1250	0.00	U	1200	96	60-133	0	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	U	57.2	114	67-132	10	0-20
74-88-4	PSD	Iodomethane	250	0.00	U	287	115	69-147	5	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	U	52.1	104	56-135	2	0-20
75-15-0	PSD	Carbon disulfide	250	0.00	U	279	111	65-153	7	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	U	55.5	111	73-126	1	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	U	53.2	106	69-128	7	0-20
108-05-4	PSD	Vinyl acetate	250	0.00	U	0.00	0 *	50-143	0	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	U	51.6	103	75-124	4	0-20
78-93-3	PSD	2-Butanone	250	0.00	U	170	68	30-140	2	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	U	52.7	105	52-147	4	0-20
594-20-7	PSD	2,2-Dichloropropane	50.0	0.00	U	60.9	122	67-143	9	0-20
67-66-3	PSD	Chloroform	50.0	0.00	U	52.4	105	75-125	6	0-20
74-97-5	PSD	Bromochloromethane	50.0	0.00	U	53.0	106	80-120	2	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **WST50-12-23903PSD**
Lab Sample ID: **1202782452**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/16/2012 19:17**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
71-55-6	PSD	1,1,1-Trichloroethane	50.0	0.00	U	60.0	120	69-140	10	0-20
563-58-6	PSD	1,1-Dichloropropene	50.0	0.00	U	54.7	109	71-130	11	0-20
71-36-3	PSD	n-Butyl alcohol	5000	0.00	U	6010	120	53-150	0	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	U	62.3	125	69-142	11	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	U	52.7	105	72-126	3	0-20
71-43-2	PSD	Benzene	50.0	0.00	U	48.4	97	73-119	6	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	U	52.2	104	54-147	8	0-20
78-87-5	PSD	1,2-Dichloropropane	50.0	0.00	U	47.7	95	78-123	5	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	U	54.5	109	76-131	4	0-20
74-95-3	PSD	Dibromomethane	50.0	0.00	U	52.5	105	79-120	2	0-20
108-10-1	PSD	4-Methyl-2-pentanone	250	0.00	U	264	105	68-136	1	0-20
10061-01-5	PSD	cis-1,3-Dichloropropylene	50.0	0.00	U	54.1	108	72-134	3	0-20
108-88-3	PSD	Toluene	50.0	0.00	U	49.4	99	62-126	4	0-20
10061-02-6	PSD	trans-1,3-Dichloropropylene	50.0	0.00	U	56.8	114	72-133	1	0-20
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	U	48.3	97	74-120	1	0-20
591-78-6	PSD	2-Hexanone	250	0.00	U	205	82	31-132	2	0-20
142-28-9	PSD	1,3-Dichloropropane	50.0	0.00	U	50.0	100	73-121	0	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	U	53.3	107	54-139	7	0-20
124-48-1	PSD	Dibromochloromethane	50.0	0.00	U	58.0	116	74-128	0	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	U	53.6	107	80-120	1	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.540	J	50.6	100	73-119	3	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	U	51.5	103	66-125	6	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **WST50-12-23903PSD**
Lab Sample ID: **1202782452**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/16/2012 19:17**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	PSD	m,p-Xylenes	100	0.00	U	106	106	56-134	5	0-20
95-47-6	PSD	o-Xylene	50.0	0.00	U	55.0	110	68-126	3	0-20
100-42-5	PSD	Styrene	50.0	0.00	U	1.87	4 *	57-138	7	0-20
75-25-2	PSD	Bromoform	50.0	0.00	U	58.0	116	66-129	1	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	U	48.2	96	44-146	1	0-20
96-18-4	PSD	1,2,3-Trichloropropane	50.0	0.00	U	51.9	104	68-129	1	0-20
108-86-1	PSD	Bromobenzene	50.0	0.00	U	49.2	98	70-122	3	0-20
103-65-1	PSD	n-Propylbenzene	50.0	0.00	U	51.3	103	61-131	7	0-20
95-49-8	PSD	2-Chlorotoluene	50.0	0.00	U	50.8	102	66-126	4	0-20
98-82-8	PSD	Isopropylbenzene	50.0	0.00	U	54.4	109	65-130	7	0-20
108-67-8	PSD	1,3,5-Trimethylbenzene	50.0	0.00	U	53.5	107	58-134	6	0-20
106-43-4	PSD	4-Chlorotoluene	50.0	0.00	U	50.5	101	63-125	4	0-20
98-06-6	PSD	tert-Butylbenzene	50.0	0.00	U	54.7	109	66-129	7	0-20
95-63-6	PSD	1,2,4-Trimethylbenzene	50.0	0.00	U	53.3	107	60-131	5	0-20
135-98-8	PSD	sec-Butylbenzene	50.0	0.00	U	53.8	108	62-130	7	0-20
99-87-6	PSD	4-Isopropyltoluene	50.0	0.00	U	55.0	110	62-132	7	0-20
541-73-1	PSD	1,3-Dichlorobenzene	50.0	0.00	U	49.5	99	66-121	5	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	U	48.5	97	65-119	3	0-20
104-51-8	PSD	n-Butylbenzene	50.0	0.00	U	53.7	107	55-134	7	0-20
96-12-8	PSD	1,2-Dibromo-3-chloropropane	50.0	0.00	U	53.0	106	58-137	3	0-20
87-68-3	PSD	Hexachlorobutadiene	50.0	0.00	U	51.5	103	49-139	6	0-20
91-20-3	PSD	Naphthalene	50.0	0.00	U	50.2	100	46-145	2	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **WST50-12-23903PSD**
Lab Sample ID: **1202782452**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/16/2012 19:17**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
87-61-6	PSD	1,2,3-Trichlorobenzene	50.0	0.00	U	50.4	101	54-134	0	0-20
630-20-6	PSD	1,1,1,2-Tetrachloroethane	50.0	0.00	U	56.3	113	79-128	2	0-20
120-82-1	PSD	1,2,4-Trichlorobenzene	50.0	0.00	U	51.4	103	55-128	3	0-20
95-50-1	PSD	1,2-Dichlorobenzene	50.0	0.00	U	49.9	100	68-121	3	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202782453**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/16/2012 11:38**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	62.0	124	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	57.7	115	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	53.1	106	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	56.6	113	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	57.3	115	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	66.0	132 *	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	53.2	106	74-120
67-64-1	LCS	Acetone	250	0.0	344	138	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	1220	98	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	62.0	124	76-127
74-88-4	LCS	Iodomethane	250	0.0	304	121	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	53.9	108	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	301	121	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	56.9	114	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	57.6	115	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	276	111	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	54.4	109	79-120
78-93-3	LCS	2-Butanone	250	0.0	376	150	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	55.2	110	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	65.5	131	76-145
67-66-3	LCS	Chloroform	50.0	0.0	55.1	110	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	55.0	110	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202782453**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/16/2012 11:38**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	63.0	126	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	59.4	119	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	6140	123	66-138
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	64.5	129	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	53.6	107	75-121
71-43-2	LCS	Benzene	50.0	0.0	52.5	105	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	55.7	111	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	50.9	102	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	54.9	110	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	53.6	107	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	328	131	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	57.6	115	80-127
108-88-3	LCS	Toluene	50.0	0.0	53.8	108	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	58.4	117	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	51.0	102	79-120
591-78-6	LCS	2-Hexanone	250	0.0	409	164 *	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	52.0	104	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	56.9	114	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	57.7	115	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	55.5	111	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	53.7	107	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	56.8	114	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202782453**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/16/2012 11:38**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	115	115	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	59.3	119	80-120
100-42-5	LCS	Styrene	50.0	0.0	60.0	120	80-121
75-25-2	LCS	Bromoform	50.0	0.0	55.8	112	72-125
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	49.5	99	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	53.0	106	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	52.3	105	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	55.6	111	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	54.1	108	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	59.5	119	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	58.1	116	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	53.8	108	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	59.0	118	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	57.9	116	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	58.9	118	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	60.4	121	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	52.9	106	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	51.9	104	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	58.4	117	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	48.8	98	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	55.2	110	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	51.3	103	71-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202782453**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/16/2012 11:38**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	52.3	105	73-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	58.6	117	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	55.1	110	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	53.5	107	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202782454**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/16/2012 13:41**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS	Acrolein	250	0.0	239	96	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	300	120	65-157
107-05-1	LCS	Allyl chloride	250	0.0	260	104	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	236	94	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	56.1	112	45-159
107-12-0	LCS	Propionitrile	250	0.0	240	96	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	238	95	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2430	97	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	254	102	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	265	106	66-132

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202784991**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/17/2012 03:32**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	48.0	96	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	50.3	101	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	43.8	88	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	51.0	102	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	49.4	99	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	52.5	105	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	51.6	103	74-120
67-64-1	LCS	Acetone	250	0.0	299	120	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	1130	90	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	51.2	102	76-127
74-88-4	LCS	Iodomethane	250	0.0	277	111	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	50.6	101	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	258	103	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	55.8	112	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	50.1	100	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	224	89	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	49.7	99	79-120
78-93-3	LCS	2-Butanone	250	0.0	329	132	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	52.1	104	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	52.8	106	76-145
67-66-3	LCS	Chloroform	50.0	0.0	51.0	102	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	52.9	106	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202784991**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/17/2012 03:32**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	53.9	108	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	50.3	101	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	5620	112	66-138
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	53.6	107	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	51.1	102	75-121
71-43-2	LCS	Benzene	50.0	0.0	47.5	95	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	49.8	100	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	48.3	97	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	53.1	106	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	52.1	104	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	275	110	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	54.4	109	80-127
108-88-3	LCS	Toluene	50.0	0.0	47.3	95	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	54.7	109	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	48.7	97	79-120
591-78-6	LCS	2-Hexanone	250	0.0	322	129	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	49.7	99	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	47.8	96	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	55.6	111	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	53.0	106	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	49.2	98	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	49.3	99	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202784991**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/17/2012 03:32**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	102	102	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	52.9	106	80-120
100-42-5	LCS	Styrene	50.0	0.0	54.7	109	80-121
75-25-2	LCS	Bromoform	50.0	0.0	54.7	109	72-125
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	46.4	93	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	50.9	102	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	49.3	99	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	47.8	96	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	48.8	98	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	52.2	104	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	51.1	102	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	48.3	97	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	51.8	104	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	51.3	103	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	50.3	101	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	50.6	101	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	47.7	95	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	46.5	93	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	48.3	97	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	46.4	93	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	46.4	93	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	48.0	96	71-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202784991**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/17/2012 03:32**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	47.2	94	73-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	54.3	109	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	46.4	93	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	49.6	99	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **LCS for batch 1264307**
Lab Sample ID: **1202784992**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/17/2012 05:04**
Prep Batch ID: **1264307**
Batch ID: **1264307**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS	Acrolein	250	0.0	211	85	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	259	104	65-157
107-05-1	LCS	Allyl chloride	250	0.0	240	96	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	226	91	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	50.5	101	45-159
107-12-0	LCS	Propionitrile	250	0.0	233	93	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	229	91	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2320	93	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	244	98	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	255	102	66-132

Method Blank Summary

SDG Number:	**2013-297**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1264307**	**Instrument ID:**	**VOA1.I**	**Data File:**	**111612V1\1M510BA.D**
Lab Sample ID:	**1202782450**	**Prep Date:**	**11/16/2012 15:13**	**Analyzed:**	**11/16/12 15:13**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1264307	1202782453	111612V1\1M503LA.D	11/16/12	1138
02 LCS for batch 1264307	1202782454	111612V1\1M507SA.D	11/16/12	1341
03 WST50-12-23903PS	1202782451	111612V1\1M517.D	11/16/12	1847
04 WST50-12-23903PSD	1202782452	111612V1\1M518.D	11/16/12	1917

Method Blank Summary

SDG Number:	**2013-297**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1264307**	**Instrument ID:**	**VOA1.I**	**Data File:**	**111612V1\1M532BA.D**
Lab Sample ID:	**1202784990**	**Prep Date:**	**11/17/2012 06:04**	**Analyzed:**	**11/17/12 06:04**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
06 LCS for batch 1264307	1202784991	111612V1\1M527LA.D	11/17/12	0332
07 LCS for batch 1264307	1202784992	111612V1\1M530SA.D	11/17/12	0504
08 CAMO-13-24253	314987002	111612V1\1M533.D	11/17/12	0635
09 CAMO-13-24227	314987006	111612V1\1M534.D	11/17/12	0705
10 CAMO-13-24228	314987008	111612V1\1M535.D	11/17/12	0736
11 CAMO-13-24236	314987011	111612V1\1M536.D	11/17/12	0807

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782450**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 15:13**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 15:13**				
Data File:	**111612V1\1M510BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782450**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 15:13**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 15:13**				
Data File:	**111612V1\1M510BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782450**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 15:13**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 15:13**				
Data File:	**111612V1\1M510BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	53.5	50.0	ug/L	107	(78%-124%)
Bromofluorobenzene	49.4	50.0	ug/L	98.9	(80%-120%)
Toluene-d8	51.4	50.0	ug/L	103	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782451**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 18:47**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 18:47**				
Data File:	**111612V1\1M517.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		65.3	ug/L	0.300	1.00
74-87-3	Chloromethane		57.4	ug/L	0.300	1.00
75-01-4	Vinyl chloride		51.3	ug/L	0.300	1.00
74-83-9	Bromomethane		54.7	ug/L	0.300	1.00
75-00-3	Chloroethane		55.6	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		70.4	ug/L	0.300	1.00
60-29-7	Ethyl ether		52.0	ug/L	0.300	1.00
67-64-1	Acetone		130	ug/L	3.00	10.0
75-05-8	Acetonitrile		1210	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		63.1	ug/L	0.300	1.00
74-88-4	Iodomethane		303	ug/L	1.50	5.00
75-09-2	Methylene chloride		53.1	ug/L	3.00	10.0
75-15-0	Carbon disulfide		300	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		56.3	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		56.9	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		53.9	ug/L	0.300	1.00
78-93-3	2-Butanone		173	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		54.8	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		66.7	ug/L	0.300	1.00
67-66-3	Chloroform		55.6	ug/L	0.300	1.00
74-97-5	Bromochloromethane		54.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		66.0	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		60.8	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		6010	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		69.7	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		54.5	ug/L	0.300	1.00
71-43-2	Benzene		51.4	ug/L	0.300	1.00
79-01-6	Trichloroethylene		56.3	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		50.1	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		56.7	ug/L	0.300	1.00
74-95-3	Dibromomethane		53.8	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		262	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		55.8	ug/L	0.300	1.00
108-88-3	Toluene		51.3	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		56.4	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		47.8	ug/L	0.300	1.00
591-78-6	2-Hexanone		202	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782451**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 18:47**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 18:47**				
Data File:	**111612V1\1M517.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		50.0	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		57.2	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		57.7	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		53.1	ug/L	0.300	1.00
108-90-7	Chlorobenzene		52.3	ug/L	0.300	1.00
100-41-4	Ethylbenzene		54.9	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		111	ug/L	0.300	2.00
95-47-6	o-Xylene		56.4	ug/L	0.300	1.00
100-42-5	Styrene		1.74	ug/L	0.300	1.00
75-25-2	Bromoform		57.5	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		48.5	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		52.4	ug/L	0.300	1.00
108-86-1	Bromobenzene		50.6	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		54.8	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		52.6	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		58.0	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		56.8	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		52.7	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		58.9	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		56.0	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		57.8	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		59.1	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		51.8	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		50.0	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		57.9	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		51.6	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		54.5	ug/L	0.300	1.00
91-20-3	Naphthalene		49.2	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		50.3	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782451**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 18:47**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 18:47**				
Data File:	**111612V1\1M517.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		57.7	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		52.8	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		51.5	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	55.2	50.0	ug/L	110	(78%-124%)
Bromofluorobenzene	47.2	50.0	ug/L	94.4	(80%-120%)
Toluene-d8	50.6	50.0	ug/L	101	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782452**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 19:17**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 19:17**				
Data File:	**111612V1\1M518.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		58.2	ug/L	0.300	1.00
74-87-3	Chloromethane		52.1	ug/L	0.300	1.00
75-01-4	Vinyl chloride		43.3	ug/L	0.300	1.00
74-83-9	Bromomethane		51.6	ug/L	0.300	1.00
75-00-3	Chloroethane		51.5	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		61.9	ug/L	0.300	1.00
60-29-7	Ethyl ether		51.3	ug/L	0.300	1.00
67-64-1	Acetone		127	ug/L	3.00	10.0
75-05-8	Acetonitrile		1200	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		57.2	ug/L	0.300	1.00
74-88-4	Iodomethane		287	ug/L	1.50	5.00
75-09-2	Methylene chloride		52.1	ug/L	3.00	10.0
75-15-0	Carbon disulfide		279	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		55.5	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		53.2	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		51.6	ug/L	0.300	1.00
78-93-3	2-Butanone		170	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		52.7	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		60.9	ug/L	0.300	1.00
67-66-3	Chloroform		52.4	ug/L	0.300	1.00
74-97-5	Bromochloromethane		53.0	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		60.0	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		54.7	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		6010	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		62.3	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		52.7	ug/L	0.300	1.00
71-43-2	Benzene		48.4	ug/L	0.300	1.00
79-01-6	Trichloroethylene		52.2	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		47.7	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		54.5	ug/L	0.300	1.00
74-95-3	Dibromomethane		52.5	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		264	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		54.1	ug/L	0.300	1.00
108-88-3	Toluene		49.4	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		56.8	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.3	ug/L	0.300	1.00
591-78-6	2-Hexanone		205	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782452**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 19:17**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 19:17**				
Data File:	**111612V1\1M518.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		50.0	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		53.3	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		58.0	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		53.6	ug/L	0.300	1.00
108-90-7	Chlorobenzene		50.6	ug/L	0.300	1.00
100-41-4	Ethylbenzene		51.5	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		106	ug/L	0.300	2.00
95-47-6	o-Xylene		55.0	ug/L	0.300	1.00
100-42-5	Styrene		1.87	ug/L	0.300	1.00
75-25-2	Bromoform		58.0	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		48.2	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		51.9	ug/L	0.300	1.00
108-86-1	Bromobenzene		49.2	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		51.3	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		50.8	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		54.4	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		53.5	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		50.5	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		54.7	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		53.3	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		53.8	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		55.0	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		49.5	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		48.5	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		53.7	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		53.0	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		51.5	ug/L	0.300	1.00
91-20-3	Naphthalene		50.2	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		50.4	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/07/2012 14:30**	**Matrix:**	**W**
Lab Sample ID:	**1202782452**	**Date Received:**	**11/15/2012 09:00**		
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**WST50-12-23903PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 19:17**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 19:17**				
Data File:	**111612V1\1M518.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		56.3	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		51.4	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		49.9	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	54.1	50.0	ug/L	108	(78%-124%)
Bromofluorobenzene	47.0	50.0	ug/L	94.0	(80%-120%)
Toluene-d8	51.4	50.0	ug/L	103	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782453**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 11:38**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 11:38**				
Data File:	**111612V1\1M503LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		62.0	ug/L	0.300	1.00
74-87-3	Chloromethane		57.7	ug/L	0.300	1.00
75-01-4	Vinyl chloride		53.1	ug/L	0.300	1.00
74-83-9	Bromomethane		56.6	ug/L	0.300	1.00
75-00-3	Chloroethane		57.3	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		66.0	ug/L	0.300	1.00
60-29-7	Ethyl ether		53.2	ug/L	0.300	1.00
67-64-1	Acetone		344	ug/L	3.00	10.0
75-05-8	Acetonitrile		1220	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		62.0	ug/L	0.300	1.00
74-88-4	Iodomethane		304	ug/L	1.50	5.00
75-09-2	Methylene chloride		53.9	ug/L	3.00	10.0
75-15-0	Carbon disulfide		301	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		56.9	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		57.6	ug/L	0.300	1.00
108-05-4	Vinyl acetate		276	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		54.4	ug/L	0.300	1.00
78-93-3	2-Butanone		376	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		55.2	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		65.5	ug/L	0.300	1.00
67-66-3	Chloroform		55.1	ug/L	0.300	1.00
74-97-5	Bromochloromethane		55.0	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		63.0	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		59.4	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		6140	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		64.5	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		53.6	ug/L	0.300	1.00
71-43-2	Benzene		52.5	ug/L	0.300	1.00
79-01-6	Trichloroethylene		55.7	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		50.9	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		54.9	ug/L	0.300	1.00
74-95-3	Dibromomethane		53.6	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		328	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		57.6	ug/L	0.300	1.00
108-88-3	Toluene		53.8	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		58.4	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		51.0	ug/L	0.300	1.00
591-78-6	2-Hexanone		409	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782453**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 11:38**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 11:38**				
Data File:	**111612V1\1M503LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		52.0	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		56.9	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		57.7	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		55.5	ug/L	0.300	1.00
108-90-7	Chlorobenzene		53.7	ug/L	0.300	1.00
100-41-4	Ethylbenzene		56.8	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		115	ug/L	0.300	2.00
95-47-6	o-Xylene		59.3	ug/L	0.300	1.00
100-42-5	Styrene		60.0	ug/L	0.300	1.00
75-25-2	Bromoform		55.8	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		49.5	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		53.0	ug/L	0.300	1.00
108-86-1	Bromobenzene		52.3	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		55.6	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		54.1	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		59.5	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		58.1	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		53.8	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		59.0	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		57.9	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		58.9	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		60.4	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		52.9	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		51.9	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		58.4	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		48.8	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		55.2	ug/L	0.300	1.00
91-20-3	Naphthalene		51.3	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		52.3	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782453**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 11:38**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 11:38**				
Data File:	**111612V1\1M503LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		58.6	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		55.1	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		53.5	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	53.2	50.0	ug/L	106	(78%-124%)
Bromofluorobenzene	47.4	50.0	ug/L	94.8	(80%-120%)
Toluene-d8	52.1	50.0	ug/L	104	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782454**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 13:41**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 13:41**				
Data File:	**111612V1\1M507SA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782454**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 13:41**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 13:41**				
Data File:	**111612V1\1M507SA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein		239	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		300	ug/L	1.50	5.00
107-05-1	Allyl chloride		260	ug/L	1.50	5.00
107-13-1	Acrylonitrile		236	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		56.1	ug/L	0.300	1.00
107-12-0	Propionitrile		240	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		238	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2430	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		254	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202782454**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/16/2012 13:41**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/16/2012 13:41**				
Data File:	**111612V1\1M507SA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		265	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	52.0	50.0	ug/L	104	(78%-124%)
Bromofluorobenzene	49.3	50.0	ug/L	98.6	(80%-120%)
Toluene-d8	50.9	50.0	ug/L	102	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784990**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 06:04**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 06:04**				
Data File:	**111612V1\1M532BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784990**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 06:04**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 06:04**				
Data File:	**111612V1\1M532BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784990**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 06:04**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 06:04**				
Data File:	**111612V1\1M532BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	52.6	50.0	ug/L	105	(78%-124%)
Bromofluorobenzene	47.8	50.0	ug/L	95.5	(80%-120%)
Toluene-d8	50.9	50.0	ug/L	102	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784991**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 03:32**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 03:32**				
Data File:	**111612V1\1M527LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		48.0	ug/L	0.300	1.00
74-87-3	Chloromethane		50.3	ug/L	0.300	1.00
75-01-4	Vinyl chloride		43.8	ug/L	0.300	1.00
74-83-9	Bromomethane		51.0	ug/L	0.300	1.00
75-00-3	Chloroethane		49.4	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		52.5	ug/L	0.300	1.00
60-29-7	Ethyl ether		51.6	ug/L	0.300	1.00
67-64-1	Acetone		299	ug/L	3.00	10.0
75-05-8	Acetonitrile		1130	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		51.2	ug/L	0.300	1.00
74-88-4	Iodomethane		277	ug/L	1.50	5.00
75-09-2	Methylene chloride		50.6	ug/L	3.00	10.0
75-15-0	Carbon disulfide		258	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		55.8	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		50.1	ug/L	0.300	1.00
108-05-4	Vinyl acetate		224	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		49.7	ug/L	0.300	1.00
78-93-3	2-Butanone		329	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		52.1	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		52.8	ug/L	0.300	1.00
67-66-3	Chloroform		51.0	ug/L	0.300	1.00
74-97-5	Bromochloromethane		52.9	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		53.9	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		50.3	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5620	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		53.6	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		51.1	ug/L	0.300	1.00
71-43-2	Benzene		47.5	ug/L	0.300	1.00
79-01-6	Trichloroethylene		49.8	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.3	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		53.1	ug/L	0.300	1.00
74-95-3	Dibromomethane		52.1	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		275	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		54.4	ug/L	0.300	1.00
108-88-3	Toluene		47.3	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		54.7	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.7	ug/L	0.300	1.00
591-78-6	2-Hexanone		322	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784991**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 03:32**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 03:32**				
Data File:	**111612V1\1M527LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		49.7	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		47.8	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		55.6	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		53.0	ug/L	0.300	1.00
108-90-7	Chlorobenzene		49.2	ug/L	0.300	1.00
100-41-4	Ethylbenzene		49.3	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		102	ug/L	0.300	2.00
95-47-6	o-Xylene		52.9	ug/L	0.300	1.00
100-42-5	Styrene		54.7	ug/L	0.300	1.00
75-25-2	Bromoform		54.7	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		46.4	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		50.9	ug/L	0.300	1.00
108-86-1	Bromobenzene		49.3	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		47.8	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		48.8	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		52.2	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		51.1	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		48.3	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		51.8	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		51.3	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		50.3	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		50.6	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		47.7	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		46.5	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		48.3	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		46.4	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		46.4	ug/L	0.300	1.00
91-20-3	Naphthalene		48.0	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		47.2	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784991**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 03:32**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 03:32**				
Data File:	**111612V1\1M527LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		54.3	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		46.4	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		49.6	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	54.4	50.0	ug/L	109	(78%-124%)
Bromofluorobenzene	48.3	50.0	ug/L	96.6	(80%-120%)
Toluene-d8	51.7	50.0	ug/L	103	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784992**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 05:04**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 05:04**				
Data File:	**111612V1\1M530SA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784992**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 05:04**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 05:04**				
Data File:	**111612V1\1M530SA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein		211	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		259	ug/L	1.50	5.00
107-05-1	Allyl chloride		240	ug/L	1.50	5.00
107-13-1	Acrylonitrile		226	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		50.5	ug/L	0.300	1.00
107-12-0	Propionitrile		233	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		229	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2320	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		244	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784992**				
Client Sample:	**QC for batch 1264307**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1264307**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1264307**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/17/2012 05:04**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/17/2012 05:04**				
Data File:	**111612V1\1M530SA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		255	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	51.4	50.0	ug/L	103	(78%-124%)
Bromofluorobenzene	49.1	50.0	ug/L	98.2	(80%-120%)
Toluene-d8	50.2	50.0	ug/L	100	(80%-120%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
30-NOV-12	Federal	Client Contract	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
VOA GC/MS	SW846 8260B DOE-AL	Liquid	ESHL, LANL
Batch ID:	**Sample Numbers:**		
1264307	See Below		

Potentially affected work order(s)(SDG): 314987(2013-297),315159(2013-306),315285(2013-311)

Application Issues:

Failed Recovery for MS/PS

Failed Recovery for LCS/LCSD

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. The recoveries for 2-Hexanone and Trichlorofluoromethane were outside of acceptance limits in LCS 1202782453. Trichlorofluoromethane 132% limits: 65-123% 2-Hexanone 164% limits: 53-158% 2. The recoveries for Dichlorodifluoromethane, Trichlorofluoromethane, Vinyl Acetate and Styrene were outside of acceptance limits in the matrix spike (1202782451). Of these compounds, the recoveries for Trichlorofluoromethane, Vinyl Acetate and Styrene were outside of acceptance limits in the MSD (1202782452) as well. The calculated relative percent differences for all compounds were within acceptance limits.	1. Narrate and report data. The number of unacceptable recoveries was less than five percent of the total number of requested target analytes. The client's acceptance criteria was satisfied. 2. Narrate and report data.

Originator's Name:

Amy Jamison 30-NOV-12

Data Validator/Group Leader:

Crystal Stacey 06-DEC-12

Semi-Volatile Analysis

Case Narrative

Semi-Volatile Case Narrative
ARS International (ARSL)
SDG 2013-297

Method/Analysis Information

Procedure:	**Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method:	SW846 8270C
Prep Method:	SW846 3510C
Analytical Batch Number:	1263326
Prep Batch Number:	1263325

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8270C:

Sample ID	Client ID
314987002	CAMO-13-24253
314987006	CAMO-13-24227
314987008	CAMO-13-24228
1202780153	Method Blank (MB)
1202780154	Laboratory Control Sample (LCS)
1202780155	315159003(CAMO-13-24250) Matrix Spike (MS)
1202780156	315159003(CAMO-13-24250) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 30.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 18.2.

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

CCV Requirements
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG in this batch met the acceptance criteria.

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria for this SDG in this batch.

Laboratory Control Sample (LCS) Recovery
The LCS(1202780154) recovered 1,4-Dioxane at 35% (limits are 41%-69%) and Hexachlorocyclopentadiene at 36% (limits are 38%-79%). The LCS spike failures represent less than 5% of the requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported.

QC Sample Designation
Sample 315159003 (CAMO-13-24250) was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The MS(1202780155)/MSD(1202780156) RPD value for Benzidine was 80%. The limit is 30%. Since Benzidine was individually within the acceptance limits for the MS and MSD, the non-conformance had no adverse impact on the data and the results have been reported.

Internal Standard (ISTD) Acceptance
The internal standard responses used to quantitate the requested target analytes were within the required acceptance criteria for the SDG associated samples in this batch.

Technical Information:

Holding Time Specifications
All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

Sample Dilutions
The samples in this SDG in this batch did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG in this analytical batch unless confirmations or dilutions were required.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception report 1142298 was generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

TIC Comment
Tentatively identified compounds (TIC) may be requested for samples in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

Additional Comments
Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

System Configuration

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
MSD3.I	Agilent 7890A/5975C GC/MS w/ 7683 Autosampler	HP7890A/HP5975C	DB-5MS	25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-297 GEL Work Order: 314987

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Barbara Bailey **Name: Barbara Bailey**

Date: 06 DEC 2012 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987002**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24253**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 14:48**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**910 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1916.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	11.0	ug/L	3.30	11.0
110-86-1	Pyridine	U	11.0	ug/L	3.30	11.0
62-53-3	Aniline	U	11.0	ug/L	3.30	11.0
108-95-2	Phenol	U	11.0	ug/L	3.30	11.0
111-44-4	bis(2-Chloroethyl) ether	U	11.0	ug/L	3.30	11.0
95-57-8	2-Chlorophenol	U	11.0	ug/L	3.30	11.0
541-73-1	1,3-Dichlorobenzene	U	11.0	ug/L	3.30	11.0
106-46-7	1,4-Dichlorobenzene	U	11.0	ug/L	3.30	11.0
95-50-1	1,2-Dichlorobenzene	U	11.0	ug/L	3.30	11.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	11.0	ug/L	3.30	11.0
100-51-6	Benzyl alcohol	U	11.0	ug/L	3.30	11.0
95-48-7	o-Cresol	U	11.0	ug/L	3.30	11.0
65794-96-9	m,p-Cresols	U	11.0	ug/L	3.30	11.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	11.0	ug/L	3.30	11.0
67-72-1	Hexachloroethane	U	11.0	ug/L	3.30	11.0
98-95-3	Nitrobenzene	U	11.0	ug/L	3.30	11.0
78-59-1	Isophorone	U	11.0	ug/L	3.30	11.0
88-75-5	2-Nitrophenol	U	11.0	ug/L	3.30	11.0
105-67-9	2,4-Dimethylphenol	U	11.0	ug/L	3.30	11.0
111-91-1	bis(2-Chloroethoxy)methane	U	11.0	ug/L	3.30	11.0
120-83-2	2,4-Dichlorophenol	U	11.0	ug/L	3.30	11.0
65-85-0	Benzoic acid	U	22.0	ug/L	6.59	22.0
106-47-8	4-Chloroaniline	U	11.0	ug/L	3.63	11.0
87-68-3	Hexachlorobutadiene	U	11.0	ug/L	3.30	11.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	11.0	ug/L	3.30	11.0
91-57-6	2-Methylnaphthalene	U	1.10	ug/L	0.330	1.10
91-20-3	Naphthalene	U	1.10	ug/L	0.330	1.10
90-12-0	1-Methylnaphthalene	U	1.10	ug/L	0.330	1.10
77-47-4	Hexachlorocyclopentadiene	U	11.0	ug/L	3.30	11.0
88-06-2	2,4,6-Trichlorophenol	U	11.0	ug/L	3.30	11.0
95-95-4	2,4,5-Trichlorophenol	U	11.0	ug/L	3.30	11.0
91-58-7	2-Chloronaphthalene	U	1.10	ug/L	0.330	1.10
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	11.0	ug/L	3.30	11.0
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	11.0	ug/L	3.30	11.0
131-11-3	Dimethylphthalate	U	11.0	ug/L	3.30	11.0
606-20-2	2,6-Dinitrotoluene	U	11.0	ug/L	3.30	11.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987002**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24253**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 14:48**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**910 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1916.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	11.0	ug/L	3.30	11.0
208-96-8	Acenaphthylene	U	1.10	ug/L	0.330	1.10
83-32-9	Acenaphthene	U	1.10	ug/L	0.330	1.10
51-28-5	2,4-Dinitrophenol	U	22.0	ug/L	5.49	22.0
132-64-9	Dibenzofuran	U	11.0	ug/L	3.30	11.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	11.0	ug/L	3.30	11.0
84-66-2	Diethylphthalate	U	11.0	ug/L	3.30	11.0
100-02-7	4-Nitrophenol	U	11.0	ug/L	3.30	11.0
86-73-7	Fluorene	U	1.10	ug/L	0.330	1.10
7005-72-3	4-Chlorophenylphenylether	U	11.0	ug/L	3.30	11.0
100-01-6	4-Nitroaniline	U	11.0	ug/L	3.30	11.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	11.0	ug/L	3.30	11.0
122-39-4	Diphenylamine	U	11.0	ug/L	3.30	11.0
122-66-7	Azobenzene	U	11.0	ug/L	3.30	11.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	11.0	ug/L	3.30	11.0
118-74-1	Hexachlorobenzene	U	11.0	ug/L	3.30	11.0
87-86-5	Pentachlorophenol	U	11.0	ug/L	3.30	11.0
88-85-7	Dinoseb	U	11.0	ug/L	3.30	11.0
85-01-8	Phenanthrene	U	1.10	ug/L	0.330	1.10
120-12-7	Anthracene	U	1.10	ug/L	0.330	1.10
84-74-2	Di-n-butylphthalate	U	11.0	ug/L	3.30	11.0
206-44-0	Fluoranthene	U	1.10	ug/L	0.330	1.10
129-00-0	Pyrene	U	1.10	ug/L	0.330	1.10
85-68-7	Butylbenzylphthalate	U	11.0	ug/L	3.30	11.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	11.0	ug/L	3.30	11.0
56-55-3	Benzo(a)anthracene	U	1.10	ug/L	0.330	1.10
218-01-9	Chrysene	U	1.10	ug/L	0.330	1.10
117-84-0	Di-n-octylphthalate	U	11.0	ug/L	3.30	11.0
205-99-2	Benzo(b)fluoranthene	U	1.10	ug/L	0.330	1.10
207-08-9	Benzo(k)fluoranthene	U	1.10	ug/L	0.330	1.10
50-32-8	Benzo(a)pyrene	U	1.10	ug/L	0.484	1.10
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.10	ug/L	0.330	1.10
53-70-3	Dibenzo(a,h)anthracene	U	1.10	ug/L	0.330	1.10
191-24-2	Benzo(ghi)perylene	U	1.10	ug/L	0.330	1.10
123-91-1	1,4-Dioxane	U	11.0	ug/L	3.30	11.0
55-18-5	N-Nitrosodiethylamine	U	11.0	ug/L	3.30	11.0
930-55-2	N-Nitrosopyrrolidine	U	11.0	ug/L	3.30	11.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987002**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24253**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 14:48**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**910 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1916.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	11.0	ug/L	3.30	11.0
95-94-3	1,2,4,5-Tetrachlorobenzene	U	11.0	ug/L	3.30	11.0
608-93-5	Pentachlorobenzene	U	11.0	ug/L	3.30	11.0
1912-24-9	Atrazine	U	11.0	ug/L	3.30	11.0
92-87-5	Benzidine	U	11.0	ug/L	3.30	11.0
91-94-1	3,3'-Dichlorobenzidine	U	11.0	ug/L	3.30	11.0
120-82-1	1,2,4-Trichlorobenzene	U	11.0	ug/L	3.30	11.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	79.6	110	ug/L	72.4	(23%-130%)
2-Fluorobiphenyl	34.3	54.9	ug/L	62.5	(30%-104%)
2-Fluorophenol	45.0	110	ug/L	40.9	(14%-77%)
Nitrobenzene-d5	35.5	54.9	ug/L	64.6	(34%-125%)
Phenol-d5	27.6	110	ug/L	25.1	(10%-78%)
p-Terphenyl-d14	35.9	54.9	ug/L	65.4	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.952	42.2	ug/L	0	J
	unknown	1.98	5.77	ug/L	0	J
	unknown	2.037	7.71	ug/L	0	J
000110-83-8	Cyclohexene	2.062	17	ug/L	94	NJ

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987006**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24227**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 15:13**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**940 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1917.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.6	ug/L	3.19	10.6
110-86-1	Pyridine	U	10.6	ug/L	3.19	10.6
62-53-3	Aniline	U	10.6	ug/L	3.19	10.6
108-95-2	Phenol	U	10.6	ug/L	3.19	10.6
111-44-4	bis(2-Chloroethyl) ether	U	10.6	ug/L	3.19	10.6
95-57-8	2-Chlorophenol	U	10.6	ug/L	3.19	10.6
541-73-1	1,3-Dichlorobenzene	U	10.6	ug/L	3.19	10.6
106-46-7	1,4-Dichlorobenzene	U	10.6	ug/L	3.19	10.6
95-50-1	1,2-Dichlorobenzene	U	10.6	ug/L	3.19	10.6
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.6	ug/L	3.19	10.6
100-51-6	Benzyl alcohol	U	10.6	ug/L	3.19	10.6
95-48-7	o-Cresol	U	10.6	ug/L	3.19	10.6
65794-96-9	m,p-Cresols	U	10.6	ug/L	3.19	10.6
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.6	ug/L	3.19	10.6
67-72-1	Hexachloroethane	U	10.6	ug/L	3.19	10.6
98-95-3	Nitrobenzene	U	10.6	ug/L	3.19	10.6
78-59-1	Isophorone	U	10.6	ug/L	3.19	10.6
88-75-5	2-Nitrophenol	U	10.6	ug/L	3.19	10.6
105-67-9	2,4-Dimethylphenol	U	10.6	ug/L	3.19	10.6
111-91-1	bis(2-Chloroethoxy)methane	U	10.6	ug/L	3.19	10.6
120-83-2	2,4-Dichlorophenol	U	10.6	ug/L	3.19	10.6
65-85-0	Benzoic acid	U	21.3	ug/L	6.38	21.3
106-47-8	4-Chloroaniline	U	10.6	ug/L	3.51	10.6
87-68-3	Hexachlorobutadiene	U	10.6	ug/L	3.19	10.6
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.6	ug/L	3.19	10.6
91-57-6	2-Methylnaphthalene	U	1.06	ug/L	0.319	1.06
91-20-3	Naphthalene	U	1.06	ug/L	0.319	1.06
90-12-0	1-Methylnaphthalene	U	1.06	ug/L	0.319	1.06
77-47-4	Hexachlorocyclopentadiene	U	10.6	ug/L	3.19	10.6
88-06-2	2,4,6-Trichlorophenol	U	10.6	ug/L	3.19	10.6
95-95-4	2,4,5-Trichlorophenol	U	10.6	ug/L	3.19	10.6
91-58-7	2-Chloronaphthalene	U	1.06	ug/L	0.319	1.06
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.6	ug/L	3.19	10.6
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.6	ug/L	3.19	10.6
131-11-3	Dimethylphthalate	U	10.6	ug/L	3.19	10.6
606-20-2	2,6-Dinitrotoluene	U	10.6	ug/L	3.19	10.6

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987006**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24227**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 15:13**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**940 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1917.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.6	ug/L	3.19	10.6
208-96-8	Acenaphthylene	U	1.06	ug/L	0.319	1.06
83-32-9	Acenaphthene	U	1.06	ug/L	0.319	1.06
51-28-5	2,4-Dinitrophenol	U	21.3	ug/L	5.32	21.3
132-64-9	Dibenzofuran	U	10.6	ug/L	3.19	10.6
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.6	ug/L	3.19	10.6
84-66-2	Diethylphthalate	U	10.6	ug/L	3.19	10.6
100-02-7	4-Nitrophenol	U	10.6	ug/L	3.19	10.6
86-73-7	Fluorene	U	1.06	ug/L	0.319	1.06
7005-72-3	4-Chlorophenylphenylether	U	10.6	ug/L	3.19	10.6
100-01-6	4-Nitroaniline	U	10.6	ug/L	3.19	10.6
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.6	ug/L	3.19	10.6
122-39-4	Diphenylamine	U	10.6	ug/L	3.19	10.6
122-66-7	Azobenzene	U	10.6	ug/L	3.19	10.6
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.6	ug/L	3.19	10.6
118-74-1	Hexachlorobenzene	U	10.6	ug/L	3.19	10.6
87-86-5	Pentachlorophenol	U	10.6	ug/L	3.19	10.6
88-85-7	Dinoseb	U	10.6	ug/L	3.19	10.6
85-01-8	Phenanthrene	U	1.06	ug/L	0.319	1.06
120-12-7	Anthracene	U	1.06	ug/L	0.319	1.06
84-74-2	Di-n-butylphthalate	U	10.6	ug/L	3.19	10.6
206-44-0	Fluoranthene	U	1.06	ug/L	0.319	1.06
129-00-0	Pyrene	U	1.06	ug/L	0.319	1.06
85-68-7	Butylbenzylphthalate	U	10.6	ug/L	3.19	10.6
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.6	ug/L	3.19	10.6
56-55-3	Benzo(a)anthracene	U	1.06	ug/L	0.319	1.06
218-01-9	Chrysene	U	1.06	ug/L	0.319	1.06
117-84-0	Di-n-octylphthalate	U	10.6	ug/L	3.19	10.6
205-99-2	Benzo(b)fluoranthene	U	1.06	ug/L	0.319	1.06
207-08-9	Benzo(k)fluoranthene	U	1.06	ug/L	0.319	1.06
50-32-8	Benzo(a)pyrene	U	1.06	ug/L	0.468	1.06
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.06	ug/L	0.319	1.06
53-70-3	Dibenzo(a,h)anthracene	U	1.06	ug/L	0.319	1.06
191-24-2	Benzo(ghi)perylene	U	1.06	ug/L	0.319	1.06
123-91-1	1,4-Dioxane	U	10.6	ug/L	3.19	10.6
55-18-5	N-Nitrosodiethylamine	U	10.6	ug/L	3.19	10.6
930-55-2	N-Nitrosopyrrolidine	U	10.6	ug/L	3.19	10.6

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987006**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24227**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 15:13**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**940 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1917.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.6	ug/L	3.19	10.6
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.6	ug/L	3.19	10.6
608-93-5	Pentachlorobenzene	U	10.6	ug/L	3.19	10.6
1912-24-9	Atrazine	U	10.6	ug/L	3.19	10.6
92-87-5	Benzidine	U	10.6	ug/L	3.19	10.6
91-94-1	3,3'-Dichlorobenzidine	U	10.6	ug/L	3.19	10.6
120-82-1	1,2,4-Trichlorobenzene	U	10.6	ug/L	3.19	10.6

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	70.1	106	ug/L	65.9	(23%-130%)
2-Fluorobiphenyl	34.4	53.2	ug/L	64.6	(30%-104%)
2-Fluorophenol	41.5	106	ug/L	39.0	(14%-77%)
Nitrobenzene-d5	36.0	53.2	ug/L	67.7	(34%-125%)
Phenol-d5	24.5	106	ug/L	23.1	(10%-78%)
p-Terphenyl-d14	38.4	53.2	ug/L	72.1	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.946	37.6	ug/L	0	J
	unknown	2.026	5.18	ug/L	0	J
000110-83-8	Cyclohexene	2.048	10.2	ug/L	91	NJ

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987008**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24228**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 15:38**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**940 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1918.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.6	ug/L	3.19	10.6
110-86-1	Pyridine	U	10.6	ug/L	3.19	10.6
62-53-3	Aniline	U	10.6	ug/L	3.19	10.6
108-95-2	Phenol	U	10.6	ug/L	3.19	10.6
111-44-4	bis(2-Chloroethyl) ether	U	10.6	ug/L	3.19	10.6
95-57-8	2-Chlorophenol	U	10.6	ug/L	3.19	10.6
541-73-1	1,3-Dichlorobenzene	U	10.6	ug/L	3.19	10.6
106-46-7	1,4-Dichlorobenzene	U	10.6	ug/L	3.19	10.6
95-50-1	1,2-Dichlorobenzene	U	10.6	ug/L	3.19	10.6
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.6	ug/L	3.19	10.6
100-51-6	Benzyl alcohol	U	10.6	ug/L	3.19	10.6
95-48-7	o-Cresol	U	10.6	ug/L	3.19	10.6
65794-96-9	m,p-Cresols	U	10.6	ug/L	3.19	10.6
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.6	ug/L	3.19	10.6
67-72-1	Hexachloroethane	U	10.6	ug/L	3.19	10.6
98-95-3	Nitrobenzene	U	10.6	ug/L	3.19	10.6
78-59-1	Isophorone	U	10.6	ug/L	3.19	10.6
88-75-5	2-Nitrophenol	U	10.6	ug/L	3.19	10.6
105-67-9	2,4-Dimethylphenol	U	10.6	ug/L	3.19	10.6
111-91-1	bis(2-Chloroethoxy)methane	U	10.6	ug/L	3.19	10.6
120-83-2	2,4-Dichlorophenol	U	10.6	ug/L	3.19	10.6
65-85-0	Benzoic acid	U	21.3	ug/L	6.38	21.3
106-47-8	4-Chloroaniline	U	10.6	ug/L	3.51	10.6
87-68-3	Hexachlorobutadiene	U	10.6	ug/L	3.19	10.6
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.6	ug/L	3.19	10.6
91-57-6	2-Methylnaphthalene	U	1.06	ug/L	0.319	1.06
91-20-3	Naphthalene	U	1.06	ug/L	0.319	1.06
90-12-0	1-Methylnaphthalene	U	1.06	ug/L	0.319	1.06
77-47-4	Hexachlorocyclopentadiene	U	10.6	ug/L	3.19	10.6
88-06-2	2,4,6-Trichlorophenol	U	10.6	ug/L	3.19	10.6
95-95-4	2,4,5-Trichlorophenol	U	10.6	ug/L	3.19	10.6
91-58-7	2-Chloronaphthalene	U	1.06	ug/L	0.319	1.06
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.6	ug/L	3.19	10.6
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.6	ug/L	3.19	10.6
131-11-3	Dimethylphthalate	U	10.6	ug/L	3.19	10.6
606-20-2	2,6-Dinitrotoluene	U	10.6	ug/L	3.19	10.6

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987008**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24228**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 15:38**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**940 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1918.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.6	ug/L	3.19	10.6
208-96-8	Acenaphthylene	U	1.06	ug/L	0.319	1.06
83-32-9	Acenaphthene	U	1.06	ug/L	0.319	1.06
51-28-5	2,4-Dinitrophenol	U	21.3	ug/L	5.32	21.3
132-64-9	Dibenzofuran	U	10.6	ug/L	3.19	10.6
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.6	ug/L	3.19	10.6
84-66-2	Diethylphthalate	U	10.6	ug/L	3.19	10.6
100-02-7	4-Nitrophenol	U	10.6	ug/L	3.19	10.6
86-73-7	Fluorene	U	1.06	ug/L	0.319	1.06
7005-72-3	4-Chlorophenylphenylether	U	10.6	ug/L	3.19	10.6
100-01-6	4-Nitroaniline	U	10.6	ug/L	3.19	10.6
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.6	ug/L	3.19	10.6
122-39-4	Diphenylamine	U	10.6	ug/L	3.19	10.6
122-66-7	Azobenzene	U	10.6	ug/L	3.19	10.6
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.6	ug/L	3.19	10.6
118-74-1	Hexachlorobenzene	U	10.6	ug/L	3.19	10.6
87-86-5	Pentachlorophenol	U	10.6	ug/L	3.19	10.6
88-85-7	Dinoseb	U	10.6	ug/L	3.19	10.6
85-01-8	Phenanthrene	U	1.06	ug/L	0.319	1.06
120-12-7	Anthracene	U	1.06	ug/L	0.319	1.06
84-74-2	Di-n-butylphthalate	U	10.6	ug/L	3.19	10.6
206-44-0	Fluoranthene	U	1.06	ug/L	0.319	1.06
129-00-0	Pyrene	U	1.06	ug/L	0.319	1.06
85-68-7	Butylbenzylphthalate	U	10.6	ug/L	3.19	10.6
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.6	ug/L	3.19	10.6
56-55-3	Benzo(a)anthracene	U	1.06	ug/L	0.319	1.06
218-01-9	Chrysene	U	1.06	ug/L	0.319	1.06
117-84-0	Di-n-octylphthalate	U	10.6	ug/L	3.19	10.6
205-99-2	Benzo(b)fluoranthene	U	1.06	ug/L	0.319	1.06
207-08-9	Benzo(k)fluoranthene	U	1.06	ug/L	0.319	1.06
50-32-8	Benzo(a)pyrene	U	1.06	ug/L	0.468	1.06
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.06	ug/L	0.319	1.06
53-70-3	Dibenzo(a,h)anthracene	U	1.06	ug/L	0.319	1.06
191-24-2	Benzo(ghi)perylene	U	1.06	ug/L	0.319	1.06
123-91-1	1,4-Dioxane	U	10.6	ug/L	3.19	10.6
55-18-5	N-Nitrosodiethylamine	U	10.6	ug/L	3.19	10.6
930-55-2	N-Nitrosopyrrolidine	U	10.6	ug/L	3.19	10.6

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987008**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24228**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 15:38**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**940 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1918.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.6	ug/L	3.19	10.6
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.6	ug/L	3.19	10.6
608-93-5	Pentachlorobenzene	U	10.6	ug/L	3.19	10.6
1912-24-9	Atrazine	U	10.6	ug/L	3.19	10.6
92-87-5	Benzidine	U	10.6	ug/L	3.19	10.6
91-94-1	3,3'-Dichlorobenzidine	U	10.6	ug/L	3.19	10.6
120-82-1	1,2,4-Trichlorobenzene	U	10.6	ug/L	3.19	10.6

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	75.6	106	ug/L	71.1	(23%-130%)
2-Fluorobiphenyl	31.3	53.2	ug/L	58.8	(30%-104%)
2-Fluorophenol	38.3	106	ug/L	36.0	(14%-77%)
Nitrobenzene-d5	32.5	53.2	ug/L	61.0	(34%-125%)
Phenol-d5	23.6	106	ug/L	22.1	(10%-78%)
p-Terphenyl-d14	37.2	53.2	ug/L	70.0	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.955	38.4	ug/L	0	J
	unknown	1.986	4.96	ug/L	0	J
	unknown	2.04	8.9	ug/L	0	J
002597-49-1	Cyclobutane, ethenyl-	2.068	15.2	ug/L	91	NJ

Quality Control Summary

Semi-Volatile

Surrogate Recovery Report

SDG Number: 2013-297

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1202780153	MB for batch 1263325	36	22	61	57	70	67
1202780154	LCS for batch 1263325	36	22	59	60	82	64
314987002	CAMO-13-24253	41	25	65	63	72	65
314987006	CAMO-13-24227	39	23	68	65	66	72
314987008	CAMO-13-24228	36	22	61	59	71	70
1202780155	CAMO-13-24250MS	50	38	64	62	84	72
1202780156	CAMO-13-24250MSD	51	39	65	66	92	72

Surrogate			Acceptance Limits
2FP	=	2-Fluorophenol	(14%-77%)
PHL	=	Phenol-d5	(10%-78%)
NBZ	=	Nitrobenzene-d5	(34%-125%)
FBP	=	2-Fluorobiphenyl	(30%-104%)
TBP	=	2,4,6-Tribromophenol	(23%-130%)
TPH	=	p-Terphenyl-d14	(33%-136%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **LCS for batch 1263325**
Lab Sample ID: **1202780154**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/19/2012 11:28**
Prep Batch ID: **1263325**
Batch ID: **1263326**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	LCS	N-Methyl-N-nitrosomethylam	50.0	0.0	17.7	35	29-86
110-86-1	LCS	Pyridine	50.0	0.0	16.5	33	25-96
62-53-3	LCS	Aniline	50.0	0.0	28.7	57	38-105
108-95-2	LCS	Phenol	50.0	0.0	11.9	24	13-137
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	30.7	61	37-110
95-57-8	LCS	2-Chlorophenol	50.0	0.0	30.5	61	41-98
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	24.5	49	33-86
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	24.7	49	33-87
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	25.3	51	34-86
39638-32-9	LCS	bis(2-Chloroisopropyl)ether	50.0	0.0	33.2	66	30-118
100-51-6	LCS	Benzyl alcohol	50.0	0.0	26.8	54	39-88
95-48-7	LCS	o-Cresol	50.0	0.0	26.5	53	37-89
65794-96-9	LCS	m,p-Cresols	50.0	0.0	30.7	61	33-99
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	32.1	64	40-112
67-72-1	LCS	Hexachloroethane	50.0	0.0	22.9	46	31-87
98-95-3	LCS	Nitrobenzene	50.0	0.0	32.7	65	42-118
78-59-1	LCS	Isophorone	50.0	0.0	36.7	73	50-132
88-75-5	LCS	2-Nitrophenol	50.0	0.0	35.8	72	45-109
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	27.2	54	44-98
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	31.7	63	45-109
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	35.7	71	46-106
65-85-0	LCS	Benzoic acid	100	0.0	32.8	33	4-134

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **LCS for batch 1263325**
Lab Sample ID: **1202780154**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/19/2012 11:28**
Prep Batch ID: **1263325**
Batch ID: **1263326**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	LCS	4-Chloroaniline	50.0	0.0	34.2	68	50-122
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	29.0	58	29-94
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	33.7	67	47-110
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	27.4	55	37-100
91-20-3	LCS	Naphthalene	50.0	0.0	26.2	52	35-97
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	29.3	59	38-105
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	18.0	36 *	38-79
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	39.2	78	43-108
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	40.2	80	43-110
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	29.4	59	40-96
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	33.5	67	45-116
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	37.1	74	46-123
131-11-3	LCS	Dimethylphthalate	50.0	0.0	41.7	83	53-111
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	43.8	88	52-117
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	44.7	89	46-124
208-96-8	LCS	Acenaphthylene	50.0	0.0	31.3	63	42-105
83-32-9	LCS	Acenaphthene	50.0	0.0	29.7	59	42-103
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	46.3	93	33-105
132-64-9	LCS	Dibenzofuran	50.0	0.0	37.3	75	46-106
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	46.1	92	46-119
84-66-2	LCS	Diethylphthalate	50.0	0.0	41.2	82	52-115
100-02-7	LCS	4-Nitrophenol	50.0	0.0	10.1	20	12-130

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **LCS for batch 1263325**
Lab Sample ID: **1202780154**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/19/2012 11:28**
Prep Batch ID: **1263325**
Batch ID: **1263326**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	LCS	Fluorene	50.0	0.0	35.1	70	44-110
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	37.2	74	41-113
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	38.1	76	39-132
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	49.7	99	39-111
122-39-4	LCS	Diphenylamine	50.0	0.0	36.2	72	47-111
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	31.7	63	41-111
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	38.9	78	42-113
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	38.8	78	44-115
87-86-5	LCS	Pentachlorophenol	50.0	0.0	38.8	78	36-99
85-01-8	LCS	Phenanthrene	50.0	0.0	37.1	74	47-111
120-12-7	LCS	Anthracene	50.0	0.0	36.3	73	46-109
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	40.6	81	49-115
206-44-0	LCS	Fluoranthene	50.0	0.0	39.7	79	45-118
129-00-0	LCS	Pyrene	50.0	0.0	39.6	79	39-126
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	37.4	75	41-121
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	38.1	76	38-124
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	40.1	80	49-110
218-01-9	LCS	Chrysene	50.0	0.0	39.2	78	45-117
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	33.9	68	34-121
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	38.8	78	47-116
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	39.3	79	47-119
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	38.3	77	48-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **LCS for batch 1263325**
Lab Sample ID: **1202780154**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/19/2012 11:28**
Prep Batch ID: **1263325**
Batch ID: **1263326**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	LCS	Indeno(1,2,3-cd)pyrene	50.0	0.0	43.7	87	38-124
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	38.8	78	38-124
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	45.9	92	36-124
123-91-1	LCS	1,4-Dioxane	50.0	0.0	17.6	35 *	41-69
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	32.6	65	42-105
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	28.6	57	40-93
1912-24-9	LCS	Atrazine	50.0	0.0	30.4	61	47-115
92-87-5	LCS	Benzidine	100	0.0	31.8	32	19-124
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	34.1	68	36-111
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	26.8	54	32-92

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **CAMO-13-24250MS**
Lab Sample ID: **1202780155**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/19/2012 16:28**
Prep Batch ID: **1263325**
Batch ID: **1263326**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	MS	N-Methyl-N-nitrosomethylam	112	0.00	U	53.6	48	27-85
110-86-1	MS	Pyridine	112	0.00	U	59.4	53	21-93
62-53-3	MS	Aniline	112	0.00	U	72.5	65	28-108
108-95-2	MS	Phenol	112	0.00	U	46.3	41	15-100
111-44-4	MS	bis(2-Chloroethyl) ether	112	0.00	U	69.5	62	27-114
95-57-8	MS	2-Chlorophenol	112	0.00	U	72.6	65	32-103
541-73-1	MS	1,3-Dichlorobenzene	112	0.00	U	56.8	51	23-84
106-46-7	MS	1,4-Dichlorobenzene	112	0.00	U	56.7	50	23-88
95-50-1	MS	1,2-Dichlorobenzene	112	0.00	U	57.4	51	24-86
39638-32-9	MS	bis(2-Chloroisopropyl)ether	112	0.00	U	75.8	68	19-122
100-51-6	MS	Benzyl alcohol	112	0.00	U	71.0	63	34-98
95-48-7	MS	o-Cresol	112	0.00	U	68.8	61	29-96
65794-96-9	MS	m,p-Cresols	112	0.00	U	85.2	76	26-111
621-64-7	MS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	112	0.00	U	73.8	66	32-115
67-72-1	MS	Hexachloroethane	112	0.00	U	52.6	47	25-82
98-95-3	MS	Nitrobenzene	112	0.00	U	79.8	71	35-124
78-59-1	MS	Isophorone	112	0.00	U	88.2	78	37-140
88-75-5	MS	2-Nitrophenol	112	0.00	U	88.7	79	33-115
105-67-9	MS	2,4-Dimethylphenol	112	0.00	U	62.1	55	31-106
111-91-1	MS	bis(2-Chloroethoxy)methane	112	0.00	U	76.4	68	35-112
120-83-2	MS	2,4-Dichlorophenol	112	0.00	U	87.0	77	36-110
65-85-0	MS	Benzoic acid	225	0.00	U	138	61	12-108

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297** **Sample Type:** **Matrix Spike**

Client ID: **CAMO-13-24250MS** **Matrix:** **W**

Lab Sample ID: **1202780155**

Instrument: **MSD3.I** **Analysis Date:** **11/19/2012 16:28** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1263325**

Inj. Vol: **1 uL** **Batch ID:** **1263326**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS	4-Chloroaniline	112	0.00	U	79.6	71	33-120
87-68-3	MS	Hexachlorobutadiene	112	0.00	U	67.9	60	19-96
59-50-7	MS	Parachlorometa cresol *4-Chloro-3-methylphenol*	112	0.00	U	83.6	74	36-116
91-57-6	MS	2-Methylnaphthalene	112	0.00	U	65.1	58	27-103
91-20-3	MS	Naphthalene	112	0.00	U	62.2	55	28-99
90-12-0	MS	1-Methylnaphthalene	112	0.00	U	69.6	62	29-107
77-47-4	MS	Hexachlorocyclopentadiene	112	0.00	U	43.4	39	25-75
88-06-2	MS	2,4,6-Trichlorophenol	112	0.00	U	89.2	79	36-111
95-95-4	MS	2,4,5-Trichlorophenol	112	0.00	U	92.9	83	34-115
91-58-7	MS	2-Chloronaphthalene	112	0.00	U	65.6	58	33-96
88-74-4	MS	2-Nitroaniline *o-Nitroaniline*	112	0.00	U	78.6	70	31-120
99-09-2	MS	3-Nitroaniline *m-Nitroaniline*	112	0.00	U	84.7	75	32-123
131-11-3	MS	Dimethylphthalate	112	0.00	U	94.8	84	43-115
606-20-2	MS	2,6-Dinitrotoluene	112	0.00	U	99.4	88	42-121
121-14-2	MS	2,4-Dinitrotoluene	112	0.00	U	102	91	37-125
208-96-8	MS	Acenaphthylene	112	0.00	U	70.4	63	34-103
83-32-9	MS	Acenaphthene	112	0.00	U	66.4	59	31-104
51-28-5	MS	2,4-Dinitrophenol	112	0.00	U	115	103	25-108
132-64-9	MS	Dibenzofuran	112	0.00	U	84.1	75	38-106
58-90-2	MS	2,3,4,6-Tetrachlorophenol	112	0.00	U	106	95	33-123
84-66-2	MS	Diethylphthalate	112	0.00	U	93.2	83	43-116
100-02-7	MS	4-Nitrophenol	112	0.00	U	59.4	53	26-72

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297** **Sample Type:** **Matrix Spike**
Client ID: **CAMO-13-24250MS** **Matrix:** **W**
Lab Sample ID: **1202780155**
Instrument: **MSD3.I** **Analysis Date:** **11/19/2012 16:28** **Dilution: 1**
Analyst: **JLD1** **Prep Batch ID:** **1263325**
Inj. Vol: **1 uL** **Batch ID:** **1263326**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	112	0.00	U	80.3	71	33-110
7005-72-3	MS	4-Chlorophenylphenylether	112	0.00	U	85.1	76	30-112
100-01-6	MS	4-Nitroaniline *p-Nitroaniline*	112	0.00	U	88.6	79	28-131
534-52-1	MS	2-Methyl-4,6-dinitrophenol	112	0.00	U	120	107	31-113
122-39-4	MS	Diphenylamine	112	0.00	U	85.3	76	36-110
122-66-7	MS	Azobenzene *1,2-Diphenylhydrazine*	112	0.00	U	74.3	66	33-110
101-55-3	MS	4-Bromophenylphenylether	112	0.00	U	90.6	81	33-111
118-74-1	MS	Hexachlorobenzene	112	0.00	U	89.9	80	36-113
87-86-5	MS	Pentachlorophenol	112	0.00	U	91.6	82	25-110
85-01-8	MS	Phenanthrene	112	0.00	U	86.9	77	36-111
120-12-7	MS	Anthracene	112	0.00	U	84.9	76	36-107
84-74-2	MS	Di-n-butylphthalate	112	0.00	U	90.5	81	38-116
206-44-0	MS	Fluoranthene	112	0.00	U	88.8	79	35-116
129-00-0	MS	Pyrene	112	0.00	U	95.7	85	28-126
85-68-7	MS	Butylbenzylphthalate	112	0.00	U	89.6	80	32-120
117-81-7	MS	bis(2-Ethylhexyl)phthalate	112	0.00	U	87.9	78	30-121
56-55-3	MS	Benzo(a)anthracene	112	0.00	U	94.2	84	38-110
218-01-9	MS	Chrysene	112	0.00	U	92.4	82	35-115
117-84-0	MS	Di-n-octylphthalate	112	0.00	U	74.9	67	30-115
205-99-2	MS	Benzo(b)fluoranthene	112	0.00	U	93.3	83	37-115
207-08-9	MS	Benzo(k)fluoranthene	112	0.00	U	96.1	86	36-118
50-32-8	MS	Benzo(a)pyrene	112	0.00	U	90.3	80	36-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **CAMO-13-24250MS**
Lab Sample ID: **1202780155**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/19/2012 16:28**
Prep Batch ID: **1263325**
Batch ID: **1263326**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	MS	Indeno(1,2,3-cd)pyrene	112	0.00	U	95.0	85	28-121
53-70-3	MS	Dibenzo(a,h)anthracene	112	0.00	U	76.4	68	26-124
191-24-2	MS	Benzo(ghi)perylene	112	0.00	U	100	89	25-122
123-91-1	MS	1,4-Dioxane	112	0.00	U	51.7	46	26-90
930-55-2	MS	N-Nitrosopyrrolidine	112	0.00	U	79.3	71	40-113
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	112	0.00	U	64.0	57	32-94
1912-24-9	MS	Atrazine	112	0.00	U	68.8	61	36-119
92-87-5	MS	Benzidine	225	0.00	U	61.6	27	10-125
91-94-1	MS	3,3'-Dichlorobenzidine	112	0.00	U	78.7	70	27-109
120-82-1	MS	1,2,4-Trichlorobenzene	112	0.00	U	63.2	56	23-90

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24250MSD** **Matrix:** **W**

Lab Sample ID: **1202780156**

Instrument: **MSD3.I** **Analysis Date:** **11/19/2012 16:53** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1263325**

Inj. Vol: **1 uL** **Batch ID:** **1263326**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
62-75-9	MSD	N-Methyl-N-nitrosomethylam	112	0.00	U	53.4	48	27-85	0	0-30
110-86-1	MSD	Pyridine	112	0.00	U	59.0	53	21-93	1	0-30
62-53-3	MSD	Aniline	112	0.00	U	72.6	65	28-108	0	0-30
108-95-2	MSD	Phenol	112	0.00	U	47.0	42	15-100	1	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	112	0.00	U	71.8	64	27-114	3	0-30
95-57-8	MSD	2-Chlorophenol	112	0.00	U	73.6	65	32-103	1	0-30
541-73-1	MSD	1,3-Dichlorobenzene	112	0.00	U	56.4	50	23-84	1	0-30
106-46-7	MSD	1,4-Dichlorobenzene	112	0.00	U	56.5	50	23-88	0	0-30
95-50-1	MSD	1,2-Dichlorobenzene	112	0.00	U	57.5	51	24-86	0	0-30
39638-32-9	MSD	bis(2-Chloroisopropyl)ether	112	0.00	U	75.8	68	19-122	0	0-30
100-51-6	MSD	Benzyl alcohol	112	0.00	U	72.6	65	34-98	2	0-30
95-48-7	MSD	o-Cresol	112	0.00	U	71.2	63	29-96	4	0-30
65794-96-9	MSD	m,p-Cresols	112	0.00	U	88.4	79	26-111	4	0-30
621-64-7	MSD	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	112	0.00	U	77.3	69	32-115	5	0-30
67-72-1	MSD	Hexachloroethane	112	0.00	U	52.5	47	25-82	0	0-30
98-95-3	MSD	Nitrobenzene	112	0.00	U	80.4	72	35-124	1	0-30
78-59-1	MSD	Isophorone	112	0.00	U	93.0	83	37-140	5	0-30
88-75-5	MSD	2-Nitrophenol	112	0.00	U	91.2	81	33-115	3	0-30
105-67-9	MSD	2,4-Dimethylphenol	112	0.00	U	63.1	56	31-106	2	0-30
111-91-1	MSD	bis(2-Chloroethoxy)methane	112	0.00	U	78.8	70	35-112	3	0-30
120-83-2	MSD	2,4-Dichlorophenol	112	0.00	U	89.5	80	36-110	3	0-30
65-85-0	MSD	Benzoic acid	225	0.00	U	140	62	12-108	2	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24250MSD** **Matrix:** **W**

Lab Sample ID: **1202780156**

Instrument: **MSD3.I** **Analysis Date:** **11/19/2012 16:53** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1263325**

Inj. Vol: **1 uL** **Batch ID:** **1263326**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
106-47-8	MSD	4-Chloroaniline	112	0.00	U	82.1	73	33-120	3	0-30
87-68-3	MSD	Hexachlorobutadiene	112	0.00	U	68.0	61	19-96	0	0-30
59-50-7	MSD	Parachlorometa cresol *4-Chloro-3-methylphenol*	112	0.00	U	89.3	79	36-116	7	0-30
91-57-6	MSD	2-Methylnaphthalene	112	0.00	U	67.6	60	27-103	4	0-30
91-20-3	MSD	Naphthalene	112	0.00	U	63.0	56	28-99	1	0-30
90-12-0	MSD	1-Methylnaphthalene	112	0.00	U	71.3	63	29-107	2	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	112	0.00	U	41.1	37	25-75	5	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	112	0.00	U	93.6	83	36-111	5	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	112	0.00	U	96.9	86	34-115	4	0-30
91-58-7	MSD	2-Chloronaphthalene	112	0.00	U	67.4	60	33-96	3	0-30
88-74-4	MSD	2-Nitroaniline *o-Nitroaniline*	112	0.00	U	81.4	72	31-120	4	0-30
99-09-2	MSD	3-Nitroaniline *m-Nitroaniline*	112	0.00	U	90.2	80	32-123	6	0-30
131-11-3	MSD	Dimethylphthalate	112	0.00	U	98.7	88	43-115	4	0-30
606-20-2	MSD	2,6-Dinitrotoluene	112	0.00	U	103	92	42-121	4	0-30
121-14-2	MSD	2,4-Dinitrotoluene	112	0.00	U	108	96	37-125	5	0-30
208-96-8	MSD	Acenaphthylene	112	0.00	U	73.1	65	34-103	4	0-30
83-32-9	MSD	Acenaphthene	112	0.00	U	69.7	62	31-104	5	0-30
51-28-5	MSD	2,4-Dinitrophenol	112	0.00	U	122	108	25-108	5	0-30
132-64-9	MSD	Dibenzofuran	112	0.00	U	87.1	78	38-106	4	0-30
58-90-2	MSD	2,3,4,6-Tetrachlorophenol	112	0.00	U	113	100	33-123	6	0-30
84-66-2	MSD	Diethylphthalate	112	0.00	U	97.3	87	43-116	4	0-30
100-02-7	MSD	4-Nitrophenol	112	0.00	U	50.9	45	26-72	15	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24250MSD** **Matrix:** **W**

Lab Sample ID: **1202780156**

Instrument: **MSD3.I** **Analysis Date:** **11/19/2012 16:53** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1263325**

Inj. Vol: **1 uL** **Batch ID:** **1263326**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
86-73-7	MSD	Fluorene	112	0.00	U	83.7	74	33-110	4	0-30
7005-72-3	MSD	4-Chlorophenylphenylether	112	0.00	U	88.5	79	30-112	4	0-30
100-01-6	MSD	4-Nitroaniline *p-Nitroaniline*	112	0.00	U	97.0	86	28-131	9	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	112	0.00	U	124	110	31-113	3	0-30
122-39-4	MSD	Diphenylamine	112	0.00	U	84.7	75	36-110	1	0-30
122-66-7	MSD	Azobenzene *1,2-Diphenylhydrazine*	112	0.00	U	73.5	65	33-110	1	0-30
101-55-3	MSD	4-Bromophenylphenylether	112	0.00	U	90.5	81	33-111	0	0-30
118-74-1	MSD	Hexachlorobenzene	112	0.00	U	91.2	81	36-113	1	0-30
87-86-5	MSD	Pentachlorophenol	112	0.00	U	97.7	87	25-110	7	0-30
85-01-8	MSD	Phenanthrene	112	0.00	U	88.4	79	36-111	2	0-30
120-12-7	MSD	Anthracene	112	0.00	U	87.0	77	36-107	2	0-30
84-74-2	MSD	Di-n-butylphthalate	112	0.00	U	95.7	85	38-116	6	0-30
206-44-0	MSD	Fluoranthene	112	0.00	U	96.9	86	35-116	9	0-30
129-00-0	MSD	Pyrene	112	0.00	U	93.4	83	28-126	2	0-30
85-68-7	MSD	Butylbenzylphthalate	112	0.00	U	89.8	80	32-120	0	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	112	0.00	U	92.2	82	30-121	5	0-30
56-55-3	MSD	Benzo(a)anthracene	112	0.00	U	96.7	86	38-110	3	0-30
218-01-9	MSD	Chrysene	112	0.00	U	95.5	85	35-115	3	0-30
117-84-0	MSD	Di-n-octylphthalate	112	0.00	U	84.7	75	30-115	12	0-30
205-99-2	MSD	Benzo(b)fluoranthene	112	0.00	U	95.7	85	37-115	3	0-30
207-08-9	MSD	Benzo(k)fluoranthene	112	0.00	U	96.4	86	36-118	0	0-30
50-32-8	MSD	Benzo(a)pyrene	112	0.00	U	91.9	82	36-109	2	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **CAMO-13-24250MSD**
Lab Sample ID: **1202780156**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/19/2012 16:53**
Prep Batch ID: **1263325**
Batch ID: **1263326**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
193-39-5	MSD	Indeno(1,2,3-cd)pyrene	112	0.00	U	99.1	88	28-121	4	0-30
53-70-3	MSD	Dibenzo(a,h)anthracene	112	0.00	U	93.8	83	26-124	20	0-30
191-24-2	MSD	Benzo(ghi)perylene	112	0.00	U	100	89	25-122	0	0-30
123-91-1	MSD	1,4-Dioxane	112	0.00	U	51.9	46	26-90	0	0-30
930-55-2	MSD	N-Nitrosopyrrolidine	112	0.00	U	83.8	75	40-113	5	0-30
95-94-3	MSD	1,2,4,5-Tetrachlorobenzene	112	0.00	U	64.4	57	32-94	1	0-30
1912-24-9	MSD	Atrazine	112	0.00	U	69.8	62	36-119	1	0-30
92-87-5	MSD	Benzidine	225	0.00	U	144	64	10-125	80 *	0-30
91-94-1	MSD	3,3'-Dichlorobenzidine	112	0.00	U	87.4	78	27-109	11	0-30
120-82-1	MSD	1,2,4-Trichlorobenzene	112	0.00	U	63.4	56	23-90	0	0-30

Method Blank Summary

SDG Number:	**2013-297**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1263325**	**Instrument ID:**	**MSD3.I**	**Data File:**	**S111912.B\s3k1907.D**
Lab Sample ID:	**1202780153**	**Prep Date:**	**11/15/2012 10:50**	**Analyzed:**	**11/19/12 11:03**
Column:	**DB-5ms**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1263325	1202780154	S111912.B\s3k1908.D	11/19/12	1128
02 CAMO-13-24253	314987002	S111912.B\s3k1916.D	11/19/12	1448
03 CAMO-13-24227	314987006	S111912.B\s3k1917.D	11/19/12	1513
04 CAMO-13-24228	314987008	S111912.B\s3k1918.D	11/19/12	1538
05 CAMO-13-24250MS	1202780155	S111912.B\s3k1920.D	11/19/12	1628
06 CAMO-13-24250MSD	1202780156	S111912.B\s3k1921.D	11/19/12	1653

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780153**				
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1263325**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 11:03**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1907.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
62-53-3	Aniline	U	10.0	ug/L	3.00	10.0
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
78-59-1	Isophorone	U	10.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
65-85-0	Benzoic acid	U	20.0	ug/L	6.00	20.0
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene	U	10.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	10.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780153**				
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1263325**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 11:03**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1907.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline	U	10.0	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene	U	10.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.0	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780153**				
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1263325**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 11:03**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1907.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	69.9	100	ug/L	69.9	(23%-130%)
2-Fluorobiphenyl	28.7	50.0	ug/L	57.3	(30%-104%)
2-Fluorophenol	36.1	100	ug/L	36.1	(14%-77%)
Nitrobenzene-d5	30.3	50.0	ug/L	60.6	(34%-125%)
Phenol-d5	22.2	100	ug/L	22.2	(10%-78%)
p-Terphenyl-d14	33.4	50.0	ug/L	66.8	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.957	35.9	ug/L	0	J
	unknown	2.043	5.93	ug/L	0	J
000110-83-8	Cyclohexene	2.071	13.4	ug/L	94	NJ

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780154**				
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1263325**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 11:28**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1908.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		17.7	ug/L	3.00	10.0
110-86-1	Pyridine		16.5	ug/L	3.00	10.0
62-53-3	Aniline		28.7	ug/L	3.00	10.0
108-95-2	Phenol		11.9	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		30.7	ug/L	3.00	10.0
95-57-8	2-Chlorophenol		30.5	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		24.5	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		24.7	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		25.3	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether		33.2	ug/L	3.00	10.0
100-51-6	Benzyl alcohol		26.8	ug/L	3.00	10.0
95-48-7	o-Cresol		26.5	ug/L	3.00	10.0
65794-96-9	m,p-Cresols		30.7	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		32.1	ug/L	3.00	10.0
67-72-1	Hexachloroethane		22.9	ug/L	3.00	10.0
98-95-3	Nitrobenzene		32.7	ug/L	3.00	10.0
78-59-1	Isophorone		36.7	ug/L	3.00	10.0
88-75-5	2-Nitrophenol		35.8	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		27.2	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		31.7	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		35.7	ug/L	3.00	10.0
65-85-0	Benzoic acid		32.8	ug/L	6.00	20.0
106-47-8	4-Chloroaniline		34.2	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene		29.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		33.7	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		27.4	ug/L	0.300	1.00
91-20-3	Naphthalene		26.2	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene		29.3	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene		18.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		39.2	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		40.2	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		29.4	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*		33.5	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		37.1	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		41.7	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		43.8	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780154**				
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1263325**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 11:28**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1908.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		44.7	ug/L	3.00	10.0
208-96-8	Acenaphthylene		31.3	ug/L	0.300	1.00
83-32-9	Acenaphthene		29.7	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol		46.3	ug/L	5.00	20.0
132-64-9	Dibenzofuran		37.3	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol		46.1	ug/L	3.00	10.0
84-66-2	Diethylphthalate		41.2	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		10.1	ug/L	3.00	10.0
86-73-7	Fluorene		35.1	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether		37.2	ug/L	3.00	10.0
100-01-6	4-Nitroaniline		38.1	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		49.7	ug/L	3.00	10.0
122-39-4	Diphenylamine		36.2	ug/L	3.00	10.0
122-66-7	Azobenzene		31.7	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		38.9	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene		38.8	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		38.8	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene		37.1	ug/L	0.300	1.00
120-12-7	Anthracene		36.3	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		40.6	ug/L	3.00	10.0
206-44-0	Fluoranthene		39.7	ug/L	0.300	1.00
129-00-0	Pyrene		39.6	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate		37.4	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		38.1	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene		40.1	ug/L	0.300	1.00
218-01-9	Chrysene		39.2	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate		33.9	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene		38.8	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		39.3	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		38.3	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene		43.7	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene		38.8	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		45.9	ug/L	0.300	1.00
123-91-1	1,4-Dioxane		17.6	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		32.6	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780154**				
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1263325**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 11:28**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1908.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene		28.6	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine		30.4	ug/L	3.00	10.0
92-87-5	Benzidine		31.8	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		34.1	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		26.8	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	81.8	100	ug/L	81.8	(23%-130%)
2-Fluorobiphenyl	30.2	50.0	ug/L	60.4	(30%-104%)
2-Fluorophenol	35.7	100	ug/L	35.7	(14%-77%)
Nitrobenzene-d5	29.3	50.0	ug/L	58.5	(34%-125%)
Phenol-d5	21.7	100	ug/L	21.7	(10%-78%)
p-Terphenyl-d14	31.9	50.0	ug/L	63.8	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**1202780155**	**Date Received:**	**11/14/2012 09:00**		
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24250MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 16:28**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**445 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1920.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		53.6	ug/L	6.74	22.5
110-86-1	Pyridine		59.4	ug/L	6.74	22.5
62-53-3	Aniline		72.5	ug/L	6.74	22.5
108-95-2	Phenol		46.3	ug/L	6.74	22.5
111-44-4	bis(2-Chloroethyl) ether		69.5	ug/L	6.74	22.5
95-57-8	2-Chlorophenol		72.6	ug/L	6.74	22.5
541-73-1	1,3-Dichlorobenzene		56.8	ug/L	6.74	22.5
106-46-7	1,4-Dichlorobenzene		56.7	ug/L	6.74	22.5
95-50-1	1,2-Dichlorobenzene		57.4	ug/L	6.74	22.5
39638-32-9	bis(2-Chloroisopropyl)ether		75.8	ug/L	6.74	22.5
100-51-6	Benzyl alcohol		71.0	ug/L	6.74	22.5
95-48-7	o-Cresol		68.8	ug/L	6.74	22.5
65794-96-9	m,p-Cresols		85.2	ug/L	6.74	22.5
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		73.8	ug/L	6.74	22.5
67-72-1	Hexachloroethane		52.6	ug/L	6.74	22.5
98-95-3	Nitrobenzene		79.8	ug/L	6.74	22.5
78-59-1	Isophorone		88.2	ug/L	6.74	22.5
88-75-5	2-Nitrophenol		88.7	ug/L	6.74	22.5
105-67-9	2,4-Dimethylphenol		62.1	ug/L	6.74	22.5
111-91-1	bis(2-Chloroethoxy)methane		76.4	ug/L	6.74	22.5
120-83-2	2,4-Dichlorophenol		87.0	ug/L	6.74	22.5
65-85-0	Benzoic acid		138	ug/L	13.5	44.9
106-47-8	4-Chloroaniline		79.6	ug/L	7.42	22.5
87-68-3	Hexachlorobutadiene		67.9	ug/L	6.74	22.5
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		83.6	ug/L	6.74	22.5
91-57-6	2-Methylnaphthalene		65.1	ug/L	0.674	2.25
91-20-3	Naphthalene		62.2	ug/L	0.674	2.25
90-12-0	1-Methylnaphthalene		69.6	ug/L	0.674	2.25
77-47-4	Hexachlorocyclopentadiene		43.4	ug/L	6.74	22.5
88-06-2	2,4,6-Trichlorophenol		89.2	ug/L	6.74	22.5
95-95-4	2,4,5-Trichlorophenol		92.9	ug/L	6.74	22.5
91-58-7	2-Chloronaphthalene		65.6	ug/L	0.674	2.25
88-74-4	2-Nitroaniline *o-Nitroaniline*		78.6	ug/L	6.74	22.5
99-09-2	3-Nitroaniline *m-Nitroaniline*		84.7	ug/L	6.74	22.5
131-11-3	Dimethylphthalate		94.8	ug/L	6.74	22.5
606-20-2	2,6-Dinitrotoluene		99.4	ug/L	6.74	22.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**1202780155**	**Date Received:**	**11/14/2012 09:00**		
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24250MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 16:28**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**445 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1920.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		102	ug/L	6.74	22.5
208-96-8	Acenaphthylene		70.4	ug/L	0.674	2.25
83-32-9	Acenaphthene		66.4	ug/L	0.674	2.25
51-28-5	2,4-Dinitrophenol		115	ug/L	11.2	44.9
132-64-9	Dibenzofuran		84.1	ug/L	6.74	22.5
58-90-2	2,3,4,6-Tetrachlorophenol		106	ug/L	6.74	22.5
84-66-2	Diethylphthalate		93.2	ug/L	6.74	22.5
100-02-7	4-Nitrophenol		59.4	ug/L	6.74	22.5
86-73-7	Fluorene		80.3	ug/L	0.674	2.25
7005-72-3	4-Chlorophenylphenylether		85.1	ug/L	6.74	22.5
100-01-6	4-Nitroaniline		88.6	ug/L	6.74	22.5
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		120	ug/L	6.74	22.5
122-39-4	Diphenylamine		85.3	ug/L	6.74	22.5
122-66-7	Azobenzene		74.3	ug/L	6.74	22.5
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		90.6	ug/L	6.74	22.5
118-74-1	Hexachlorobenzene		89.9	ug/L	6.74	22.5
87-86-5	Pentachlorophenol		91.6	ug/L	6.74	22.5
88-85-7	Dinoseb	U	22.5	ug/L	6.74	22.5
85-01-8	Phenanthrene		86.9	ug/L	0.674	2.25
120-12-7	Anthracene		84.9	ug/L	0.674	2.25
84-74-2	Di-n-butylphthalate		90.5	ug/L	6.74	22.5
206-44-0	Fluoranthene		88.8	ug/L	0.674	2.25
129-00-0	Pyrene		95.7	ug/L	0.674	2.25
85-68-7	Butylbenzylphthalate		89.6	ug/L	6.74	22.5
117-81-7	bis(2-Ethylhexyl)phthalate		87.9	ug/L	6.74	22.5
56-55-3	Benzo(a)anthracene		94.2	ug/L	0.674	2.25
218-01-9	Chrysene		92.4	ug/L	0.674	2.25
117-84-0	Di-n-octylphthalate		74.9	ug/L	6.74	22.5
205-99-2	Benzo(b)fluoranthene		93.3	ug/L	0.674	2.25
207-08-9	Benzo(k)fluoranthene		96.1	ug/L	0.674	2.25
50-32-8	Benzo(a)pyrene		90.3	ug/L	0.989	2.25
193-39-5	Indeno(1,2,3-cd)pyrene		95.0	ug/L	0.674	2.25
53-70-3	Dibenzo(a,h)anthracene		76.4	ug/L	0.674	2.25
191-24-2	Benzo(ghi)perylene		100	ug/L	0.674	2.25
123-91-1	1,4-Dioxane		51.7	ug/L	6.74	22.5
55-18-5	N-Nitrosodiethylamine	U	22.5	ug/L	6.74	22.5
930-55-2	N-Nitrosopyrrolidine		79.3	ug/L	6.74	22.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**1202780155**	**Date Received:**	**11/14/2012 09:00**		
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24250MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 16:28**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**445 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1920.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	22.5	ug/L	6.74	22.5
95-94-3	1,2,4,5-Tetrachlorobenzene		64.0	ug/L	6.74	22.5
608-93-5	Pentachlorobenzene	U	22.5	ug/L	6.74	22.5
1912-24-9	Atrazine		68.8	ug/L	6.74	22.5
92-87-5	Benzidine		61.6	ug/L	6.74	22.5
91-94-1	3,3'-Dichlorobenzidine		78.7	ug/L	6.74	22.5
120-82-1	1,2,4-Trichlorobenzene		63.2	ug/L	6.74	22.5

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	188	225	ug/L	83.8	(23%-130%)
2-Fluorobiphenyl	69.4	112	ug/L	61.8	(30%-104%)
2-Fluorophenol	111	225	ug/L	49.6	(14%-77%)
Nitrobenzene-d5	71.3	112	ug/L	63.5	(34%-125%)
Phenol-d5	85.2	225	ug/L	37.9	(10%-78%)
p-Terphenyl-d14	80.9	112	ug/L	72.0	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**1202780156**	**Date Received:**	**11/14/2012 09:00**		
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24250MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 16:53**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**445 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1921.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		53.4	ug/L	6.74	22.5
110-86-1	Pyridine		59.0	ug/L	6.74	22.5
62-53-3	Aniline		72.6	ug/L	6.74	22.5
108-95-2	Phenol		47.0	ug/L	6.74	22.5
111-44-4	bis(2-Chloroethyl) ether		71.8	ug/L	6.74	22.5
95-57-8	2-Chlorophenol		73.6	ug/L	6.74	22.5
541-73-1	1,3-Dichlorobenzene		56.4	ug/L	6.74	22.5
106-46-7	1,4-Dichlorobenzene		56.5	ug/L	6.74	22.5
95-50-1	1,2-Dichlorobenzene		57.5	ug/L	6.74	22.5
39638-32-9	bis(2-Chloroisopropyl)ether		75.8	ug/L	6.74	22.5
100-51-6	Benzyl alcohol		72.6	ug/L	6.74	22.5
95-48-7	o-Cresol		71.2	ug/L	6.74	22.5
65794-96-9	m,p-Cresols		88.4	ug/L	6.74	22.5
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		77.3	ug/L	6.74	22.5
67-72-1	Hexachloroethane		52.5	ug/L	6.74	22.5
98-95-3	Nitrobenzene		80.4	ug/L	6.74	22.5
78-59-1	Isophorone		93.0	ug/L	6.74	22.5
88-75-5	2-Nitrophenol		91.2	ug/L	6.74	22.5
105-67-9	2,4-Dimethylphenol		63.1	ug/L	6.74	22.5
111-91-1	bis(2-Chloroethoxy)methane		78.8	ug/L	6.74	22.5
120-83-2	2,4-Dichlorophenol		89.5	ug/L	6.74	22.5
65-85-0	Benzoic acid		140	ug/L	13.5	44.9
106-47-8	4-Chloroaniline		82.1	ug/L	7.42	22.5
87-68-3	Hexachlorobutadiene		68.0	ug/L	6.74	22.5
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		89.3	ug/L	6.74	22.5
91-57-6	2-Methylnaphthalene		67.6	ug/L	0.674	2.25
91-20-3	Naphthalene		63.0	ug/L	0.674	2.25
90-12-0	1-Methylnaphthalene		71.3	ug/L	0.674	2.25
77-47-4	Hexachlorocyclopentadiene		41.1	ug/L	6.74	22.5
88-06-2	2,4,6-Trichlorophenol		93.6	ug/L	6.74	22.5
95-95-4	2,4,5-Trichlorophenol		96.9	ug/L	6.74	22.5
91-58-7	2-Chloronaphthalene		67.4	ug/L	0.674	2.25
88-74-4	2-Nitroaniline *o-Nitroaniline*		81.4	ug/L	6.74	22.5
99-09-2	3-Nitroaniline *m-Nitroaniline*		90.2	ug/L	6.74	22.5
131-11-3	Dimethylphthalate		98.7	ug/L	6.74	22.5
606-20-2	2,6-Dinitrotoluene		103	ug/L	6.74	22.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**1202780156**	**Date Received:**	**11/14/2012 09:00**		
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24250MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 16:53**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**445 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1921.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		108	ug/L	6.74	22.5
208-96-8	Acenaphthylene		73.1	ug/L	0.674	2.25
83-32-9	Acenaphthene		69.7	ug/L	0.674	2.25
51-28-5	2,4-Dinitrophenol		122	ug/L	11.2	44.9
132-64-9	Dibenzofuran		87.1	ug/L	6.74	22.5
58-90-2	2,3,4,6-Tetrachlorophenol		113	ug/L	6.74	22.5
84-66-2	Diethylphthalate		97.3	ug/L	6.74	22.5
100-02-7	4-Nitrophenol		50.9	ug/L	6.74	22.5
86-73-7	Fluorene		83.7	ug/L	0.674	2.25
7005-72-3	4-Chlorophenylphenylether		88.5	ug/L	6.74	22.5
100-01-6	4-Nitroaniline		97.0	ug/L	6.74	22.5
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		124	ug/L	6.74	22.5
122-39-4	Diphenylamine		84.7	ug/L	6.74	22.5
122-66-7	Azobenzene		73.5	ug/L	6.74	22.5
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		90.5	ug/L	6.74	22.5
118-74-1	Hexachlorobenzene		91.2	ug/L	6.74	22.5
87-86-5	Pentachlorophenol		97.7	ug/L	6.74	22.5
88-85-7	Dinoseb	U	22.5	ug/L	6.74	22.5
85-01-8	Phenanthrene		88.4	ug/L	0.674	2.25
120-12-7	Anthracene		87.0	ug/L	0.674	2.25
84-74-2	Di-n-butylphthalate		95.7	ug/L	6.74	22.5
206-44-0	Fluoranthene		96.9	ug/L	0.674	2.25
129-00-0	Pyrene		93.4	ug/L	0.674	2.25
85-68-7	Butylbenzylphthalate		89.8	ug/L	6.74	22.5
117-81-7	bis(2-Ethylhexyl)phthalate		92.2	ug/L	6.74	22.5
56-55-3	Benzo(a)anthracene		96.7	ug/L	0.674	2.25
218-01-9	Chrysene		95.5	ug/L	0.674	2.25
117-84-0	Di-n-octylphthalate		84.7	ug/L	6.74	22.5
205-99-2	Benzo(b)fluoranthene		95.7	ug/L	0.674	2.25
207-08-9	Benzo(k)fluoranthene		96.4	ug/L	0.674	2.25
50-32-8	Benzo(a)pyrene		91.9	ug/L	0.989	2.25
193-39-5	Indeno(1,2,3-cd)pyrene		99.1	ug/L	0.674	2.25
53-70-3	Dibenzo(a,h)anthracene		93.8	ug/L	0.674	2.25
191-24-2	Benzo(ghi)perylene		100	ug/L	0.674	2.25
123-91-1	1,4-Dioxane		51.9	ug/L	6.74	22.5
55-18-5	N-Nitrosodiethylamine	U	22.5	ug/L	6.74	22.5
930-55-2	N-Nitrosopyrrolidine		83.8	ug/L	6.74	22.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/09/2012 16:04**	**Matrix:**	**W**
Lab Sample ID:	**1202780156**	**Date Received:**	**11/14/2012 09:00**		
Client Sample:	**QC for batch 1263325**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24250MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1263326**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/19/2012 16:53**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/15/2012 10:50**	**Aliquot:**	**445 mL**	**Final Volume:**	**1 mL**
Data File:	**S111912.B\s3k1921.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	22.5	ug/L	6.74	22.5
95-94-3	1,2,4,5-Tetrachlorobenzene		64.4	ug/L	6.74	22.5
608-93-5	Pentachlorobenzene	U	22.5	ug/L	6.74	22.5
1912-24-9	Atrazine		69.8	ug/L	6.74	22.5
92-87-5	Benzidine		144	ug/L	6.74	22.5
91-94-1	3,3'-Dichlorobenzidine		87.4	ug/L	6.74	22.5
120-82-1	1,2,4-Trichlorobenzene		63.4	ug/L	6.74	22.5

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	206	225	ug/L	91.7	(23%-130%)
2-Fluorobiphenyl	73.7	112	ug/L	65.6	(30%-104%)
2-Fluorophenol	114	225	ug/L	50.8	(14%-77%)
Nitrobenzene-d5	73.1	112	ug/L	65.1	(34%-125%)
Phenol-d5	87.6	225	ug/L	39.0	(10%-78%)
p-Terphenyl-d14	80.7	112	ug/L	71.8	(33%-136%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
20-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 8270C	Liquid	ARSL (ESHL)
Batch ID:	**Sample Numbers:**		
1263326	See Below		

Potentially affected work order(s)(SDG): 314987(2013-297),315159(2013-306)

Application Issues:

Failed RPD for MS/MSD, or PS/PSD

Failed Recovery for LCS/LCSD

Specification and Requirements Exception Description:	DER Disposition:
1. The LCS(1202780154) recovered 1,4-Dioxane at 35% (limits are 41%-69%) and Hexachlorocyclopentadiene at 36% (limits are 38%-79%).	1. The LCS spike failures represent less than 5% of the requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported.
2. The MS(1202780155)/MSD(1202780156) RPD value for Benzidine was 80%. The limit is 30%.	2. Since Benzidine was individually within the acceptance limits for the MS and MSD, the non-conformance had no adverse impact on the data and the results have been reported.

Originator's Name:

Jennifer Dunagan Jones 20-NOV-12

Data Validator/Group Leader:

Barbara Bailey 20-NOV-12

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC/MSMS
ARS International (ARSL)
SDG 2013-297

Method/Analysis Information

Procedure:	**Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method:	SW846 6850 Modified
Prep Method:	SW846 6850 Modified
Analytical Batch Number:	1262376
Prep Batch Number:	1262373

Sample Analysis

Sample ID	Client ID
314987004	CAMO-13-24270
314987010	CAMO-13-24229
1202777953	Interference Check Sample (ICS)
1202777944	Method Blank (MB)
1202777945	Laboratory Control Sample (LCS)
1202777946	314639003(CASA-13-24224) Matrix Spike (MS)
1202777947	314639003(CASA-13-24224) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 9.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

ICV Requirements
The initial calibration verification standard (ICV) met the acceptance criteria.

CCB Requirements
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

CCV Requirements
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

Low Level Standard (CRI) Requirements
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Interference Check Sample (ICS)
The interference check sample (ICS) met all recovery acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Client sample 314639003 (CASA-13-24224) from SDG 2013-270 was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits.

Retention Time Standard Area Acceptance
The retention time standard areas were within the required acceptance criteria for all samples and QC.

Retention Time
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

A data exception report (DER) was not generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

Additional Comments
The concentration observed in each matrix spike was above the calibration range. This was due to the background concentration present in the parent sample, 314639003 (CASA-13-24224). Re-analysis at a dilution was not necessary since the parent sample did not require a dilution.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples.

Please see the isotope ratio criteria in the Miscellaneous Section.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-297 GEL Work Order: 314987

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 20 NOV 2012 **Title: Group Leader**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24270

Date Received: 10-NOV-12

GEL Job No (SDG): 2013-297

GEL Sample ID: 314987004

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.771	ug/L		1	13-NOV-12 16:46	per1113028a
	Perchlorate Isotope Ratio			3.14			1	13-NOV-12 16:46	per1113028a
14797-73-0	Perchlorate-101	.05	.2	0.782	ug/L		1	13-NOV-12 16:46	per1113028a
	Perchlorate-O(18)			0.517	ug/L		1	13-NOV-12 16:46	per1113028a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24229

Date Received: 10-NOV-12

GEL Job No (SDG): 2013-297

GEL Sample ID: 314987010

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.764	ug/L		1	13-NOV-12 16:54	per1113029a
	Perchlorate Isotope Ratio			3.07			1	13-NOV-12 16:54	per1113029a
14797-73-0	Perchlorate-101	.05	.2	0.793	ug/L		1	13-NOV-12 16:54	per1113029a
	Perchlorate-O(18)			0.525	ug/L		1	13-NOV-12 16:54	per1113029a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2013-297

Extract Batch Code: 1262373

Date Filtered: 13-NOV-12

Matrix: WATER

Sample ID: 1202777945

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.202	ug/L	101		85 - 115
Perchlorate Isotope Ratio		2.92				-
Perchlorate-101	0.200	.22	ug/L	110		85 - 115
Perchlorate-O(18)		.486	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2013-297

Extract Batch Code: 1262373

Date Extracted: 13-NOV-12

GEL MS/PS ID: 1202777946

Client ID: CASA-13-24224

GEL MSD/PSD ID: 1202777947

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec #	MSD Conc	MSD Rec #	RPD #	RPD Limit	Recovery Limit
Perchlorate	0.200	0.942	ug/L	1.14	100	1.17	114	2.41	30	75 - 125
Perchlorate Isotope Ratio	0	3.08		3.19		3.09		3.03		-
Perchlorate-101	0.200	0.974	ug/L	1.14	84.3	1.21	116	5.44	30	75 - 125
Perchlorate-O(18)	0	0.515	ug/L	0.490		.502		2.49		-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 13-NOV-12

GEL Job No (SDG): 2013-297

GEL Sample ID: 1202777944

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	13-NOV-12 14:37	per1113012a
	Perchlorate Isotope Ratio						1	13-NOV-12 14:37	per1113012a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	13-NOV-12 14:37	per1113012a
	Perchlorate-O(18)			0.496	ug/L		1	13-NOV-12 14:37	per1113012a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 13-NOV-12

GEL Job No (SDG): 2013-297

GEL Sample ID: 1202777945

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.202	ug/L		1	13-NOV-12 14:45	per1113013a
	Perchlorate Isotope Ratio			2.92			1	13-NOV-12 14:45	per1113013a
14797-73-0	Perchlorate-101	.05	.2	0.220	ug/L		1	13-NOV-12 14:45	per1113013a
	Perchlorate-O(18)			0.486	ug/L		1	13-NOV-12 14:45	per1113013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2013-297

GEL Sample ID: 1202777953

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.198	ug/L	J	1	13-NOV-12 14:53	per1113014a
	Perchlorate Isotope Ratio			3.06			1	13-NOV-12 14:53	per1113014a
14797-73-0	Perchlorate-101	.05	.2	0.206	ug/L		1	13-NOV-12 14:53	per1113014a
	Perchlorate-O(18)			0.489	ug/L		1	13-NOV-12 14:53	per1113014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24224MS

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-297

GEL Sample ID: 1202777946

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	1.14	ug/L		1	13-NOV-12 15:25	per1113018a
	Perchlorate Isotope Ratio			3.19			1	13-NOV-12 15:25	per1113018a
14797-73-0	Perchlorate-101	.05	.2	1.14	ug/L		1	13-NOV-12 15:25	per1113018a
	Perchlorate-O(18)			0.490	ug/L		1	13-NOV-12 15:25	per1113018a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24224MSD

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-297

GEL Sample ID: 1202777947

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	1.17	ug/L		1	13-NOV-12 15:33	per1113019a
	Perchlorate Isotope Ratio			3.09			1	13-NOV-12 15:33	per1113019a
14797-73-0	Perchlorate-101	.05	.2	1.21	ug/L		1	13-NOV-12 15:33	per1113019a
	Perchlorate-O(18)			0.502	ug/L		1	13-NOV-12 15:33	per1113019a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Explosives by LCMSMS Analysis

Case Narrative

LC/MS/MS Case Narrative
ARS International (ARSL)
SDG 2013-297

Method/Analysis Information

Procedure:	**Definitive Low Level Analysis of Nitroaromatic Explosives Utilizing Liquid Chromatography / Mass Spectrometry / Mass Spectrometry (LC/MS/MS) by SW-846 Method 8321 Modified (8321M)**
Analytical Method:	SW846 3535/8321A Modified
Prep Method:	SW846 Method 3535
Analytical Batch Number:	1262852
Prep Batch Number:	1262851

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3535/8321A Modified :

Sample ID	Client ID
314987003	CAMO-13-24253
314987009	CAMO-13-24228
1202779024	Method Blank (MB)
1202779025	Laboratory Control Sample (LCS)
1202779026	314987003(CAMO-13-24253) Matrix Spike (MS)
1202779027	314987003(CAMO-13-24253) Matrix Spike Duplicate (MSD)

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-056 REV# 17.

Primary Analyte Analysis

Calibration Information

Initial Calibration
All initial calibration requirements for this analysis have been met for this SDG.

Calibration Verification Standard Requirements

All associated calibration verification standards (ICV and CCV) for this analysis met the acceptance criteria.

Calibration Blank Requirements
All initial and continuing calibration blanks (ICB and CCB) bracketing the analyses associated with this batch for this analysis were within acceptance criteria.

Due to software limitations, the CCBs and/or the ICBs may have a concentration for target analytes in the Found column. These values should be zero.

CRI Requirements
All low level calibration verification (CRI) requirements for this analysis were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG for this analysis met the acceptance criteria.

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria in this SDG in this analytical batch for this analysis.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries were within the established acceptance limits.

QC Sample Designation
Client sample 314987003 (CAMO-13-24253) was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
The MS spike recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD spike recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits for this analysis.

Internal Standard (ISTD) Acceptance
A final internal standard concentration of 100ug/L is employed in order to meet the minimum response factor requirement of 0.01 per EPA Method 8000C for the analysis of explosives on the API 4000.

The internal standard responses were within the required acceptance criteria for all samples and QC in this SDG.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
According to the GEL SOP for Method 8321A, all sample and QC extracts are diluted 1:1 v/v with HPLC grade water.

The samples in this SDG in this analytical batch for this analysis did not require any additional dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG in this analytical batch for this analysis.

Secondary Analyte Analysis

Calibration Information

Initial Calibration
All initial calibration requirements for this analysis have been met for this SDG.

Calibration Verification Standard Requirements

Calibration verification standard EXS11270023 did not meet acceptance criteria of 80-120% for the recovery of TATB at 79.5%. The data are Q qualified and are reported as stated in the SOP.

All other associated calibration verification standards (ICV and CCV) for this analysis met the acceptance criteria.

Calibration Blank Requirements
All initial and continuing calibration blanks (ICB and CCB) bracketing the analyses associated with this batch for this analysis were within acceptance criteria.

Due to software limitations, the CCBs and/or the ICBs may have a concentration for target analytes in the Found column. These values should be zero.

CRI Requirements
All low level calibration verification (CRI) requirements for this analysis were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG for this analysis met the acceptance criteria.

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria in this SDG in this analytical batch for this analysis.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries were within the established acceptance limits.

QC Sample Designation
Client sample 314987003 (CAMO-13-24253) was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
The MS (1202779026) did not meet acceptance criteria for the recovery of 2,4-Diamino-6-nitrotoluene at 65.8%. The limits are 66-108%. Both the LCS (1202779025) and MSD (1202779027) have passing recoveries for all target analytes. Target analytes were not detected in any of the associated samples. The data are reported with the appropriate DER.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD spike recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits for this analysis.

Internal Standard (ISTD) Acceptance
The internal standards were not added to the Secondary analyte extracts.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
According to the GEL SOP for Method 8321A, all sample and QC extracts are diluted 1:1 v/v with HPLC grade water.

The samples in this SDG in this analytical batch for this analysis did not require any additional dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG in this analytical batch for this analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data Exception Report 1145821 was generated for this SDG.

The MS (1202779026) did not meet acceptance criteria for the recovery of 2,4-Diamino-6-nitrotoluene at 65.8%. The limits are 66-108%. Both the LCS (1202779025) and MSD (1202779027) have passing recoveries for all target analytes. Target analytes were not detected in any of the associated samples. The data are reported with the appropriate DER.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Flagging Convention
The samples were not originally analyzed using SW-846 Method 8330.

Additional Comments
Due to software limitations, all initial calibration blanks must be designated as XIB001 in order for the forms to be correct.

Due to software limitations in the Secondary analyte analysis, false positives and analytes detected below the MDL cannot be deleted from the raw data.

Due to software limitations, file extensions such as DL, RE, etc. may not appear on the generated forms and/or raw data.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Primary analyte analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an APCI (Atmospheric Pressure chemical Ionization) probe that is operated in the negative ionization mode for the Primary analyte analysis.

The laboratory also utilizes an Agilent 1100 liquid chromatography instrument for either Primary or Secondary analyte analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as either LCMSMS #3 or LCMSMS #4. It is fitted with an APCI (Atmospheric Pressure chemical Ionization) probe that is operated in the negative ionization mode for both the Primary and Secondary analyte analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

The detection of the Primary analyte Nitroaromatic and Nitramines is accomplished through analysis on the following reversed phase column:

Phenomenex: Ultracarb 5u ODS (20), 250 x 4.60 mm ID.

The detection of the Secondary analytes is accomplished through analysis on the following reversed phase column:

YMC: J'sphere ODS-H80, 150 x 4.6mm I.D.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-297 GEL Work Order: 314987

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 05 DEC 2012 **Title: Group Leader**

Sample Data Summary

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24253

Lab Code: GEL

GEL Job No (SDG) 2013-297

Matrix: WATER

GEL Sample ID: 314987003

Sample Amount 930 mL

Date Received: 10-NOV-12

Moisture:

Extraction Batch ID: 1262851

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP1129015.wiff

Date Analyzed: 29-NOV-12 19:18

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	0.269	U	0.086	0.269
118-96-7	*2,4,6-Trinitrotoluene*				
121-14-2	2,4-Dinitrotoluene	0.269	U	0.086	0.269
121-14-2	*2,4-Dinitrotoluene*				
121-82-4	RDX	0.269	U	0.086	0.269
121-82-4	*RDX*				
13980-04-6	TNX	0.269	U	0.086	0.269
13980-04-6	*TNX*				
19406-51-0	4-Amino-2,6-dinitrotoluene	0.269	U	0.086	0.269
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
2691-41-0	HMX	0.269	U	0.086	0.269
2691-41-0	*HMX*				
35572-78-2	2-Amino-4,6-dinitrotoluene	0.269	U	0.086	0.269
35572-78-2	*2-Amino-4,6-dinitrotoluene*				
5755-27-1	MNX	0.269	U	0.086	0.269
5755-27-1	*MNX*				
606-20-2	2,6-Dinitrotoluene	0.269	U	0.086	0.269
606-20-2	*2,6-Dinitrotoluene*				
80251-29-2	DNX	0.269	U	0.086	0.269
80251-29-2	*DNX*				
88-72-2	o-Nitrotoluene	0.269	U	0.0882	0.269
88-72-2	*o-Nitrotoluene*				
98-95-3	Nitrobenzene	0.269	U	0.086	0.269
98-95-3	*Nitrobenzene*				
99-08-1	m-Nitrotoluene	0.269	U	0.086	0.269
99-08-1	*m-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24253

Lab Code: GEL

GEL Job No (SDG) 2013-297

Matrix: WATER

GEL Sample ID: 314987003

Sample Amount 930 mL

Date Received: 10-NOV-12

Moisture:

Extraction Batch ID: 1262851

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-35-4	1,3,5-Trinitrobenzene	0.269	U	0.086	0.269
99-35-4	*1,3,5-Trinitrobenzene*				
99-65-0	m-Dinitrobenzene	0.269	U	0.086	0.269
99-65-0	*m-Dinitrobenzene*				
479-45-8	Tetryl	0.538	U	0.086	0.538
479-45-8	*Tetryl*				
78-11-5	PETN	0.538	U	0.108	0.538
78-11-5	*PETN*				
99-99-0	p-Nitrotoluene	0.538	U	0.161	0.538
99-99-0	*p-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24253

Lab Code: GEL

GEL Job No (SDG) 2013-297

Matrix: WATER

GEL Sample ID: 314987003

Sample Amount 930 mL

Date Received: 10-NOV-12

Moisture:

Extraction Batch ID: 1262851

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS11270019.wiff

Date Analyzed: 27-NOV-12 19:34

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.08	QU	0.323	1.08
3058-38-6	*TATB*				
618-87-1	3,5-Dinitroaniline	1.08	U	0.323	1.08
618-87-1	*3,5-Dinitroaniline*				
78-30-8	tris(o-cresyl) phosphate	1.08	U	0.323	1.08
78-30-8	*tris(o-cresyl) phosphate*				
59229-75-3	2,6-Diamino-4-nitrotoluene	2.69	U	0.538	2.69
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
6629-29-4	2,4-Diamino-6-nitrotoluene	2.69	U	0.538	2.69
6629-29-4	*2,4-Diamino-6-nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24228

Lab Code: GEL

GEL Job No (SDG) 2013-297

Matrix: WATER

GEL Sample ID: 314987009

Sample Amount 915 mL

Date Received: 10-NOV-12

Moisture:

Extraction Batch ID: 1262851

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP1129018.wiff

Date Analyzed: 29-NOV-12 21:03

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	0.273	U	0.0874	0.273
118-96-7	*2,4,6-Trinitrotoluene*				
121-14-2	2,4-Dinitrotoluene	0.273	U	0.0874	0.273
121-14-2	*2,4-Dinitrotoluene*				
121-82-4	RDX	0.273	U	0.0874	0.273
121-82-4	*RDX*				
13980-04-6	TNX	0.273	U	0.0874	0.273
13980-04-6	*TNX*				
19406-51-0	4-Amino-2,6-dinitrotoluene	0.273	U	0.0874	0.273
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
2691-41-0	HMX	0.273	U	0.0874	0.273
2691-41-0	*HMX*				
35572-78-2	2-Amino-4,6-dinitrotoluene	0.273	U	0.0874	0.273
35572-78-2	*2-Amino-4,6-dinitrotoluene*				
5755-27-1	MNX	0.273	U	0.0874	0.273
5755-27-1	*MNX*				
606-20-2	2,6-Dinitrotoluene	0.273	U	0.0874	0.273
606-20-2	*2,6-Dinitrotoluene*				
80251-29-2	DNX	0.273	U	0.0874	0.273
80251-29-2	*DNX*				
88-72-2	o-Nitrotoluene	0.273	U	0.0896	0.273
88-72-2	*o-Nitrotoluene*				
98-95-3	Nitrobenzene	0.273	U	0.0874	0.273
98-95-3	*Nitrobenzene*				
99-08-1	m-Nitrotoluene	0.273	U	0.0874	0.273
99-08-1	*m-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24228

Lab Code: GEL

GEL Job No (SDG) 2013-297

Matrix: WATER

GEL Sample ID: 314987009

Sample Amount 915 mL

Date Received: 10-NOV-12

Moisture:

Extraction Batch ID: 1262851

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-35-4	1,3,5-Trinitrobenzene	0.273	U	0.0874	0.273
99-35-4	*1,3,5-Trinitrobenzene*				
99-65-0	m-Dinitrobenzene	0.273	U	0.0874	0.273
99-65-0	*m-Dinitrobenzene*				
479-45-8	Tetryl	0.546	U	0.0874	0.546
479-45-8	*Tetryl*				
78-11-5	PETN	0.546	U	0.109	0.546
78-11-5	*PETN*				
99-99-0	p-Nitrotoluene	0.546	U	0.164	0.546
99-99-0	*p-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24228

Lab Code: GEL

GEL Job No (SDG) 2013-297

Matrix: WATER

GEL Sample ID: 314987009

Sample Amount 915 mL

Date Received: 10-NOV-12

Moisture:

Extraction Batch ID: 1262851

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS11270022.wiff

Date Analyzed: 27-NOV-12 20:24

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.09	QU	0.328	1.09
3058-38-6	*TATB*				
618-87-1	3,5-Dinitroaniline	1.09	U	0.328	1.09
618-87-1	*3,5-Dinitroaniline*				
78-30-8	tris(o-cresyl) phosphate	1.09	U	0.328	1.09
78-30-8	*tris(o-cresyl) phosphate*				
59229-75-3	2,6-Diamino-4-nitrotoluene	2.73	U	0.546	2.73
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
6629-29-4	2,4-Diamino-6-nitrotoluene	2.73	U	0.546	2.73
6629-29-4	*2,4-Diamino-6-nitrotoluene*				

Quality Control Summary

High Explosives Surrogate Recovery Summary

Lab Name: GEL Laboratories LLC **GEL Job No (SDG):** 2013-297

Lab Code: GEL **HPLC Column:** Phenomenex Ultracarb 5u ODS(20)

Lab Sample ID	Client Sample ID	DNT	QC Limits	Flg
314987003	CAMO-13-24253	97.2	66 - 120	
314987003	CAMO-13-24253	80.4	66 - 120	
314987009	CAMO-13-24228	95.6	66 - 120	
314987009	CAMO-13-24228	78.8	66 - 120	
1202778683	20121108M00307MS	91.6	66 - 120	
1202778684	20121108M00307MSD	88.4	66 - 120	
1202779024	MB for batch 1262851	96	66 - 120	
1202779024	MB for batch 1262851	87.2	66 - 120	
1202779025	LCS for batch 1262851	91.6	66 - 120	
1202779025	LCS for batch 1262851	80.4	66 - 120	
1202779026	CAMO-13-24253MS	92	66 - 120	
1202779026	CAMO-13-24253MS	79.6	66 - 120	
1202779027	CAMO-13-24253MSD	92	66 - 120	
1202779027	CAMO-13-24253MSD	81.6	66 - 120	

DNT = 3,4-Dinitrotoluene

3B
High Explosives LCS/LCS Duplicate Summary

Lab Name: GEL Laboratories LLC

Client ID: LCS

Lab Code: GEL

GEL Job No (SDG) 2013-297

Extract Batch Code: 1262851

Date Extracted:

GEL LCS ID: 1202779025

GEL LCSDUP ID:

Analysis Date/Time: 29-NOV-12 18:43

DUP Analysis Date/Time:

Reporting Units: ug/L

QC Type: LCS/LCSD

Compound	Spike Added	LCS Conc	LCS Rec #	LCSD Conc	LCSD Rec #	RPD #	RPD	Recovery Limits
1,3,5-Trinitrobenzene	5	5.66	113					62 - 114
2,4,6-Trinitrotoluene	5	4.45	89					72 - 124
2,4-Dinitrotoluene	5	4.6	92					75 - 119
2,6-Dinitrotoluene	5	4.3	86					77 - 111
2-Amino-4,6-dinitrotoluene	5	4.75	95					73 - 121
4-Amino-2,6-dinitrotoluene	5	4.5	90					72 - 122
DNX	5	4.59	91.8					72 - 117
HMX	5	4.51	90.2					66 - 110
MNX	5	4.78	95.6					67 - 125
Nitrobenzene	5	5.21	104					64 - 112
PETN	5	3.8	76					64 - 121
RDX	5	4.96	99.2					77 - 122
TNX	5	4.93	98.6					65 - 116
Tetryl	5	4.48	89.6					40 - 118
m-Dinitrobenzene	5	5.03	101					79 - 119
m-Nitrotoluene	5	4.62	92.4					59 - 115
o-Nitrotoluene	5	4.33	86.6					60 - 111
p-Nitrotoluene	5	4.6	92					61 - 113

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

3B
High Explosives LCS/LCS Duplicate Summary

Lab Name: GEL Laboratories LLC

Client ID: LCS

Lab Code: GEL

GEL Job No (SDG) 2013-297

Extract Batch Code: 1262851

Date Extracted:

GEL LCS ID: 1202779025

GEL LCSDUP ID:

Analysis Date/Time: 27-NOV-12 19:18

DUP Analysis Date/Time:

Reporting Units: ug/L

QC Type: LCS/LCSD

Compound	Spike Added	LCS Conc	LCS Rec #	LCSD Conc	LCSD Rec #	RPD #	RPD	Recovery Limits
2,4-Diamino-6-nitrotoluene	5	3.66	73.2					61 - 105
2,6-Diamino-4-nitrotoluene	5	3.8	76					64 - 115
3,5-Dinitroaniline	5	4.23	84.6					73 - 112
TATB	5	1.78	35.6					32 - 169
tris(o-cresyl) phosphate	5	2.77	55.4					30 - 82

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

High Explosives MS/MSD Summary

Lab Name: GEL Laboratories LLC

Client ID: CAMO-13-24253

Lab Code: GEL

GEL Job No (SDG) 2013-297

Extract Batch Code: 1262851

Date Extracted: 29-NOV-12

GEL Spike ID: 1202779026

GEL SpikeDup ID: 1202779027

Analysis Date/Time: 29-NOV-12 19:53

MSD Analysis Date/Time: 29-NOV-12 20:28

Reporting Units: ug/L

QC Type: MS/MSD

Compound	Spike Added	Sample Conc	MS Conc	MS Rec #	MSD Conc	MSD Rec #	RPD #	RPD Limit	Rec Limits
1,3,5-Trinitrobenzene	5.49451	.00527	5.59	102	4.41	80.1	23.7	25	58 - 121
2,4,6-Trinitrotoluene	5.49451	.00535	5.43	98.7	5	90.9	8.22	25	64 - 132
2,4-Dinitrotoluene	5.49451	0	5.32	96.8	4.73	86	11.8	25	72 - 126
2,6-Dinitrotoluene	5.49451	.00508	4.75	86.3	4.91	89.3	3.41	25	74 - 117
2-Amino-4,6-dinitrotoluene	5.49451	0	5.34	97.2	5.62	102	5.02	25	67 - 129
4-Amino-2,6-dinitrotoluene	5.49451	0	5.66	103	5.29	96.2	6.83	25	64 - 132
DNX	5.49451	0	5.41	98.4	4.7	85.6	13.9	25	67 - 124
HMX	5.49451	0	5.31	96.6	4.15	75.6	24.4	25	60 - 121
MNX	5.49451	0	5.4	98.2	4.37	79.6	20.9	25	67 - 127
Nitrobenzene	5.49451	0	5.19	94.4	4.69	85.4	10	25	60 - 113
PETN	5.49451	0	4.8	87.4	4.76	86.6	.92	25	58 - 127
RDX	5.49451	0	5.64	103	4.41	80.2	24.5	25	64 - 137
TNX	5.49451	0	4.99	90.8	4.37	79.6	13.1	25	61 - 117
Tetryl	5.49451	0	4.36	79.4	3.45	62.8	23.3	25	30 - 110
m-Dinitrobenzene	5.49451	0	5.63	102	4.95	90	12.9	25	73 - 126
m-Nitrotoluene	5.49451	0	4.68	85.2	4.82	87.8	3.01	25	56 - 114
o-Nitrotoluene	5.49451	0	4.4	80	4.45	81	1.24	25	57 - 113
p-Nitrotoluene	5.49451	0	4.58	83.4	4.76	86.6	3.77	25	54 - 119

#Column to be used to flag recovery and RPD values with an asterisk

High Explosives MS/MSD Summary

Lab Name: GEL Laboratories LLC

Client ID: CAMO-13-24253

Lab Code: GEL

GEL Job No (SDG) 2013-297

Extract Batch Code: 1262851

Date Extracted: 27-NOV-12

GEL Spike ID: 1202779026

GEL SpikeDup ID: 1202779027

Analysis Date/Time: 27-NOV-12 19:51

MSD Analysis Date/Time: 27-NOV-12 20:08

Reporting Units: ug/L

QC Type: MS/MSD

Compound	Spike Added	Sample Conc	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Rec Limits
2,4-Diamino-6-nitrotoluene	5.49451	0	3.62	65.8	*	4.08	74.2		12		25	66 - 108
2,6-Diamino-4-nitrotoluene	5.49451	0	4.68	85.2		4.82	87.8		3.01		25	72 - 112
3,5-Dinitroaniline	5.49451	0	4.82	87.8		4.93	89.8		2.25		25	75 - 116
TATB	5.49451	0	1.89	34.4		1.86	33.8		1.76		25	32 - 96
tris(o-cresyl) phosphate	5.49451	.0258	3.56	64.3		3.53	63.7		.93		25	30 - 80

#Column to be used to flag recovery and RPD values with an asterisk

Quality Control Data

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1262851

Lab Code: GEL

GEL Job No (SDG) 2013-297

Matrix: WATER

GEL Sample ID: 1202779024

Sample Amount 1000 mL

Date Received: 10-NOV-12

Moisture:

Extraction Batch ID: 1262851

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP1129013.wiff

Date Analyzed: 29-NOV-12 18:08

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	0.250	U	0.080	0.250
118-96-7	*2,4,6-Trinitrotoluene*				
121-14-2	2,4-Dinitrotoluene	0.250	U	0.080	0.250
121-14-2	*2,4-Dinitrotoluene*				
121-82-4	RDX	0.250	U	0.080	0.250
121-82-4	*RDX*				
13980-04-6	TNX	0.250	U	0.080	0.250
13980-04-6	*TNX*				
19406-51-0	4-Amino-2,6-dinitrotoluene	0.250	U	0.080	0.250
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
2691-41-0	HMX	0.250	U	0.080	0.250
2691-41-0	*HMX*				
35572-78-2	2-Amino-4,6-dinitrotoluene	0.250	U	0.080	0.250
35572-78-2	*2-Amino-4,6-dinitrotoluene*				
5755-27-1	MNX	0.250	U	0.080	0.250
5755-27-1	*MNX*				
606-20-2	2,6-Dinitrotoluene	0.250	U	0.080	0.250
606-20-2	*2,6-Dinitrotoluene*				
80251-29-2	DNX	0.250	U	0.080	0.250
80251-29-2	*DNX*				
88-72-2	o-Nitrotoluene	0.250	U	0.082	0.250
88-72-2	*o-Nitrotoluene*				
98-95-3	Nitrobenzene	0.250	U	0.080	0.250
98-95-3	*Nitrobenzene*				
99-08-1	m-Nitrotoluene	0.250	U	0.080	0.250
99-08-1	*m-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1262851

Lab Code: GEL

GEL Job No (SDG) 2013-297

Matrix: WATER

GEL Sample ID: 1202779024

Sample Amount 1000 mL

Date Received: 10-NOV-12

Moisture:

Extraction Batch ID: 1262851

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-35-4	1,3,5-Trinitrobenzene	0.250	U	0.080	0.250
99-35-4	*1,3,5-Trinitrobenzene*				
99-65-0	m-Dinitrobenzene	0.250	U	0.080	0.250
99-65-0	*m-Dinitrobenzene*				
479-45-8	Tetryl	0.500	U	0.080	0.500
479-45-8	*Tetryl*				
78-11-5	PETN	0.500	U	0.100	0.500
78-11-5	*PETN*				
99-99-0	p-Nitrotoluene	0.500	U	0.150	0.500
99-99-0	*p-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1262851

Lab Code: GEL

GEL Job No (SDG) 2013-297

Matrix: WATER

GEL Sample ID: 1202779024

Sample Amount 1000 mL

Date Received: 10-NOV-12

Moisture:

Extraction Batch ID: 1262851

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS11270017.wiff

Date Analyzed: 27-NOV-12 19:01

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.00	QU	0.300	1.00
3058-38-6	*TATB*				
618-87-1	3,5-Dinitroaniline	1.00	U	0.300	1.00
618-87-1	*3,5-Dinitroaniline*				
78-30-8	tris(o-cresyl) phosphate	1.00	U	0.300	1.00
78-30-8	*tris(o-cresyl) phosphate*				
59229-75-3	2,6-Diamino-4-nitrotoluene	2.50	U	0.500	2.50
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
6629-29-4	2,4-Diamino-6-nitrotoluene	2.50	U	0.500	2.50
6629-29-4	*2,4-Diamino-6-nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1262851

Lab Code: GEL

GEL Job No (SDG) 2013-297

Matrix: WATER

GEL Sample ID: 1202779025

Sample Amount 1000 mL

Date Received: 10-NOV-12

Moisture:

Extraction Batch ID: 1262851

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP1129014.wiff

Date Analyzed: 29-NOV-12 18:43

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
78-11-5	PETN	3.8		0.100	0.500
78-11-5	*PETN*				
606-20-2	2,6-Dinitrotoluene	4.3		0.080	0.250
606-20-2	*2,6-Dinitrotoluene*				
88-72-2	o-Nitrotoluene	4.33		0.082	0.250
88-72-2	*o-Nitrotoluene*				
118-96-7	2,4,6-Trinitrotoluene	4.45		0.080	0.250
118-96-7	*2,4,6-Trinitrotoluene*				
479-45-8	Tetryl	4.48		0.080	0.500
479-45-8	*Tetryl*				
19406-51-0	4-Amino-2,6-dinitrotoluene	4.5		0.080	0.250
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
2691-41-0	HMX	4.51		0.080	0.250
2691-41-0	*HMX*				
80251-29-2	DNX	4.59		0.080	0.250
80251-29-2	*DNX*				
121-14-2	2,4-Dinitrotoluene	4.6		0.080	0.250
121-14-2	*2,4-Dinitrotoluene*				
99-99-0	p-Nitrotoluene	4.6		0.150	0.500
99-99-0	*p-Nitrotoluene*				
99-08-1	m-Nitrotoluene	4.62		0.080	0.250
99-08-1	*m-Nitrotoluene*				
35572-78-2	2-Amino-4,6-dinitrotoluene	4.75		0.080	0.250
35572-78-2	*2-Amino-4,6-dinitrotoluene*				
5755-27-1	MNX	4.78		0.080	0.250
5755-27-1	*MNX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1262851

Lab Code: GEL

GEL Job No (SDG) 2013-297

Matrix: WATER

GEL Sample ID: 1202779025

Sample Amount 1000 mL

Date Received: 10-NOV-12

Moisture:

Extraction Batch ID: 1262851

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
13980-04-6	TNX	4.93		0.080	0.250
13980-04-6	*TNX*				
121-82-4	RDX	4.96		0.080	0.250
121-82-4	*RDX*				
99-65-0	m-Dinitrobenzene	5.03		0.080	0.250
99-65-0	*m-Dinitrobenzene*				
98-95-3	Nitrobenzene	5.21		0.080	0.250
98-95-3	*Nitrobenzene*				
99-35-4	1,3,5-Trinitrobenzene	5.66		0.080	0.250
99-35-4	*1,3,5-Trinitrobenzene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1262851

Lab Code: GEL

GEL Job No (SDG) 2013-297

Matrix: WATER

GEL Sample ID: 1202779025

Sample Amount 1000 mL

Date Received: 10-NOV-12

Moisture:

Extraction Batch ID: 1262851

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS11270018.wiff

Date Analyzed: 27-NOV-12 19:18

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.78	Q	0.300	1.00
3058-38-6	*TATB*				
78-30-8	tris(o-cresyl) phosphate	2.77		0.300	1.00
78-30-8	*tris(o-cresyl) phosphate*				
6629-29-4	2,4-Diamino-6-nitrotoluene	3.66		0.500	2.50
6629-29-4	*2,4-Diamino-6-nitrotoluene*				
59229-75-3	2,6-Diamino-4-nitrotoluene	3.8		0.500	2.50
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
618-87-1	3,5-Dinitroaniline	4.23		0.300	1.00
618-87-1	*3,5-Dinitroaniline*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24253(314987003MS)MS

Lab Code: GEL

GEL Job No (SDG) 2013-297

Matrix: WATER

GEL Sample ID: 1202779026

Sample Amount 910 mL

Date Received: 10-NOV-12

Moisture:

Extraction Batch ID: 1262851

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP1129016.wiff

Date Analyzed: 29-NOV-12 19:53

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
479-45-8	Tetryl	4.36		0.0879	0.549
479-45-8	*Tetryl*				
88-72-2	o-Nitrotoluene	4.4		0.0901	0.275
88-72-2	*o-Nitrotoluene*				
99-99-0	p-Nitrotoluene	4.58		0.165	0.549
99-99-0	*p-Nitrotoluene*				
99-08-1	m-Nitrotoluene	4.68		0.0879	0.275
99-08-1	*m-Nitrotoluene*				
606-20-2	2,6-Dinitrotoluene	4.75		0.0879	0.275
606-20-2	*2,6-Dinitrotoluene*				
78-11-5	PETN	4.8		0.110	0.549
78-11-5	*PETN*				
13980-04-6	TNX	4.99		0.0879	0.275
13980-04-6	*TNX*				
98-95-3	Nitrobenzene	5.19		0.0879	0.275
98-95-3	*Nitrobenzene*				
2691-41-0	HMX	5.31		0.0879	0.275
2691-41-0	*HMX*				
121-14-2	2,4-Dinitrotoluene	5.32		0.0879	0.275
121-14-2	*2,4-Dinitrotoluene*				
35572-78-2	2-Amino-4,6-dinitrotoluene	5.34		0.0879	0.275
35572-78-2	*2-Amino-4,6-dinitrotoluene*				
5755-27-1	MNX	5.4		0.0879	0.275
5755-27-1	*MNX*				
80251-29-2	DNX	5.41		0.0879	0.275
80251-29-2	*DNX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24253(314987003MS)MS

Lab Code: GEL

GEL Job No (SDG) 2013-297

Matrix: WATER

GEL Sample ID: 1202779026

Sample Amount 910 mL

Date Received: 10-NOV-12

Moisture:

Extraction Batch ID: 1262851

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	5.43		0.0879	0.275
118-96-7	*2,4,6-Trinitrotoluene*				
99-35-4	1,3,5-Trinitrobenzene	5.59		0.0879	0.275
99-35-4	*1,3,5-Trinitrobenzene*				
99-65-0	m-Dinitrobenzene	5.63		0.0879	0.275
99-65-0	*m-Dinitrobenzene*				
121-82-4	RDX	5.64		0.0879	0.275
121-82-4	*RDX*				
19406-51-0	4-Amino-2,6-dinitrotoluene	5.66		0.0879	0.275
19406-51-0	*4-Amino-2,6-dinitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24253(314987003MS)MS

Lab Code: GEL

GEL Job No (SDG) 2013-297

Matrix: WATER

GEL Sample ID: 1202779026

Sample Amount 910 mL

Date Received: 10-NOV-12

Moisture:

Extraction Batch ID: 1262851

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS11270020.wiff

Date Analyzed: 27-NOV-12 19:51

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.89	Q	0.330	1.10
3058-38-6	*TATB*				
78-30-8	tris(o-cresyl) phosphate	3.56		0.330	1.10
78-30-8	*tris(o-cresyl) phosphate*				
6629-29-4	2,4-Diamino-6-nitrotoluene	3.62		0.549	2.75
6629-29-4	*2,4-Diamino-6-nitrotoluene*				
59229-75-3	2,6-Diamino-4-nitrotoluene	4.68		0.549	2.75
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
618-87-1	3,5-Dinitroaniline	4.82		0.330	1.10
618-87-1	*3,5-Dinitroaniline*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24253(314987003MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2013-297

Matrix: WATER

GEL Sample ID: 1202779027

Sample Amount 910 mL

Date Received: 10-NOV-12

Moisture:

Extraction Batch ID: 1262851

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP1129017.wiff

Date Analyzed: 29-NOV-12 20:28

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
479-45-8	Tetryl	3.45		0.0879	0.549
479-45-8	*Tetryl*				
2691-41-0	HMX	4.15		0.0879	0.275
2691-41-0	*HMX*				
13980-04-6	TNX	4.37		0.0879	0.275
13980-04-6	*TNX*				
5755-27-1	MNX	4.37		0.0879	0.275
5755-27-1	*MNX*				
121-82-4	RDX	4.41		0.0879	0.275
121-82-4	*RDX*				
99-35-4	1,3,5-Trinitrobenzene	4.41		0.0879	0.275
99-35-4	*1,3,5-Trinitrobenzene*				
88-72-2	o-Nitrotoluene	4.45		0.0901	0.275
88-72-2	*o-Nitrotoluene*				
98-95-3	Nitrobenzene	4.69		0.0879	0.275
98-95-3	*Nitrobenzene*				
80251-29-2	DNX	4.7		0.0879	0.275
80251-29-2	*DNX*				
121-14-2	2,4-Dinitrotoluene	4.73		0.0879	0.275
121-14-2	*2,4-Dinitrotoluene*				
78-11-5	PETN	4.76		0.110	0.549
78-11-5	*PETN*				
99-99-0	p-Nitrotoluene	4.76		0.165	0.549
99-99-0	*p-Nitrotoluene*				
99-08-1	m-Nitrotoluene	4.82		0.0879	0.275
99-08-1	*m-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24253(314987003MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2013-297

Matrix: WATER

GEL Sample ID: 1202779027

Sample Amount 910 mL

Date Received: 10-NOV-12

Moisture:

Extraction Batch ID: 1262851

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
606-20-2	2,6-Dinitrotoluene	4.91		0.0879	0.275
606-20-2	*2,6-Dinitrotoluene*				
99-65-0	m-Dinitrobenzene	4.95		0.0879	0.275
99-65-0	*m-Dinitrobenzene*				
118-96-7	2,4,6-Trinitrotoluene	5		0.0879	0.275
118-96-7	*2,4,6-Trinitrotoluene*				
19406-51-0	4-Amino-2,6-dinitrotoluene	5.29		0.0879	0.275
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
35572-78-2	2-Amino-4,6-dinitrotoluene	5.62		0.0879	0.275
35572-78-2	*2-Amino-4,6-dinitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24253(314987003MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2013-297

Matrix: WATER

GEL Sample ID: 1202779027

Sample Amount 910 mL

Date Received: 10-NOV-12

Moisture:

Extraction Batch ID: 1262851

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS11270021.wiff

Date Analyzed: 27-NOV-12 20:08

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.86		0.330	1.10
3058-38-6	*TATB*				
78-30-8	tris(o-cresyl) phosphate	3.53		0.330	1.10
78-30-8	*tris(o-cresyl) phosphate*				
6629-29-4	2,4-Diamino-6-nitrotoluene	4.08		0.549	2.75
6629-29-4	*2,4-Diamino-6-nitrotoluene*				
59229-75-3	2,6-Diamino-4-nitrotoluene	4.82		0.549	2.75
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
618-87-1	3,5-Dinitroaniline	4.93		0.330	1.10
618-87-1	*3,5-Dinitroaniline*				

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-297

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 29-NOV-12 11:09

GEL Data File: EXP1129001.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-297

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 29-NOV-12 11:44

GEL Data File: EXP1129002.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-297

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 27-NOV-12 14:33

GEL Data File: EXS11270001.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	3.78
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-297

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 27-NOV-12 14:50

GEL Data File: EXS11270002.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
2,6-Diamino-4-nitrotoluene	0	0
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	2.38
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-297

Lab Code: GEL

Lab Sample ID: XIBLK02

Analysis Date: 29-NOV-12 15:49

GEL Data File: EXP1129009.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-297

Lab Code: GEL

Lab Sample ID: XIBLK03

Analysis Date: 29-NOV-12 16:58

GEL Data File: EXP1129011.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-297

Lab Code: GEL

Lab Sample ID: XIBLK04

Analysis Date: 29-NOV-12 22:13

GEL Data File: EXP1129020.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-297

Lab Code: GEL

Lab Sample ID: XIBLK02

Analysis Date: 27-NOV-12 17:04

GEL Data File: EXS11270010.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	8.24
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-297

Lab Code: GEL

Lab Sample ID: XIBLK03

Analysis Date: 27-NOV-12 17:37

GEL Data File: EXS11270012.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
tris(o-cresyl) phosphate	0	4.51
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
3,4-Dinitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-297

Lab Code: GEL

Lab Sample ID: XIBLK04

Analysis Date: 27-NOV-12 18:44

GEL Data File: EXS11270016.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	3.57
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-297

Lab Code: GEL

Lab Sample ID: XIBLK05

Analysis Date: 27-NOV-12 20:58

GEL Data File: EXS11270024.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	3.63
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
04-DEC-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LC-MS/MS	SW846 3535/8321A Modified	Liquid	ARSL
Batch ID:	**Sample Numbers:**		
1262852	See Below		

Potentially affected work order(s)(SDG): 314987(2013-297)

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. The MS (1202779026) did not meet acceptance criteria for the recovery of 2,4-Diamino-6-nitrotoluene at 65.8%. The limits are 66-108%.	1. Both the LCS (1202779025) and MSD (1202779027) had passing recoveries for all target analytes. Target analytes were not detected in any of the samples. The data are reported with the discrepancies noted in the Case Narrative.

Originator's Name:

Lynne Russell 04-DEC-12

Data Validator/Group Leader:

Michael Penny 04-DEC-12

PCB Analysis

Case Narrative

PCB Case Narrative
ARS International (ARSL)
SDG 2013-297

Method/Analysis Information

Procedure:	**Analysis of Polychlorinated Biphenyls by ECD**
Analytical Method:	SW846 3535A/8082
Prep Method:	SW846 3535A
Analytical Batch Number:	1265739
Prep Batch Number:	1265738

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3535A/8082:

Sample ID	Client ID
314987001	CAMO-13-24253
314987005	CAMO-13-24227
314987007	CAMO-13-24228
1202785589	Method Blank (MB)
1202785590	314987001(CAMO-13-24253) Matrix Spike (MS)
1202785591	314987001(CAMO-13-24253) Matrix Spike Duplicate (MSD)
1202785592	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-040 REV# 19.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 23.0.

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements

All associated calibration verification standards (ICV or CCV) met the acceptance criteria. All analytes were within the established retention time windows for this method.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Sample 314987001 (CAMO-13-24253) was selected for the matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
The MS recoveries for this SDG were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries for this SDG were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the MS and MSD met the acceptance limits.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns. All sample extracts were cleaned using alumina. The QC samples MB and LCS, along with a sample in another SDG, were also cleaned with copper to remove sulfur.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions were not required in this SDG.

Miscellaneous Information

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception report (DER) is generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
Certain standards and samples may have required manual integration to correctly position the baseline as set in the calibration standard injections. If manual integration was performed, copies of all manual integration peak profiles are included in the raw data section of this PCB fraction.

Additional Comments
The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

The higher results from either column have been chosen and reported in the data package for the client samples, MB and LCS. The data reported for the MS and MSD are from the same analytical column as the parent sample.

Due to software issue, the surrogate recovery range was not indicated or possibly indicated incorrectly in Quantitation Report. Please see Surrogate Recovery Report for correct surrogate acceptance limits.

Due to rounding differences in the calculation between the forms, the data reported in Sample Summary (form 1) and Spike Recovery Report (form 3) may differ slightly from the data reported in Identification Summary (form 10).

Aroclors quantitated on the raw data report by ChemStation data system do not necessarily represent positive Aroclor identification. In order for positive identification to be made, the Aroclor must match in pattern and retention time; as well as quantitate relatively close between the primary and confirmation columns, as specified in SW846 method 8000. When these conditions are not met, the Aroclor is reported as a non-detect on the data report.

System Configuration

The Semi-Volatiles-PCB analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
ECD8A.I_1	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP I	30m x 0.25mm, 0.25um (Rtx-CLPesticide I)
ECD8A.I_2	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP II	30m x 0.25mm, 0.20um (Rtx-CLPesticide II)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the

requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-297 GEL Work Order: 314987

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Jimi Cao **Name: Jimin Cao**

Date: 29 NOV 2012 **Title: Data Validator**

Sample Data Summary

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987001**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24253**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1265739**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 10:32**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/26/2012 01:45**	**Aliquot:**	**500 mL**	**Final Volume:**	**1 mL**
Data File:	**112712.B\e8k2720.D**	**Column:**	**1 RTX-CLPEST1**		
	112712.B\e8k2720.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.200	ug/L	0.0666	0.200	1
11104-28-2	Aroclor-1221	U	0.200	ug/L	0.0666	0.200	1
11141-16-5	Aroclor-1232	U	0.200	ug/L	0.0666	0.200	1
53469-21-9	Aroclor-1242	U	0.200	ug/L	0.0666	0.200	1
12672-29-6	Aroclor-1248	U	0.200	ug/L	0.0666	0.200	1
11097-69-1	Aroclor-1254	U	0.200	ug/L	0.0666	0.200	1
11096-82-5	Aroclor-1260	U	0.200	ug/L	0.0666	0.200	1
37324-23-5	Aroclor-1262	U	0.200	ug/L	0.0666	0.200	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.260	0.400	ug/L	64.9	(42%-120%)
Decachlorobiphenyl	0.304	0.400	ug/L	76.0	(41%-120%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987005**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24227**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1265739**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 11:09**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/26/2012 01:45**	**Aliquot:**	**960 mL**	**Final Volume:**	**1 mL**
Data File:	**112712.B\e8k2723.D**	**Column:**	**1 RTX-CLPEST1**		
	112712.B\e8k2723.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.104	ug/L	0.0347	0.104	1
11104-28-2	Aroclor-1221	U	0.104	ug/L	0.0347	0.104	1
11141-16-5	Aroclor-1232	U	0.104	ug/L	0.0347	0.104	1
53469-21-9	Aroclor-1242	U	0.104	ug/L	0.0347	0.104	1
12672-29-6	Aroclor-1248	U	0.104	ug/L	0.0347	0.104	1
11097-69-1	Aroclor-1254	U	0.104	ug/L	0.0347	0.104	1
11096-82-5	Aroclor-1260	U	0.104	ug/L	0.0347	0.104	1
37324-23-5	Aroclor-1262	U	0.104	ug/L	0.0347	0.104	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.147	0.208	ug/L	70.6	(42%-120%)
Decachlorobiphenyl	0.164	0.208	ug/L	78.6	(41%-120%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**314987007**	**Date Received:**	**11/10/2012 09:15**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24228**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1265739**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 11:21**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/26/2012 01:45**	**Aliquot:**	**980 mL**	**Final Volume:**	**1 mL**
Data File:	**112712.B\e8k2724.D**	**Column:**	**1 RTX-CLPEST1**		
	112712.B\e8k2724.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.102	ug/L	0.034	0.102	1
11104-28-2	Aroclor-1221	U	0.102	ug/L	0.034	0.102	1
11141-16-5	Aroclor-1232	U	0.102	ug/L	0.034	0.102	1
53469-21-9	Aroclor-1242	U	0.102	ug/L	0.034	0.102	1
12672-29-6	Aroclor-1248	U	0.102	ug/L	0.034	0.102	1
11097-69-1	Aroclor-1254	U	0.102	ug/L	0.034	0.102	1
11096-82-5	Aroclor-1260	U	0.102	ug/L	0.034	0.102	1
37324-23-5	Aroclor-1262	U	0.102	ug/L	0.034	0.102	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.141	0.204	ug/L	69.1	(42%-120%)
Decachlorobiphenyl	0.169	0.204	ug/L	83.0	(41%-120%)

Quality Control Summary

PCB

Surrogate Recovery Report

SDG Number: 2013-297

Matrix Type: LIQUID

Sample ID	Client ID	4CMX 1 %REC #	4CMX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #
314987001	CAMO-13-24253	65	64	76	74
1202785590	CAMO-13-24253MS	65	65	76	74
1202785591	CAMO-13-24253MSD	66	66	80	79
314987005	CAMO-13-24227	71	70	79	78
314987007	CAMO-13-24228	69	69	83	81
1202785589	MB for batch 1265738	76	76	90	91
1202785592	LCS for batch 1265738	77	77	89	92

Surrogate		Acceptance Limits
4CMX	= 4cmx	(42%-120%)
DCB	= Decachlorobiphenyl	(41%-120%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **CAMO-13-24253MS**
Lab Sample ID: **1202785590**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/27/2012 10:44**
Prep Batch ID: **1265738**
Batch ID: **1265739**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	MS	Aroclor-1016	2.00	0.00	U	1.39	70	34-123
11096-82-5	MS	Aroclor-1260	2.00	0.00	U	1.57	79	30-127

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **CAMO-13-24253MSD**
Lab Sample ID: **1202785591**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/27/2012 10:56**
Prep Batch ID: **1265738**
Batch ID: **1265739**
Dilution: 1

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
12674-11-2	MSD Aroclor-1016	2.00	0.00	U	1.41	70	34-123	1	0-30
11096-82-5	MSD Aroclor-1260	2.00	0.00	U	1.62	81	30-127	3	0-30

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-297**
Client ID: **LCS for batch 1265738**
Lab Sample ID: **1202785592**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/27/2012 13:13**
Prep Batch ID: **1265738**
Batch ID: **1265739**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	LCS	Aroclor-1016	1.00	0.0	0.800	80	47-115
11096-82-5	LCS	Aroclor-1260	1.00	0.0	0.890	89	42-115

Method Blank Summary

SDG Number:	**2013-297**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1265738**	**Instrument ID:**	**ECD8A.I_1** **ECD8A.I_2**	**Data File:**	**112712.B\e8k2732.D** **112712.B\e8k2732.D**
Lab Sample ID:	**1202785589**				
Column:	**RTX-CLPEST1** **RTX-CLPEST2**	**Prep Date:**	**11/26/2012 01:45**	**Analyzed:**	**11/27/12 13:01**

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 CAMO-13-24253	**314987001**	**112712.B\e8k2720.D** **112712.B\e8k2720.D**	**11/27/12**	**1032**
02 CAMO-13-24253MS	**1202785590**	**112712.B\e8k2721.D** **112712.B\e8k2721.D**	**11/27/12**	**1044**
03 CAMO-13-24253MSD	**1202785591**	**112712.B\e8k2722.D** **112712.B\e8k2722.D**	**11/27/12**	**1056**
04 CAMO-13-24227	**314987005**	**112712.B\e8k2723.D** **112712.B\e8k2723.D**	**11/27/12**	**1109**
05 CAMO-13-24228	**314987007**	**112712.B\e8k2724.D** **112712.B\e8k2724.D**	**11/27/12**	**1121**
06 LCS for batch 1265738	**1202785592**	**112712.B\e8k2733.D** **112712.B\e8k2733.D**	**11/27/12**	**1313**

Quality Control Data

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202785589**				
Client Sample:	**QC for batch 1265738**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1265738**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1265739**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 13:01**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/26/2012 01:45**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**112712.B\e8k2732.D**	**Column:**	**1 RTX-CLPEST1**		
	112712.B\e8k2732.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.100	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260	U	0.100	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.152	0.200	ug/L	76.1	(42%-120%)
Decachlorobiphenyl	0.182	0.200	ug/L	91.1	(41%-120%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**1202785590**	**Date Received:**	**11/10/2012 09:15**		
Client Sample:	**QC for batch 1265738**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24253MS**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1265739**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 10:44**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/26/2012 01:45**	**Aliquot:**	**500 mL**	**Final Volume:**	**1 mL**
Data File:	**112712.B\e8k2721.D**	**Column:**	**1 RTX-CLPEST1**		
	112712.B\e8k2721.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		1.39	ug/L	0.0666	0.200	1
11104-28-2	Aroclor-1221	U	0.200	ug/L	0.0666	0.200	1
11141-16-5	Aroclor-1232	U	0.200	ug/L	0.0666	0.200	1
53469-21-9	Aroclor-1242	U	0.200	ug/L	0.0666	0.200	1
12672-29-6	Aroclor-1248	U	0.200	ug/L	0.0666	0.200	1
11097-69-1	Aroclor-1254	U	0.200	ug/L	0.0666	0.200	1
11096-82-5	Aroclor-1260		1.57	ug/L	0.0666	0.200	1
37324-23-5	Aroclor-1262	U	0.200	ug/L	0.0666	0.200	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.259	0.400	ug/L	64.8	(42%-120%)
Decachlorobiphenyl	0.302	0.400	ug/L	75.5	(41%-120%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**	**Date Collected:**	**11/08/2012 10:58**	**Matrix:**	**W**
Lab Sample ID:	**1202785591**	**Date Received:**	**11/10/2012 09:15**		
Client Sample:	**QC for batch 1265738**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24253MSD**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1265739**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 10:56**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/26/2012 01:45**	**Aliquot:**	**500 mL**	**Final Volume:**	**1 mL**
Data File:	**112712.B\e8k2722.D**	**Column:**	**1 RTX-CLPEST1**		
	112712.B\e8k2722.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		1.41	ug/L	0.0666	0.200	1
11104-28-2	Aroclor-1221	U	0.200	ug/L	0.0666	0.200	1
11141-16-5	Aroclor-1232	U	0.200	ug/L	0.0666	0.200	1
53469-21-9	Aroclor-1242	U	0.200	ug/L	0.0666	0.200	1
12672-29-6	Aroclor-1248	U	0.200	ug/L	0.0666	0.200	1
11097-69-1	Aroclor-1254	U	0.200	ug/L	0.0666	0.200	1
11096-82-5	Aroclor-1260		1.62	ug/L	0.0666	0.200	1
37324-23-5	Aroclor-1262	U	0.200	ug/L	0.0666	0.200	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.265	0.400	ug/L	66.3	(42%-120%)
Decachlorobiphenyl	0.320	0.400	ug/L	80.1	(41%-120%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-297**			**Matrix:**	**WATER**
Lab Sample ID:	**1202785592**				
Client Sample:	**QC for batch 1265738**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1265738**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1265739**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/27/2012 13:13**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/26/2012 01:45**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**112712.B\e8k2733.D**	**Column:**	**1 RTX-CLPEST1**		
	112712.B\e8k2733.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		0.800	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260		0.890	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.155	0.200	ug/L	77.4	(42%-120%)
Decachlorobiphenyl	0.183	0.200	ug/L	91.6	(41%-120%)

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-297

Sample Analysis

Sample ID	Client ID
314987004	CAMO-13-24270
314987010	CAMO-13-24229
1202780426	Method Blank (MB) **ICP**
1202780427	Laboratory Control Sample (LCS)
1202780430	315160002(CAMO-13-24262L) Serial Dilution (SD)
1202780428	315160002(CAMO-13-24262D) Sample Duplicate (DUP)
1202780429	315160002(CAMO-13-24262S) Matrix Spike (MS)
1202780421	Method Blank (MB) **ICP-MS**
1202780422	Laboratory Control Sample (LCS)
1202780425	315160002(CAMO-13-24262L) Serial Dilution (SD)
1202780423	315160002(CAMO-13-24262D) Sample Duplicate (DUP)
1202780424	315160002(CAMO-13-24262S) Matrix Spike (MS)
1202788349	Method Blank (MB) **CVAA**
1202788350	Laboratory Control Sample (LCS)
1202788353	315353002(CAMO-13-24281L) Serial Dilution (SD)
1202788351	315353002(CAMO-13-24281D) Sample Duplicate (DUP)
1202788352	315353002(CAMO-13-24281S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1263453, 1263451, 1266834 and 1268873
Prep Batch :	1263452, 1263450 and 1266827
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 7
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B

Prep Method : SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 315160002 (CAMO-13-24262)-ICP and ICP-MS and 315353002 (CAMO-13-24281)-CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes .

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and

100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications

GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples 314987004 (CAMO-13-24270) and 314987010 (CAMO-13-24229)-ICP-MS required 5x dilutions in order to bring over range chromium concentrations within the linear calibration range of the instrument..

Preparation Information

The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

Certification Statement
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:
GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 12/07/12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-297 GEL Work Order: 314987

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 12/07/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-297 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314987004 **BASIS:** As Received **DATE COLLECTED** 08-NOV-12

CLIENT ID: CAMO-13-24270 **LEVEL:** Low **DATE RECEIVED** 10-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/30/12 08:46	113012W1-14	1266834

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-297 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314987004 **BASIS:** As Received **DATE COLLECTED** 08-NOV-12

CLIENT ID: CAMO-13-24270 **LEVEL:** Low **DATE RECEIVED** 10-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/29/12 15:12	112912A-1	1263453
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/27/12 13:39	121127-3	1263451
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/27/12 13:39	121127-3	1263451
7440-39-3	Barium	25.6	ug/L		1	5	5	1	P	HSC	11/29/12 15:12	112912A-1	1263453
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/29/12 15:12	112912A-1	1263453
7440-42-8	Boron	16.2	ug/L	J	15	50	50	1	P	HSC	11/29/12 15:12	112912A-1	1263453
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/27/12 13:39	121127-3	1263451
7440-70-2	Calcium	18100	ug/L		50	200	200	1	P	HSC	11/29/12 15:12	112912A-1	1263453
7440-47-3	Chromium	128	ug/L		10	50	50	5	MS	BAJ	11/28/12 13:18	121128-4	1263451
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/29/12 15:12	112912A-1	1263453
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/30/12 15:11	113012-2	1263453
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/29/12 15:12	112912A-1	1263453
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/27/12 13:39	121127-3	1263451
7439-95-4	Magnesium	4960	ug/L		110	300	300	1	P	HSC	11/29/12 15:12	112912A-1	1263453
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/29/12 15:12	112912A-1	1263453
7439-98-7	Molybdenum	1.91	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/28/12 12:32	121128-4	1263451
7440-02-0	Nickel	1.96	ug/L	J	0.5	2	2	1	MS	BAJ	11/27/12 13:39	121127-3	1263451
7440-09-7	Potassium	1540	ug/L		50	150	150	1	P	HSC	11/29/12 15:12	112912A-1	1263453
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/27/12 13:39	121127-3	1263451
7631-86-9	Silica	64500	ug/L		53	213	213	1	P	HSC	11/29/12 15:12	112912A-1	1263453
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/27/12 13:39	121127-3	1263451
7440-23-5	Sodium	13900	ug/L		100	300	300	1	P	HSC	11/30/12 15:11	113012-2	1263453
7440-24-6	Strontium	98.9	ug/L		1	5	5	1	P	HSC	11/29/12 15:12	112912A-1	1263453
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/27/12 13:39	121127-3	1263451
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/30/12 15:11	113012-2	1263453
7440-61-1	Uranium	0.991	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/27/12 13:39	121127-3	1263451
7440-62-2	Vanadium	3.27	ug/L	J	1	5	5	1	P	HSC	11/29/12 15:12	112912A-1	1263453
7440-66-6	Zinc	5.83	ug/L	J	3.3	10	10	1	P	HSC	11/29/12 15:12	112912A-1	1263453

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-297 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314987004 **BASIS:** As Received **DATE COLLECTED** 08-NOV-12

CLIENT ID: CAMO-13-24270 **LEVEL:** Low **DATE RECEIVED** 10-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	65.6	mg/L		0.453	1.24	1.24	1		JJ2	12/06/12 16:59		1268873

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1263451	1263450	SW846 3005A	50	mL	50	mL	11/20/12	AXG2
1263453	1263452	SW846 3005A	50	mL	50	mL	11/20/12	AXG2
1266834	1266827	EPA 245.1/245.2 Prep	20	mL	20	mL	11/29/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-297 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314987010 **BASIS:** As Received **DATE COLLECTED** 08-NOV-12

CLIENT ID: CAMO-13-24229 **LEVEL:** Low **DATE RECEIVED** 10-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/30/12 08:48	113012W1-14	1266834

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-297 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314987010 **BASIS:** As Received **DATE COLLECTED** 08-NOV-12

CLIENT ID: CAMO-13-24229 **LEVEL:** Low **DATE RECEIVED** 10-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/29/12 15:15	112912A-1	1263453
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/27/12 13:43	121127-3	1263451
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/27/12 13:43	121127-3	1263451
7440-39-3	Barium	24.4	ug/L		1	5	5	1	P	HSC	11/29/12 15:15	112912A-1	1263453
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/29/12 15:15	112912A-1	1263453
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	11/29/12 15:15	112912A-1	1263453
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/27/12 13:43	121127-3	1263451
7440-70-2	Calcium	17600	ug/L		50	200	200	1	P	HSC	11/29/12 15:15	112912A-1	1263453
7440-47-3	Chromium	133	ug/L		10	50	50	5	MS	BAJ	11/28/12 13:22	121128-4	1263451
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/29/12 15:15	112912A-1	1263453
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/30/12 15:14	113012-2	1263453
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/29/12 15:15	112912A-1	1263453
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/27/12 13:43	121127-3	1263451
7439-95-4	Magnesium	4880	ug/L		110	300	300	1	P	HSC	11/29/12 15:15	112912A-1	1263453
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/29/12 15:15	112912A-1	1263453
7439-98-7	Molybdenum	1.92	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/28/12 12:35	121128-4	1263451
7440-02-0	Nickel	2.01	ug/L		0.5	2	2	1	MS	BAJ	11/27/12 13:43	121127-3	1263451
7440-09-7	Potassium	1490	ug/L		50	150	150	1	P	HSC	11/29/12 15:15	112912A-1	1263453
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/27/12 13:43	121127-3	1263451
7631-86-9	Silica	63000	ug/L		53	213	213	1	P	HSC	11/29/12 15:15	112912A-1	1263453
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/27/12 13:43	121127-3	1263451
7440-23-5	Sodium	13600	ug/L		100	300	300	1	P	HSC	11/30/12 15:14	113012-2	1263453
7440-24-6	Strontium	96.3	ug/L		1	5	5	1	P	HSC	11/29/12 15:15	112912A-1	1263453
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/27/12 13:43	121127-3	1263451
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/30/12 15:14	113012-2	1263453
7440-61-1	Uranium	0.995	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/27/12 13:43	121127-3	1263451
7440-62-2	Vanadium	3.17	ug/L	J	1	5	5	1	P	HSC	11/29/12 15:15	112912A-1	1263453
7440-66-6	Zinc	5.04	ug/L	J	3.3	10	10	1	P	HSC	11/29/12 15:15	112912A-1	1263453

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-297 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314987010 **BASIS:** As Received **DATE COLLECTED** 08-NOV-12

CLIENT ID: CAMO-13-24229 **LEVEL:** Low **DATE RECEIVED** 10-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	64	mg/L		0.453	1.24	1.24	1		JJ2	12/06/12 16:59		1268873

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1263451	1263450	SW846 3005A	50	mL	50	mL	11/20/12	AXG2
1263453	1263452	SW846 3005A	50	mL	50	mL	11/20/12	AXG2
1266834	1266827	EPA 245.1/245.2 Prep	20	mL	20	mL	11/29/12	AXS5

***Analytical Methods:**

MS	**SW846 3005/6020 DOE-AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−297

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202780421								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202780426								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	50	ug/L	+/−150	U	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202788349								
	Mercury	−0.081	ug/L	+/−0.2	J	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−297 **Client ID** CAMO−13−24262S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315160002 **Spike ID:** 1202780424

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	197		1	U	200	98.7		MS
Arsenic	ug/L	75−125	84.6		1.7	U	80	104		MS
Cadmium	ug/L	75−125	10.9		0.11	U	10	109		MS
Chromium	ug/L	75−125	64.3		14.5		50	99.5		MS
Lead	ug/L	75−125	43.3		0.5	U	40	108		MS
Molybdenum	ug/L	75−125	50.3		0.879		50	98.7		MS
Nickel	ug/L	75−125	54.2		0.864	J	50	107		MS
Selenium	ug/L	75−125	22.1		1.5	U	20	108		MS
Silver	ug/L	75−125	54.7		0.2	U	50	109		MS
Thallium	ug/L	75−125	95.5		0.45	U	100	95.4		MS
Uranium	ug/L	75−125	52.9		0.461		50	105		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−297 **Client ID** CAMO−13−24262S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315160002 **Spike ID:** 1202780429

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5150		68	U	5000	103		P
Barium	ug/L	75−125	529		21.3		500	102		P
Beryllium	ug/L	75−125	522		1	U	500	104		P
Boron	ug/L	75−125	532		15.5	J	500	103		P
Calcium	ug/L	75−125	18100		13600		5000	91.5		P
Cobalt	ug/L	75−125	511		1	U	500	102		P
Copper	ug/L	75−125	512		3	U	500	102		P
Iron	ug/L	75−125	5260		30	U	5000	105		P
Magnesium	ug/L	75−125	9220		3910		5000	106		P
Manganese	ug/L	75−125	519		2	U	500	104		P
Potassium	ug/L	75−125	6220		1200		5000	101		P
Silica	ug/L		85900		76300		10700	89.3	N/A	P
Sodium	ug/L	75−125	14700		9960		5000	94		P
Strontium	ug/L	75−125	583		59.5		500	105		P
Tin	ug/L	75−125	494		2.5	U	500	98.8		P
Vanadium	ug/L	75−125	527		4.95	J	500	104		P
Zinc	ug/L	75−125	517		3.3	U	500	103		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−297 **Client ID** CAMO−13−24281S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315353002 **Spike ID:** 1202788352

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.11		0.067	U	2	106		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−297 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24262D

Matrix: LIQUID **Level:** Low

Sample ID: 315160002 **Duplicate ID:** 1202780423 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	14.5		14.7		1.07		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	0.879		0.866		1.49		MS
Nickel	ug/L	+/−2	0.864	J	0.891	J	3.08		MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.461		0.469		1.72		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−297 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24262D

Matrix: LIQUID **Level:** Low

Sample ID: 315160002 **Duplicate ID:** 1202780428 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−5	21.3		21.4		.211		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15.5	J	15	U	200		P
Calcium	ug/L	+/−20%	13600		13600		.684		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L		3	U	3	U			P
Iron	ug/L		30	U	30	U			P
Magnesium	ug/L	+/−20%	3910		3950		1.02		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	1200		1220		2.08		P
Silica	ug/L	+/−20%	76300		76500		.196		P
Sodium	ug/L	+/−20%	9960		9990		.325		P
Strontium	ug/L	+/−20%	59.5		59.2		.529		P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L	+/−5	4.95	J	4.97	J	.349		P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−297 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24281D

Matrix: LIQUID **Level:** Low

Sample ID: 315353002 **Duplicate ID:** 1202788351 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−297

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202780422								
	Antimony	ug/L	50	50.7		101	80−120	MS
	Arsenic	ug/L	50	54.1		108	80−120	MS
	Cadmium	ug/L	50	52.1		104	80−120	MS
	Chromium	ug/L	50	52.2		104	80−120	MS
	Lead	ug/L	50	54		108	80−120	MS
	Molybdenum	ug/L	50	50		100	80−120	MS
	Nickel	ug/L	50	56.8		114	80−120	MS
	Selenium	ug/L	50	55		110	80−120	MS
	Silver	ug/L	50	56.7		113	80−120	MS
	Thallium	ug/L	50	50.8		102	80−120	MS
	Uranium	ug/L	50	52.9		106	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−297

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202780427								
	Aluminum	ug/L	5000	5150		103	80−120	P
	Barium	ug/L	500	506		101	80−120	P
	Beryllium	ug/L	500	513		103	80−120	P
	Boron	ug/L	500	507		101	80−120	P
	Calcium	ug/L	5000	5200		104	80−120	P
	Cobalt	ug/L	500	507		101	80−120	P
	Copper	ug/L	500	493		98.6	80−120	P
	Iron	ug/L	5000	5180		104	80−120	P
	Magnesium	ug/L	5000	5400		108	80−120	P
	Manganese	ug/L	500	515		103	80−120	P
	Potassium	ug/L	5000	5050		101	80−120	P
	Silica	ug/L	10700	10900		102	80−120	P
	Sodium	ug/L	5000	4990		99.8	80−120	P
	Strontium	ug/L	500	519		104	80−120	P
	Tin	ug/L	500	490		98	80−120	P
	Vanadium	ug/L	500	514		103	80−120	P
	Zinc	ug/L	500	502		100	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−297

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202788350								
	Mercury	ug/L	2	2.09		104	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−297 **Client ID** CAMO−13−24262L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315160002 **Serial Dilution ID:** 1202780425

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	14.5		15.5	J	6.39			MS
Lead	.5	U	2.5	U				MS
Molybdenum	.879		1.2	J	36.5			MS
Nickel	.864	J	2.5	U	100			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	4.29	J				MS
Uranium	.461		.53	J	15			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−297 **Client ID** CAMO−13−24262L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315160002 **Serial Dilution ID:** 1202780430

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	21.3		20.8	J	2.32			P
Beryllium	1	U	5	U				P
Boron	15.5	J	75	U	100			P
Calcium	13600		13000		3.85		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	3910		3920		.476			P
Manganese	2	U	10	U				P
Potassium	1200		1310		9.48			P
Silica	76300		75700		.811		10	P
Sodium	9960		9650		3.08		10	P
Strontium	59.5		55.6		6.59		10	P
Tin	2.5	U	12.5	U				P
Vanadium	4.95	J	6.05	J	22.3			P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−297 **Client ID** CAMO−13−24281L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315353002 **Serial Dilution ID:** 1202788353

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-297

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1262822 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
314987003	CAMO-13-24253
314987009	CAMO-13-24228
1202778960	Method Blank (MB)
1202778961	315160001(CAMO-13-24245) Sample Duplicate (DUP)
1202778962	315160001(CAMO-13-24245) Post Spike (PS)
1202778963	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315160001 (CAMO-13-24245).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202778961 (CAMO-13-24245).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1266189	**Method:**	EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
314987004	CAMO-13-24270
314987010	CAMO-13-24229
1202786720	314987004(CAMO-13-24270) Sample Duplicate (DUP)
1202786721	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202786722	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314987004 (CAMO-13-24270) and 315159002 (CAMO-13-24266).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1262400 **Method:** EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
314987004	CAMO-13-24270
314987010	CAMO-13-24229
1202777998	314848001(WST05-12-23562) Sample Duplicate (DUP)
1202777999	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314848001 (WST05-12-23562).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following samples from this sample group were received by the lab outside of the method specified holding time: 314987004 (CAMO-13-24270) and 314987010 (CAMO-13-24229).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1141335 314987004 (CAMO-13-24270) and 314987010 (CAMO-13-24229).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1262061	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
314987004	CAMO-13-24270
314987010	CAMO-13-24229
1202777150	Method Blank (MB)
1202777151	314848001(WST05-12-23562) Sample Duplicate (DUP)
1202777152	314848001(WST05-12-23562) Post Spike (PS)
1202777153	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314848001 (WST05-12-23562).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202777152 (WST05-12-23562).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1145134 1202777152 (WST05-12-23562).

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202777151 (WST05-12-23562), 1202777152 (WST05-12-23562), 314987004 (CAMO-13-24270) and 314987010 (CAMO-13-24229).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1261640 and 1263572	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1261639 and 1263571	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
314987004	CAMO-13-24270
314987010	CAMO-13-24229
1202776122	Method Blank (MB)
1202776123	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202776124	314591002(CAMO-13-24256) Matrix Spike (MS)
1202776125	314591002(CAMO-13-24256) Matrix Spike Duplicate (MSD)
1202776126	Laboratory Control Sample (LCS)
1202780702	Method Blank (MB)
1202780703	314987010(CAMO-13-24229) Sample Duplicate (DUP)
1202780705	314987010(CAMO-13-24229) Matrix Spike (MS)
1202780707	314987010(CAMO-13-24229) Matrix Spike Duplicate (MSD)
1202780709	Laboratory Control Sample (LCS)
1202782504	315361001(SWWS46-13-24772) Sample Duplicate (DUP)
1202782505	315361001(SWWS46-13-24772) Matrix Spike (MS)
1202782506	315361001(SWWS46-13-24772) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314591002 (CAMO-13-24256)- Batch 1261640, 314987010 (CAMO-13-24229) and 315361001 (SWWS46-13-24772)- Batch 1263572.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference and/or sample matrix non-homogeneity: 1202776124 (CAMO-13-24256)- Batch 1261640.

Matrix Spike Duplicate (MSD) Recovery Statement
The spike duplicate recovery falls outside of the established acceptance limits. Since both the spike recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported. 1202780707 (CAMO-13-24229)- Batch 1263572.

MS/MSD Relative Percent Difference (RPD) Statement
The Relative Percent Difference (RPD) between the MS and MSD falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202776125 (CAMO-13-24256)- Batch 1261640.

Duplicate Relative Percent Difference (RPD) Statement
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202776123 (CAMO-13-24256)- Batch 1261640 and 1202780703 (CAMO-13-24229)- Batch 1263572.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following samples were re-analyzed to verify the results: 1202782504 (SWWS46-13-24772), 1202782505 (SWWS46-13-24772) and 1202782506 (SWWS46-13-24772)- Batch 1263572.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1139508 1202776124 (CAMO-13-24256) and 1202776125 (CAMO-13-24256)- Batch 1261640. The following DER was generated for this SDG: 1142046 1202780707 (CAMO-13-24229)- Batch 1263572.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1261638	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1261637	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
314987003	CAMO-13-24253
314987009	CAMO-13-24228
1202776117	Method Blank (MB)
1202776118	314591001(CAMO-13-24239) Sample Duplicate (DUP)
1202776119	314591001(CAMO-13-24239) Matrix Spike (MS)
1202776120	314591001(CAMO-13-24239) Matrix Spike Duplicate (MSD)
1202776121	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591001 (CAMO-13-24239).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits. Since both the spike duplicate recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported. 1202776119 (CAMO-13-24239).

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202776118 (CAMO-13-24239).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1139938 1202776119 (CAMO-13-24239).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1262537 and 1263016	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
314987004	CAMO-13-24270
314987010	CAMO-13-24229
1202778267	Method Blank (MB)
1202778269	314848001(WST05-12-23562) Sample Duplicate (DUP)
1202778272	314848001(WST05-12-23562) Post Spike (PS)
1202778274	Laboratory Control Sample (LCS)
1202779479	Method Blank (MB)
1202779484	Laboratory Control Sample (LCS)
1202780694	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202780695	315159002(CAMO-13-24266) Post Spike (PS)
1202782515	315361001(SWWS46-13-24772) Sample Duplicate (DUP)
1202782516	315361001(SWWS46-13-24772) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314848001 (WST05-12-23562)- Batch 1262537, 315159002 (CAMO-13-24266) and 315361001 (SWWS46-13-24772)- Batch 1263016.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202778269 (WST05-12-23562)- Batch 1262537.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202780694 (CAMO-13-24266), 1202780695 (CAMO-13-24266), 1202782515 (SWWS46-13-24772) and 1202782516 (SWWS46-13-24772)- Batch 1263016. The following sample in this sample group was diluted due to matrix interference: 314987010 (CAMO-13-24229)- Batch 1263016.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1261643 and 1263577	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1261641 and 1263576	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
314987004	CAMO-13-24270
314987010	CAMO-13-24229
1202776127	Method Blank (MB)
1202776128	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202776130	314591002(CAMO-13-24256) Matrix Spike (MS)
1202776132	314591002(CAMO-13-24256) Matrix Spike Duplicate (MSD)
1202776134	Laboratory Control Sample (LCS)
1202780715	Method Blank (MB)
1202780716	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202780717	315160002(CAMO-13-24262) Sample Duplicate (DUP)
1202780718	315159002(CAMO-13-24266) Matrix Spike (MS)
1202780719	315160002(CAMO-13-24262) Matrix Spike (MS)
1202780720	315159002(CAMO-13-24266) Matrix Spike Duplicate (MSD)
1202780721	315160002(CAMO-13-24262) Matrix Spike Duplicate (MSD)
1202780722	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314591002 (CAMO-13-24256)- Batch 1261643, 315159002 (CAMO-13-24266) and 315160002 (CAMO-13-24262)- Batch 1263577.

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries for this sample set were within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202780716 (CAMO-13-24266)- Batch 1263577.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following sample was re-analyzed due to CCV failure: 1202776132 (CAMO-13-24256)- Batch 1261643.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Solids, Total Dissolved**		
Analytical Batch:	1262397	**Method:**	EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
314987004	CAMO-13-24270
314987010	CAMO-13-24229
1202777982	Method Blank (MB)
1202777984	Laboratory Control Sample (LCS)
1202778389	314987004(CAMO-13-24270) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314987004 (CAMO-13-24270).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Alkalinity**

Analytical Batch: 1264657 **Method:** EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
314987004	CAMO-13-24270
314987010	CAMO-13-24229
1202783251	314987004(CAMO-13-24270) Sample Duplicate (DUP)
1202783256	314987004(CAMO-13-24270) Matrix Spike (MS)
1202783259	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314987004 (CAMO-13-24270).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____07Dec12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-297 GEL Work Order: 314987

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 6, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-297

Client Sample ID:	CAMO-13-24253	Project:	ESHL00210
Sample ID:	314987003	Client ID:	ARSL001
Matrix:	W		
Collect Date:	08-NOV-12 10:58		
Receive Date:	10-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.641	0.330	1.00	mg/L	1	TSM	11/16/12	1530	1262822	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.035	0.100	mg/L	1	KLP1	11/14/12	1106	1261638	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/13/12	1700	1261637

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 6, 2012

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-297

Client Sample ID: CAMO-13-24270
Sample ID: 314987004
Matrix: W
Collect Date: 08-NOV-12 10:58
Receive Date: 10-NOV-12
Collector: Client
Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		188	1.00	1.00	umhos/cm	1	LXA1	11/27/12	1525	1266189	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 12.2C	H	8.74	0.010	0.100	SU	1	LYG1	11/12/12	0921	1262400	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	J	0.106	0.067	0.200	mg/L	1	MAR1	11/29/12	0426	1262061	3
Chloride		7.83	0.067	0.200	mg/L	1					
Fluoride		0.244	0.033	0.100	mg/L	1					
Sulfate		13.2	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.288	0.017	0.050	mg/L	1	KLP1	11/13/12	1324	1261640	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		1.02	0.017	0.050	mg/L	1	KLP1	11/13/12	1226	1262537	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.0743	0.017	0.050	mg/L	1	KLP1	11/14/12	1340	1261643	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		126	3.40	14.3	mg/L		LYG1	11/12/12	0808	1262397	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		63.8	0.725	1.00	mg/L		LXA1	11/19/12	1834	1264657	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/12/12	1500	1261639
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/13/12	1700	1261641

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 6, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-297
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24270	Project:	ESHL00210
Sample ID:	314987004	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 6, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-297

Client Sample ID:	CAMO-13-24228	Project:	ESHL00210
Sample ID:	314987009	Client ID:	ARSL001
Matrix:	W		
Collect Date:	08-NOV-12 10:58		
Receive Date:	10-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.573	0.330	1.00	mg/L	1	TSM	11/16/12	1604	1262822	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.035	0.100	mg/L	1	KLP1	11/14/12	1107	1261638	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/13/12	1700	1261637

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 6, 2012

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-297

Client Sample ID: CAMO-13-24229
Sample ID: 314987010
Matrix: W
Collect Date: 08-NOV-12 10:58
Receive Date: 10-NOV-12
Collector: Client
Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		189	1.00	1.00	umhos/cm	1	LXA1	11/27/12	1527	1266189	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 12.5C	H	8.74	0.010	0.100	SU	1	LYG1	11/12/12	0922	1262400	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	J	0.137	0.067	0.200	mg/L	1	MAR1	11/29/12	0457	1262061	3
Chloride		7.85	0.067	0.200	mg/L	1					
Fluoride		0.246	0.033	0.100	mg/L	1					
Sulfate		13.1	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.0606	0.017	0.050	mg/L	1	KLP1	11/19/12	1213	1263572	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.990	0.085	0.250	mg/L	5	KLP1	11/19/12	1129	1263016	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.0665	0.017	0.050	mg/L	1	KLP1	11/16/12	1110	1263577	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		141	3.40	14.3	mg/L		LYG1	11/12/12	0808	1262397	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		62.2	0.725	1.00	mg/L		LXA1	11/19/12	1843	1264657	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/19/12	1045	1263571
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/15/12	1700	1263576

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 6, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-297
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24229	Project:	ESHL00210
Sample ID:	314987010	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: December 6, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **314987**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis											
Batch 1262822											
QC1202778961 315160001 DUP											
Total Organic Carbon Average		J	0.707	J	0.887	mg/L	22.6 ^		(+/-1.00)	TSM	11/16/12 18:36
QC1202778963 LCS											
Total Organic Carbon Average	10.0				9.66	mg/L		96.6	(85%-115%)		11/16/12 14:17
QC1202778960 MB											
Total Organic Carbon Average				U	ND	mg/L					11/16/12 14:08
QC1202778962 315160001 PS											
Total Organic Carbon Average	10.0	J	0.707		10.5	mg/L		97.5	(65%-120%)		11/16/12 18:56
Conductivity Analysis											
Batch 1266189											
QC1202786720 314987004 DUP											
Conductivity			188		189	umhos/cm	0.212		(0%-10%)	LXA1	11/27/12 15:25
QC1202786721 315159002 DUP											
Conductivity			187		187	umhos/cm	0.00		(0%-10%)		11/27/12 15:33
QC1202786722 LCS											
Conductivity	1410				1430	umhos/cm		101	(95%-105%)		11/27/12 15:23
Electrode Analysis											
Batch 1262400											
QC1202777998 314848001 DUP											
pH		H	8.06	H	8.07	SU	0.124		(0%-10%)	LYG1	11/12/12 09:14
QC1202777999 LCS											
pH	7.00				7.04	SU		101	(99%-101%)		11/12/12 09:10
Ion Chromatography											
Batch 1262061											
QC1202777151 314848001 DUP											
Bromide		J	0.0855	J	0.0858	mg/L	0.350 ^		(+/-0.200)	MAR1	11/29/12 01:49
Chloride			8.72		8.72	mg/L	0.031		(0%-20%)		
Fluoride			0.334		0.332	mg/L	0.481 ^		(+/-0.100)		
Sulfate			13.2		13.2	mg/L	0.245		(0%-20%)		
QC1202777153 LCS											
Bromide	2.50				2.69	mg/L		107	(90%-110%)		11/29/12 00:46
Chloride	10.0				9.63	mg/L		96.3	(90%-110%)		
Fluoride	5.00				5.04	mg/L		101	(90%-110%)		
Sulfate	20.0				19.7	mg/L		98.6	(90%-110%)		
QC1202777150 MB											
Bromide				U	ND	mg/L					11/29/12 00:15
Chloride				U	ND	mg/L					
Fluoride				U	ND	mg/L					
Sulfate				U	ND	mg/L					
QC1202777152 314848001 PS											

QC Summary

Workorder: 314987

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1262061											
Bromide	2.50	J	0.0855		2.65	mg/L		103	(90%-110%)		11/29/12 02:20
Chloride	10.0		8.72		20.0	mg/L		113*	(90%-110%)	MAR1	
Fluoride	5.00		0.334		5.41	mg/L		101	(90%-110%)		
Sulfate	20.0		13.2		34.9	mg/L		109	(90%-110%)		
Nutrient Analysis											
Batch 1261638											
QC1202776118 314591001 DUP											
Nitrogen, Total Kjeldahl			0.163	J	0.0865	mg/L	61.3 ^		(+/-0.100)	KLP1	11/14/12 10:44
QC1202776121 LCS											
Nitrogen, Total Kjeldahl	1.00				1.00	mg/L		100	(90%-110%)		11/14/12 10:42
QC1202776117 MB											
Nitrogen, Total Kjeldahl				U	ND	mg/L					11/14/12 10:42
QC1202776119 314591001 MS											
Nitrogen, Total Kjeldahl	1.00		0.163		1.06	mg/L		89.7*	(90%-110%)		11/14/12 10:45
QC1202776120 314591001 MSD											
Nitrogen, Total Kjeldahl	1.00		0.163		1.07	mg/L	0.939	90.7	(0%-20%)		11/14/12 10:46
Batch 1261640											
QC1202776123 314591002 DUP											
Nitrogen, Ammonia			0.0587	J	0.0276	mg/L	72.1 ^		(+/-0.050)	KLP1	11/13/12 12:46
QC1202776126 LCS											
Nitrogen, Ammonia	1.00				1.06	mg/L		106	(90%-110%)		11/13/12 12:45
QC1202776122 MB											
Nitrogen, Ammonia				U	ND	mg/L					11/13/12 12:44
QC1202776124 314591002 MS											
Nitrogen, Ammonia	1.00		0.0587		1.20	mg/L		114*	(90%-110%)		11/13/12 12:47
QC1202776125 314591002 MSD											
Nitrogen, Ammonia	1.00		0.0587		1.01	mg/L	17.2*	95.1	(0%-15%)		11/13/12 12:48
Batch 1261643											
QC1202776128 314591002 DUP											
Phosphorus, Total as P			0.0976		0.0915	mg/L	6.45 ^		(+/-0.050)	KLP1	11/14/12 13:01
QC1202776134 LCS											
Phosphorus, Total as P	1.00				1.08	mg/L		108	(76%-120%)		11/14/12 12:55
QC1202776127 MB											
Phosphorus, Total as P				U	ND	mg/L					11/14/12 12:54
QC1202776130 314591002 MS											
Phosphorus, Total as P	1.00		0.0976		1.17	mg/L		107	(62%-139%)		11/14/12 13:02
QC1202776132 314591002 MSD											
Phosphorus, Total as P	1.00		0.0976		0.986	mg/L	17.1	88.8	(0%-20%)		11/14/12 13:22
Batch 1262537											
QC1202778269 314848001 DUP											
Nitrogen, Nitrate/Nitrite		U	ND	U	ND	mg/L	N/A			KLP1	11/13/12 12:05
QC1202778274 LCS											
Nitrogen, Nitrate/Nitrite	1.00				1.07	mg/L		107	(90%-110%)		11/13/12 11:58
QC1202778267 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					11/13/12 11:57
QC1202778272 314848001 PS											

QC Summary

Workorder: 314987

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis											
Batch 1262537											
Nitrogen, Nitrate/Nitrite	1.00	U	ND		0.990	mg/L		99	(90%-110%)		11/13/12 12:06
Batch 1263016											
QC1202780694 315159002 DUP											
Nitrogen, Nitrate/Nitrite			1.50		1.57	mg/L	4.89		(0%-20%)	KLP1	11/19/12 11:37
QC1202782515 315361001 DUP											
Nitrogen, Nitrate/Nitrite			2.18		2.18	mg/L	0.00		(0%-20%)		11/19/12 12:04
QC1202779484 LCS											
Nitrogen, Nitrate/Nitrite	1.00				1.04	mg/L		104	(90%-110%)		11/19/12 11:28
QC1202779479 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					11/19/12 11:27
QC1202780695 315159002 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.299		1.28	mg/L		98.1	(90%-110%)		11/19/12 11:38
QC1202782516 315361001 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.435		1.47	mg/L		104	(90%-110%)		11/19/12 12:05
Batch 1263572											
QC1202780703 314987010 DUP											
Nitrogen, Ammonia			0.0606	J	0.0307	mg/L	65.5 ^		(+/-0.050)	KLP1	11/19/12 12:14
QC1202782504 315361001 DUP											
Nitrogen, Ammonia			0.257		0.254	mg/L	1.17		(0%-20%)		11/19/12 12:48
QC1202780709 LCS											
Nitrogen, Ammonia	1.00				0.980	mg/L		98	(90%-110%)		11/19/12 12:12
QC1202780702 MB											
Nitrogen, Ammonia				U	ND	mg/L					11/19/12 12:11
QC1202780705 314987010 MS											
Nitrogen, Ammonia	1.00		0.0606		1.01	mg/L		94.9	(90%-110%)		11/19/12 12:15
QC1202782505 315361001 MS											
Nitrogen, Ammonia	1.00		0.257		1.19	mg/L		93.3	(90%-110%)		11/19/12 12:49
QC1202780707 314987010 MSD											
Nitrogen, Ammonia	1.00		0.0606		0.953	mg/L	5.81	89.2 *	(0%-15%)		11/19/12 12:15
QC1202782506 315361001 MSD											
Nitrogen, Ammonia	1.00		0.257		1.20	mg/L	0.837	94.3	(0%-15%)		11/19/12 12:49
Batch 1263577											
QC1202780716 315159002 DUP											
Phosphorus, Total as P		J	0.0482	U	ND	mg/L	N/A ^			KLP1	11/16/12 11:13
QC1202780717 315160002 DUP											
Phosphorus, Total as P			0.0507	J	0.039	mg/L	26.1 ^		(+/-0.050)		11/16/12 11:21
QC1202780722 LCS											
Phosphorus, Total as P	1.00				1.04	mg/L		104	(76%-120%)		11/16/12 11:09
QC1202780715 MB											
Phosphorus, Total as P				U	ND	mg/L					11/16/12 11:08
QC1202780718 315159002 MS											
Phosphorus, Total as P	1.00	J	0.0482		1.07	mg/L		102	(62%-139%)		11/16/12 11:14
QC1202780719 315160002 MS											
Phosphorus, Total as P	1.00		0.0507		1.07	mg/L		102	(62%-139%)		11/16/12 11:22
QC1202780720 315159002 MSD											
Phosphorus, Total as P	1.00	J	0.0482		1.09	mg/L	1.85	104	(0%-20%)		11/16/12 11:15
QC1202780721 315160002 MSD											

QC Summary

Workorder: 314987

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis										
Batch 1263577										
Phosphorus, Total as P	1.00	0.0507		1.07	mg/L	0.00	102	(0%-20%)		11/16/12 11:23
Solids Analysis										
Batch 1262397										
QC1202778389 314987004 DUP										
Total Dissolved Solids		126		124	mg/L	1.14		(0%-10%)	LYG1	11/12/12 08:08
QC1202777984 LCS										
Total Dissolved Solids	300			289	mg/L		96.2	(95%-105%)		11/12/12 08:08
QC1202777982 MB										
Total Dissolved Solids			U	ND	mg/L					11/12/12 08:08
Titration Analysis										
Batch 1264657										
QC1202783251 314987004 DUP										
Alkalinity, Total as CaCO3		63.8		62.7	mg/L	1.69		(0%-20%)	LXA1	11/19/12 18:37
Carbonate alkalinity (CaCO3)	U	ND	U	ND	mg/L	N/A				
QC1202783259 LCS										
Alkalinity, Total as CaCO3	50.0			52.6	mg/L		105	(90%-110%)		11/19/12 12:32
QC1202783256 314987004 MS										
Alkalinity, Total as CaCO3	50.0	63.8		116	mg/L		104	(80%-120%)		11/19/12 18:40

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E Organics--Concentration of the target analyte exceeds the instrument calibration range
- F Estimated Value
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded
- J Value is estimated
- JNX Non Calibrated Compound
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.

QC Summary

Workorder: **314987**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
13-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1261640	See below.		

Potentially affected work order(s)(SDG): **314591(2013-267),314637(2013-271),314639(2013-270),314696,314749(2013-276),314750(2013-277),314773,314848(2013-285),314849(2013-286),314945,314987(2013-297)**

Application Issues:

Failed Recovery for MS/PS

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS: QC 1202776124MS 2. Failed RPD for MS/MSD: QC 1202776125MSD	1. The spike recovery falls outside of the established acceptance limits due to matrix interference and/or sample matrix non-homogeneity. 2. The Relative Percent Difference (RPD) between the MS and MSD falls outside of the established acceptance limits because of the heterogeneous matrix of the sample.

Originator's Name:

Kristen Parson 13-NOV-12

Data Validator/Group Leader:

Julia Hamilton 13-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
14-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1261638	See below.		

Potentially affected work order(s)(SDG): **314591(2013-267),314637(2013-271),314639(2013-270),314749(2013-276),314750(2013-277),314773,314848(2013-285),314849(2013-286),314945,314987(2013-297)**

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS: QC 1202776119MS	1. The spike recovery falls outside of the established acceptance limits. Since both the spike duplicate recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported.

Originator's Name:

Kristen Parson 14-NOV-12

Data Validator/Group Leader:

Julia Hamilton 14-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
16-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1262400	See below.		

Potentially affected work order(s)(SDG): 314848(2013-285),314849(2013-286),314987(2013-297)

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 314848 001,002 314849 002,004 314987 004,010	1. Samples were received out of holding.

Originator's Name:

Lisa Gregory 19-NOV-12

Data Validator/Group Leader:

Julia Hamilton 05-DEC-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
19-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1263572	See below.		

Potentially affected work order(s)(SDG): **314987(2013-297),315085,315088,315155(CAH-12-118A),315159(2013-306),315160(2013-307),315212,315230,315361(2013-331),315362(2013-333)**

Application Issues:

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MSD: QC 1202780707MSD	1. The MSD recovery falls outside of the established acceptance limits. Since both the MS recovery and the RPD between the MS and MSD fall within acceptance limits, the data is reported.

Originator's Name:
Kristen Parson 19-NOV-12

Data Validator/Group Leader:
Julia Hamilton 20-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
30-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
IC	EPA 300.0	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1262061	See Below		

Potentially affected work order(s)(SDG): 314848(2013-285),314849(2013-286),314987(2013-297)

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS/PS: QC 1202777152PS	1. The MS/PS mixture contains seven anions of interest. Of those, all requested anions except chloride met normal acceptance criteria for recovery (90 - 110%). This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported.

Originator's Name:

Mary Sherwood 30-NOV-12

Data Validator/Group Leader:

Virginia Wininger 03-DEC-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-297
Work Order 314987

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1261192

Sample ID	Client ID
314987003	CAMO-13-24253
314987009	CAMO-13-24228
1202775075	Method Blank (MB)
1202775076	314639001(CASA-13-24209) Sample Duplicate (DUP)
1202775077	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202775075 (MB) and 1202775077 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314639001 (CASA-13-24209). The QC was from ARSL work order 314639.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202775077 (LCS) was recounted due to poor resolution. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1261194

Sample ID	Client ID
314987003	CAMO-13-24253
314987009	CAMO-13-24228
1202775078	Method Blank (MB)
1202775079	314639001(CASA-13-24209) Sample Duplicate (DUP)
1202775080	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202775078 (MB) and 1202775080 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314639001 (CASA-13-24209). The QC was from ARSL work order 314639.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202775078 (MB) was recounted due to a peak shift. The recount is reported. Sample 1202775080 (LCS) was recounted due to poor resolution. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1261195

Sample ID	Client ID
314987003	CAMO-13-24253
314987009	CAMO-13-24228
1202775081	Method Blank (MB)
1202775082	314639001(CASA-13-24209) Sample Duplicate (DUP)
1202775083	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202775081 (MB) and 1202775083 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314639001 (CASA-13-24209). The QC was from ARSL work order 314639.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1262434

Sample ID	Client ID
314987003	CAMO-13-24253
314987009	CAMO-13-24228
1202778038	Method Blank (MB)
1202778039	314849001(CASA-13-24213) Sample Duplicate (DUP)
1202778040	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in May 2012, June 2012 and July 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314849001 (CASA-13-24213). The QC was from ARSL work order 314849.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank 1202778038 (MB) result is greater than 1.65 times the CSU but less than the MDC for K-40.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank 1202778038 (MB) result is greater than the decision level but less than the MDC for K-40.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1263026

Sample ID	Client ID
314987003	CAMO-13-24253
314987009	CAMO-13-24228
1202779527	Method Blank (MB)
1202779528	314987003(CAMO-13-24253) Sample Duplicate (DUP)
1202779529	314987003(CAMO-13-24253) Matrix Spike (MS)
1202779530	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202779527 (MB) and 1202779530 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314987003 (CAMO-13-24253). The QC was from ARSL work order 314987.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank 1202779527 (MB) result is greater than 1.65 times the CSU but less than the MDC.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202779529 (CAMO-13-24253), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1263054

Sample ID	Client ID
314987003	CAMO-13-24253
314987009	CAMO-13-24228
1202779586	Method Blank (MB)
1202779587	314849003(CASA-13-24214) Sample Duplicate (DUP)
1202779588	314849003(CASA-13-24214) Matrix Spike (MS)
1202779589	314849003(CASA-13-24214) Matrix Spike Duplicate (MSD)
1202779590	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in September 2011. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202779586 (MB) and 1202779590 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314849003 (CASA-13-24214). The QC was from ARSL work order 314849.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments

The matrix spike and matrix spike duplicate, 1202779588 (CASA-13-24214) and 1202779589 (CASA-13-24214), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-297 GEL Work Order: 314987

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Theresa L. Austin **Name: Theresa Austin**

Date: 30 NOV 2012 **Title: Group Leader**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 30, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24253
Sample ID: 314987003
Matrix: W
Collect Date: 08-NOV-12
Receive Date: 10-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	3.43E-10	+/-0.00411	0.0234	+/-0.00411	0.050	pCi/L		LYS1	11/21/12	1140	1261192	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	-0.0029	+/-0.00502	0.0278	+/-0.00502	0.050	pCi/L		LYS1	11/21/12	1139	1261194	2
Plutonium-239/240	U	-0.0029	+/-0.00766	0.0462	+/-0.00766	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.707	+/-0.0483	0.0713	+/-0.0675	1.00	pCi/L		LYS1	11/21/12	1136	1261195	3
Uranium-235/236	U	0.0304	+/-0.0132	0.0445	+/-0.0133	1.00	pCi/L						
Uranium-238		0.261	+/-0.0299	0.0484	+/-0.0345	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-0.881	+/-1.89	6.96	+/-1.89	8.00	pCi/L		KXG3	11/13/12	1126	1262434	4
Cobalt-60	U	-2.34	+/-2.11	7.35	+/-2.11	8.00	pCi/L						
Neptunium-237	U	2.32	+/-3.63	13.5	+/-3.63	10.0	pCi/L						
Potassium-40	U	-31.7	+/-23.8	89.2	+/-23.8	10.0	pCi/L						
Sodium-22	U	1.35	+/-2.08	8.82	+/-2.08	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.0275	+/-0.123	0.462	+/-0.123	0.500	pCi/L		VXC2	11/26/12	1537	1263026	5
WSP-GrossA/B "As Received"													
Beta		3.03	+/-0.917	2.64	+/-0.952	3.00	pCi/L		MYS1	11/26/12	1956	1263054	6
Alpha	U	-0.256	+/-0.631	2.88	+/-0.631	3.00	pCi/L		MYS1	11/27/12	1955	1263054	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1261192	82.0	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1261194	74.8	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1261195	72.8	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1263026	97.7	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 30, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24253
Sample ID: 314987003

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 30, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24228
Sample ID: 314987009
Matrix: W
Collect Date: 08-NOV-12
Receive Date: 10-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.00436	+/-0.00534	0.0248	+/-0.00535	0.050	pCi/L		LYS1	11/21/12	1140	1261192	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	-0.0125	+/-0.00969	0.024	+/-0.00969	0.050	pCi/L		LYS1	11/21/12	1140	1261194	2
Plutonium-239/240	U	-0.0025	+/-0.00662	0.0399	+/-0.00662	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.783	+/-0.0494	0.0666	+/-0.0715	1.00	pCi/L		LYS1	11/21/12	1136	1261195	3
Uranium-235/236	U	0.0319	+/-0.0128	0.0416	+/-0.013	1.00	pCi/L						
Uranium-238		0.330	+/-0.0313	0.0452	+/-0.038	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	2.46	+/-1.47	6.07	+/-1.47	8.00	pCi/L		KXG3	11/13/12	1200	1262434	4
Cobalt-60	U	0.877	+/-1.64	6.63	+/-1.64	8.00	pCi/L						
Neptunium-237	U	-2.39	+/-3.60	12.2	+/-3.60	10.0	pCi/L						
Potassium-40	U	-36	+/-19.7	64.7	+/-19.7	10.0	pCi/L						
Sodium-22	U	-1.12	+/-1.80	6.46	+/-1.80	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.0518	+/-0.138	0.486	+/-0.138	0.500	pCi/L		VXC2	11/26/12	1537	1263026	5
WSP-GrossA/B "As Received"													
Beta	U	1.04	+/-0.678	2.26	+/-0.683	3.00	pCi/L		MYS1	11/26/12	1958	1263054	6
Alpha	U	0.671	+/-0.626	2.32	+/-0.629	3.00	pCi/L		MYS1	11/27/12	2114	1263054	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1261192	73.9	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1261194	72.4	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1261195	76.7	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1263026	97.7	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 30, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24228
Sample ID: 314987009

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 30, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **314987**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1261192										
QC1202775076 314639001 DUP										
Americium-241	U	0.0123	U	0.0045	pCi/L	0.245		(0-1)	LYS1	11/21/1211:40
	Uncert:	+/-0.00867		+/-0.00712						
	TPU:	+/-0.00869		+/-0.00712						
**Americium-243 Tracer	2.60	2.09		2.05	pCi/L		78.7	(50%-105%)		
	Uncert:	+/-0.0889		+/-0.0767						
	TPU:	+/-0.147		+/-0.132						
QC1202775077 LCS										
Americium-241	1.41			1.42	pCi/L		100	(80%-120%)	LYS1	11/26/1216:03
	Uncert:			+/-0.0543						
	TPU:			+/-0.0816						
**Americium-243 Tracer	2.08			1.78	pCi/L		85.2	(50%-105%)		
	Uncert:			+/-0.0652						
	TPU:			+/-0.111						
QC1202775075 MB										
Americium-241			U	-0.00174	pCi/L				LYS1	11/21/1211:40
	Uncert:			+/-0.00627						
	TPU:			+/-0.00627						
**Americium-243 Tracer	2.08			1.61	pCi/L		77.4	(50%-105%)		
	Uncert:			+/-0.060						
	TPU:			+/-0.104						
Batch 1261194										
QC1202775079 314639001 DUP										
Plutonium-238	U	-0.0105	U	-0.00459	pCi/L	0.230		(0-1)	LYS1	11/21/1211:40
	Uncert:	+/-0.00628		+/-0.0065						
	TPU:	+/-0.00628		+/-0.0065						
Plutonium-239/240	U	0.00837	U	0.00919	pCi/L	0.0332		(0-1)		
	Uncert:	+/-0.00662		+/-0.00563						
	TPU:	+/-0.00663		+/-0.00564						
**Plutonium-242 Tracer	2.43	1.99		1.89	pCi/L		77.9	(50%-105%)		
	Uncert:	+/-0.0722		+/-0.0757						
	TPU:	+/-0.124		+/-0.128						
QC1202775080 LCS										
Plutonium-238				0.0208	pCi/L			(80%-120%)	LYS1	11/26/1215:37
	Uncert:			+/-0.00779						
	TPU:			+/-0.00784						
Plutonium-239/240	2.03			2.23	pCi/L		110	(80%-120%)		
	Uncert:			+/-0.0683						
	TPU:			+/-0.119						
**Plutonium-242 Tracer	1.94			1.65	pCi/L		84.6	(50%-105%)		
	Uncert:			+/-0.0638						
	TPU:			+/-0.106						
QC1202775078 MB										

QC Summary

Workorder: 314987

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1261194										
Plutonium-238			U	0.00	pCi/L				LYS1	11/26/1215:37
	Uncert:			+/-0.0049						
	TPU:			+/-0.0049						
Plutonium-239/240			U	0.00	pCi/L					
	Uncert:			+/-0.00566						
	TPU:			+/-0.00566						
**Plutonium-242 Tracer	1.94			1.80	pCi/L		92.7	(50%-105%)		
	Uncert:			+/-0.0626						
	TPU:			+/-0.105						
Batch 1261195										
QC1202775082 314639001 DUP										
Uranium-234		0.516		0.547	pCi/L	0.144		(0-1)	LYS1	11/21/1211:36
	Uncert:	+/-0.039		+/-0.0427						
	TPU:	+/-0.0516		+/-0.056						
Uranium-235/236	U	0.0132	U	0.00722	pCi/L	0.129		(0-1)		
	Uncert:	+/-0.0104		+/-0.0125						
	TPU:	+/-0.0104		+/-0.0125						
Uranium-238		0.218		0.231	pCi/L	0.105		(0-1)		
	Uncert:	+/-0.0258		+/-0.0272						
	TPU:	+/-0.0294		+/-0.0311						
**Uranium-232 Tracer	2.73	2.23		2.14	pCi/L		78.4	(50%-105%)		
	Uncert:	+/-0.0859		+/-0.0899						
	TPU:	+/-0.196		+/-0.200						
QC1202775083 LCS										
Uranium-234				2.68	pCi/L				LYS1	11/21/1211:34
	Uncert:			+/-0.074						
	TPU:			+/-0.188						
Uranium-235/236				0.134	pCi/L					
	Uncert:			+/-0.0192						
	TPU:			+/-0.021						
Uranium-238	2.70			2.75	pCi/L		102	(80%-120%)		
	Uncert:			+/-0.0745						
	TPU:			+/-0.192						
**Uranium-232 Tracer	2.19			1.93	pCi/L		88.2	(50%-105%)		
	Uncert:			+/-0.0672						
	TPU:			+/-0.156						
QC1202775081 MB										
Uranium-234			U	-0.0048	pCi/L				LYS1	11/21/1211:36
	Uncert:			+/-0.0085						
	TPU:			+/-0.0085						
Uranium-235/236			U	-0.00241	pCi/L					
	Uncert:			+/-0.00539						
	TPU:			+/-0.00539						
Uranium-238			U	0.00195	pCi/L					
	Uncert:			+/-0.00338						
	TPU:			+/-0.00338						
**Uranium-232 Tracer	2.19			1.94	pCi/L		89	(50%-105%)		
	Uncert:			+/-0.0657						

QC Summary

Workorder: 314987

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1261195										
	TPU:			+/-0.154						
Rad Gamma Spec										
Batch 1262434										
QC1202778039 314849001 DUP										
Cesium-137	U	-0.677	U	-0.0582	pCi/L	0.102		(0-1)	KXG3	11/13/1213:45
	Uncert:	+/-1.40		+/-1.64						
	TPU:	+/-1.40		+/-1.64						
Cobalt-60	U	2.33	U	1.12	pCi/L	0.205		(0-1)		
	Uncert:	+/-1.29		+/-1.67						
	TPU:	+/-1.29		+/-1.67						
Neptunium-237	U	-5.83	U	0.248	pCi/L	0.468		(0-1)		
	Uncert:	+/-2.78		+/-3.72						
	TPU:	+/-2.78		+/-3.72						
Potassium-40	U	-8.92	U	12.4	pCi/L	0.285		(0-1)		
	Uncert:	+/-17.2		+/-20.1						
	TPU:	+/-17.2		+/-20.1						
Sodium-22	U	-1.44	U	-2.59	pCi/L	0.235		(0-1)		
	Uncert:	+/-0.927		+/-1.52						
	TPU:	+/-0.927		+/-1.52						
QC1202778040 LCS										
Americium-241	2780			3040	pCi/L		109	(80%-120%)	KXG3	11/13/1212:13
	Uncert:			+/-261						
	TPU:			+/-261						
Cesium-137	6090			6210	pCi/L		102	(80%-120%)		
	Uncert:			+/-271						
	TPU:			+/-271						
Cobalt-60	5650			5740	pCi/L		101	(80%-120%)		
	Uncert:			+/-243						
	TPU:			+/-243						
Neptunium-237			U	4.78	pCi/L					
	Uncert:			+/-25.6						
	TPU:			+/-25.6						
Potassium-40			U	33.5	pCi/L					
	Uncert:			+/-50.9						
	TPU:			+/-50.9						
Sodium-22			U	10.4	pCi/L					
	Uncert:			+/-7.67						
	TPU:			+/-7.67						
QC1202778038 MB										
Cesium-137			U	1.66	pCi/L				KXG3	11/13/1212:00
	Uncert:			+/-1.79						
	TPU:			+/-1.79						
Cobalt-60			U	0.766	pCi/L					
	Uncert:			+/-1.23						
	TPU:			+/-1.23						
Neptunium-237			U	-1.98	pCi/L					
	Uncert:			+/-2.68						
	TPU:			+/-2.68						

QC Summary

Workorder: 314987

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1262434										
Potassium-40			U	32.9	pCi/L					
Uncert:				+/-16.8						
TPU:				+/-16.8						
Sodium-22			U	-1.57	pCi/L					
Uncert:				+/-1.38						
TPU:				+/-1.38						
Rad Gas Flow										
Batch 1263026										
QC1202779528 314987003 DUP										
Strontium-90	U	0.0275	U	-0.0248	pCi/L	0.104		(0-1)	VXC2	11/26/1215:37
Uncert:		+/-0.123		+/-0.130						
TPU:		+/-0.123		+/-0.130						
**Strontium Carrier	7.17	7.00		7.10	mg		99.1	(50%-105%)		
QC1202779530 LCS										
Strontium-90	24.8			24.6	pCi/L		99	(80%-120%)	VXC2	11/26/1215:38
Uncert:				+/-0.498						
TPU:				+/-2.02						
**Strontium Carrier	7.17			6.40	mg		89.3	(50%-105%)		
QC1202779527 MB										
Strontium-90			U	0.162	pCi/L				VXC2	11/26/1215:37
Uncert:				+/-0.0895						
TPU:				+/-0.0904						
**Strontium Carrier	7.17			6.70	mg		93.5	(50%-105%)		
QC1202779529 314987003 MS										
Strontium-90	124 U	0.0275		122	pCi/L		98.1	(75%-125%)	VXC2	11/26/1215:38
Uncert:		+/-0.123		+/-2.49						
TPU:		+/-0.123		+/-10.2						
**Strontium Carrier	7.17	7.00		6.40	mg		89.3	(50%-105%)		
Batch 1263054										
QC1202779587 314849003 DUP										
Alpha	U	2.00	U	2.13	pCi/L	0.0316		(0-1)	MYS1	11/27/1221:14
Uncert:		+/-0.977		+/-1.00						
TPU:		+/-0.992		+/-1.02						
Beta	U	2.13	U	0.444	pCi/L	0.563		(0-1)		11/26/1219:58
Uncert:		+/-0.785		+/-0.686						
TPU:		+/-0.805		+/-0.688						
QC1202779590 LCS										
Alpha	12.0			12.1	pCi/L		101	(80%-120%)	MYS1	11/27/1220:02
Uncert:				+/-0.661						
TPU:				+/-1.27						
Beta	49.6			49.0	pCi/L		98.8	(80%-120%)		11/26/1219:56
Uncert:				+/-0.892						
TPU:				+/-4.18						
QC1202779586 MB										
Alpha			U	-0.0618	pCi/L				MYS1	11/27/1221:14
Uncert:				+/-0.0846						
TPU:				+/-0.0846						
Beta			U	0.0566	pCi/L					11/26/1219:56

QC Summary

Workorder: **314987**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1263054										
	Uncert:			+/-0.101						
	TPU:			+/-0.101						
QC1202779588 314849003 MS										
Alpha	481	2.00	U	416	pCi/L		86.3	(75%-125%)	MYS1	11/27/1220:19
	Uncert:	+/-0.977		+/-22.5						
	TPU:	+/-0.992		+/-42.7						
Beta	1990	2.13	U	1990	pCi/L		100	(75%-125%)		11/26/1219:56
	Uncert:	+/-0.785		+/-36.5						
	TPU:	+/-0.805		+/-169						
QC1202779589 314849003 MSD										
Alpha	481	2.00	U	496	pCi/L	0.402	103	(0-1)	MYS1	11/27/1220:02
	Uncert:	+/-0.977		+/-26.2						
	TPU:	+/-0.992		+/-57.4						
Beta	1990	2.13	U	2100	pCi/L	0.153	106	(0-1)		11/26/1219:56
	Uncert:	+/-0.785		+/-38.0						
	TPU:	+/-0.805		+/-187						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.

QC Summary

Workorder: **314987**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-293

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

- 24 Hour - ☐ Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3
CASA-13-24209	Nov 5 2012	13:50	W	1
CASA-13-24213	Nov 7 2012	12:44	W	1
CASA-13-24214	Nov 7 2012	14:36	W	1

Special Instructions:

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 11/8/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24209

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/05/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1350	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-11		FIELD PREP:	UF	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 75 feet of a running diesel generator

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 7.17 mg/L Oxidation-Reduction Potential 100.3 MV pH 8.04 SU

Specific Conductance 226 uS/cm Temperature 21.38 deg C Turbidity 0.34 NTU

COLLECTED BY (PRINT) W Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/05/12 1435	(Printed Name) (Signature)	11/05/12 1435
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**
(Printed Name) (Signature)		(Printed Name) (Signature)	

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24213 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/07/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1244	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-43 S1		FIELD PREP:	UF	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P1A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 50 feet of a running diesel generator

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 6.88 mg/L Oxidation-Reduction Potential 83.3 MV pH 8.23 SU

Specific Conductance 176 uS/cm Temperature 20.18 deg C Turbidity 0.51 NTU

COLLECTED BY (PRINT) M Green

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/07/12 1540	(Printed Name) S. Sherwood (Signature) Shari Sherwood	11/07/12 1540
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24214 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/07/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1436	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-43 S2		FIELD PREP:	UF	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P2A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 50 feet of a running diesel generator.

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 3.07 mg/L Oxidation-Reduction Potential 60.9 MV pH 8.78 SU

Specific Conductance 183 uS/cm Temperature 20.16 deg C Turbidity 0.38 NTU

COLLECTED BY (PRINT) M Green

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/07/12 1540	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	11/07/12 1540
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-293

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
ARS1-12-02264	Generic:Low_Level_Tritium	1				
ARS1-12-02264	Generic:Low_Level_Tritium	2				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
ARS1-12-02264	Generic:Low_Level_Tritium	ARS1-B12-02721	ARS1-B12-02721	3					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
Generic:Low_Level_Tritium	RAD							
LCS	ARS1-B12-02721-01	LCS	0	0	1	0		
Generic:Low_Level_Tritium	RAD	CASA-13-24209	ARS1-B12-02721-11	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	CASA-13-24213	ARS1-B12-02721-12	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	CASA-13-24214	ARS1-B12-02721-13	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	LCSD	ARS1-B12-02721-02	LCSD	0	0	1	0
Generic:Low_Level_Tritium	RAD	MB	ARS1-B12-02721-03	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

No.

Any samples affected by the presence of contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

No.

Data Validation Report for:

Chain Of Custody No. 2013-293

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1	1						

7. Any MS/MSD recoveries or RPDs outside the control limits?

No.

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-43 S1	2013-293	CASA-13-24213	REG	INIT	RAD	Generic:Low_Level_Tritium	Tritium	U	U	R5	N
R-43 S2	2013-293	CASA-13-24214	REG	INIT	RAD	Generic:Low_Level_Tritium	Tritium	U	U	R5	N

Reason Code	Description
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CASA-13-24209	R-11	REG	Generic:Low_Level_Tritium	0	1
CASA-13-24213	R-43 S1	REG	Generic:Low_Level_Tritium	0	1
CASA-13-24214	R-43 S2	REG	Generic:Low_Level_Tritium	0	1

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
-0.793	pCi/L	-0.793	pCi/L	3.46	1.005	W	11/7/2012		ARS1-B12-02721	VAL	Y
1.108	pCi/L	1.108	pCi/L	2.159	0.678	W	11/7/2012		ARS1-B12-02721	VAL	Y

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Request Number: 2013-293

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-293

Original COC

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-293

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3	Special Instructions:
CASA-13-24209	Nov 5 2012	13:50	W	1	
CASA-13-24213	Nov 7 2012	12:44	W	1	
CASA-13-24214	Nov 7 2012	14:36	W	1	

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time: 11/8/12 3:00	Received by:	11/9/12 1030
Relinquished by:		Date/Time:	Received by:	

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-293

Case Narrative

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

December 7, 2012

LANL
Keith Greene
PO Box 1663 MS M992
Los Alamos, NM 87545

Request Number: **2013-293**
LANL Sample ID: **CASA-13-24209; CASA-13-24213; CASA-13-24214.**

Dear Mr. Greene;

On November 9, 2012, ARS International received three (3) water samples to be analyzed for Low Level Tritium.

The samples underwent enrichment and were counted using the appropriate counting equipment and QA/QC for this type of analysis. Results of the analysis and QA/QC are attached in the data package.

The client and QA/QC samples were counted with a count time sufficient to meet quality control parameters for counting equipment and were within acceptance criteria and statistical sound detection limits.

If you have any questions please do not hesitate to call at 225.381.2991 or email LANL@amrad.com.

Sincerely,

Laboratory Management
ARS International

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

COVER PAGE

PROJECT SAMPLE IDENTIFICATION
CROSS-REFERENCE
TO ARS SAMPLE LABORATORY IDs
Subcontract (LANL Agreement Number) 63641-001-10

Request Number	LANL PROJECT SAMPLE ID NUMBER	American Radiation Services SAMPLE ID NUMBER(S)
2013-293	CASA-12-24209	ARS1-12-02264-001
2013-293	CASA-12-24213	ARS1-12-02264-002
2013-293	CASA-12-24214	ARS1-12-02264-003

ANALYTICAL METHODS
Tritium analyses were performed using **ARS-040 Tritium Assay in Water Samples Using Electrolytic Enrichment.**

ANALYTICAL RESULTS
The result data that are flagged with "U" indicate that the activity is below the MDC.

American Radiation Services Project Manager/Laboratory Director's Comments:
"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

"I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the LANL specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."

James D. Pu	Laboratory Management, ARS International	12-10-12
Signature	**Title**	**Date**

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02264	**Request or PO Number:**	2013-293
Client Sample ID:	CASA-13-24209	**ARS Sample ID:**	ARS1-12-02264-001
Sample Collection Date:	11/05/12	**Date Received:**	11/09/12
Sample Matrix:	Aqueous	**Report Date:**	12/10/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	5.262	1.136	2.422	1.169		pCi/L	ARS-040	12/07/12 15:53	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02264	**Request or PO Number:**	2013-293
Client Sample ID:	CASA-13-24213	**ARS Sample ID:**	ARS1-12-02264-002
Sample Collection Date:	11/07/12	**Date Received:**	11/09/12
Sample Matrix:	Aqueous	**Report Date:**	12/10/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	-0.793	1.005	3.460	1.670	U	pCi/L	ARS-040	12/05/12 17:52	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02264	**Request or PO Number:**	2013-293
Client Sample ID:	CASA-13-24214	**ARS Sample ID:**	ARS1-12-02264-003
Sample Collection Date:	11/07/12	**Date Received:**	11/09/12
Sample Matrix:	Aqueous	**Report Date:**	12/10/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	1.108	0.678	2.159	1.042	U	pCi/L	ARS-040	12/05/12 22:03	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

ARS INTERNATIONAL
2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

QC Results Report

Sample Delivery Group: ARS1-12-02264
Date Received: 11/9/2012

Laboratory Control Sample Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Percent Recovery (%)	LCS Acceptance Range
ARS1-B12-02721	LCS	H3	25.875	4.032	2.269	25.703		pCi/L	ARS-040	12/4/12 18:56	RJU	101	80%-120%

Blank Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician
ARS1-B12-02721	MBL	H3	-0.085	0.625	2.135	NA	U	pCi/L	ARS-040	12/4/12 18:56	RJU

Sample RER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	RER	RER AcceptanceRange
ARS1-B12-02721	LCSD	H3	25.875	4.032	24.604	3.836		pCi/L	ARS-040	12/4/12 18:56	RJU	0.16	< 1

Sample DER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	DER	DER AcceptanceRange
ARS1-B12-02721	LCSD	H3	25.875	4.032	24.604	3.836		pCi/L	ARS-040	12/4/12 18:56	RJU	0.46	< 3

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of ARS International.

LELAP Certificate# 01949 NELAP Certificate # E87558

QC Evaluation

EPA Method: ARS-040
Batch ID: ARS1-B12-02721
SDG's: ARS1-12-02261;2262;2263;2264;2305;2306;2307;2309

LCS	25.8750	**CSU (2s)**	7.9020
LCSD	24.6040	**CSU-D (2s)**	7.5190

DER = abs(LSC-LSCD) / sqr((2s CSU/2)^2)+((2s CSU-D/2)^2) *at 1 sigma* = **< 3**

DER 1.271 / 5.453828 = 0.233047 **< 3**

% RPD= ABS(LCS - LSCD) / (LCS+LCSD)/2 * 100 = **< 25%**

%RPD 1.271 / 25.2395 *100 = 5.035757 **< 25%**

The *RPD* shall be less than 25% or other client-applied criteria

RER= abs((LCS-LCSD)) / (CSU)+(CSD) *at 2 sigma* = **<1** ***<--LANL Requirement***

RER = 1.271 / 15.4210 0.082420077 **<1**

Blank Information

	Act	CSU(2s)	MDA	Act>MDA
AM-241				
U-234				
U-235				
U-238				
Pu-238				
Pu-239/240				
Th-228				
Th-230				
Th-232				
H3	-0.085	1.225	2.135	
Ra-226				
Ra-228				
Total U				
Pb-210				
Po-209				
Sr-90				
TC-99				
NI-63				

*MDA should be below RDL
*Blank activity must be below MDA
*Blank activity must be < 1.65*CSU (DOE only)

ACT = -0.085
CSU = 1.225
Is ACT<1.65*CSU? YES

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

14 of 98

Analysis Batch ID **ARS1-B12-02721**

Method ARS-040 **Analysis** LSC-A-022 **Matrix** AQ

Description Low Level Tritium by Electrolytic Enrichment

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02721-01	LCS	B-14793								
ARS1-B12-02721-02	LCSD	B-14794								
ARS1-B12-02721-03	MBL									
ARS1-B12-02721-04	TRG				**ARS1-12-02261**	001	1	CAMO-13-24279	STD	11/29/12
ARS1-B12-02721-05	TRG				**ARS1-12-02262**	001	1	CAMO-13-24241	STD	12/06/12
ARS1-B12-02721-06	TRG				**ARS1-12-02262**	002	1	CAMO-13-24242	STD	12/06/12
ARS1-B12-02721-07	TRG				**ARS1-12-02262**	003	1	CAMO-13-24225	STD	12/06/12
ARS1-B12-02721-08	TRG				**ARS1-12-02262**	004	1	CAMO-13-24247	STD	12/06/12
ARS1-B12-02721-09	TRG				**ARS1-12-02262**	005	1	CAMO-13-24248	STD	12/06/12
ARS1-B12-02721-10	TRG				**ARS1-12-02263**	001	1	CAMO-13-24276	STD	12/06/12
ARS1-B12-02721-11	TRG				**ARS1-12-02264**	001	1	CASA-13-24209	STD	12/06/12
ARS1-B12-02721-12	TRG				**ARS1-12-02264**	002	1	CASA-13-24213	STD	12/06/12
ARS1-B12-02721-13	TRG				**ARS1-12-02264**	003	1	CASA-13-24214	STD	12/06/12
ARS1-B12-02721-14	TRG				**ARS1-12-02305**	001	1	CASA-13-24210	STD	12/12/12
ARS1-B12-02721-15	TRG				**ARS1-12-02306**	001	1	CAMO-13-24245	STD	12/12/12
ARS1-B12-02721-16	TRG				**ARS1-12-02306**	002	1	CAMO-13-24246	STD	12/12/12
ARS1-B12-02721-17	TRG				**ARS1-12-02306**	003	1	CAMO-13-24249	STD	12/12/12
ARS1-B12-02721-18	TRG				**ARS1-12-02306**	004	1	CAMO-13-24250	STD	12/12/12
ARS1-B12-02721-19	TRG				**ARS1-12-02307**	001	1	CAMO-13-24253	STD	12/12/12
ARS1-B12-02721-20	TRG				**ARS1-12-02307**	002	1	CAMO-13-24228	STD	12/12/12
ARS1-B12-02721-21	TRG				**ARS1-12-02309**	001	1	CASA-13-24211	STD	12/12/12

127700
12-02261-001-1
WRAD

127702
12-02262-001-1
WRAD

127704
12-02262-002-1
WRAD

127706
12-02262-003-1
WRAD

127708
12-02262-004-1
WRAD

127710
12-02262-005-1
WRAD

127712
12-02263-001-1
WRAD

127714
12-02264-001-1
WRAD

127716
12-02264-002-1
WRAD

127718
12-02264-003-1
WRAD

127720
12-02305-001-1
WRAD

127722
12-02306-001-1
WRAD

127724
12-02306-002-1
WRAD

127726
12-02306-003-1
WRAD

127728
12-02306-004-1
WRAD

127730
12-02307-001-1
WRAD

127732
12-02307-002-1
WRAD

127734
12-02309-001-1
WRAD

American Radiation Services
Baton Rouge Laboratory

LCS Report
Analytical Batch: ARS1-B12-02721

15 of 39

BlindID	ABatch	ABatchSampleID	BlindGroup	StdID	Isotope	ExpectedAddition	ExpectedValue	EmptyWt	GrossWt	NetWt	UserID	ModDate	ExpectedValue_CT	MidPointCountDate	KnownValue
B-14793	ARS1-B12-02721	ARS1-B12-02721-01	B-H3	S-0279	H-3	5	2.552560129	13.098	18.151	5.053	AMRAD\BSTEFFENS	11/13/2012			
B-14794	ARS1-B12-02721	ARS1-B12-02721-02	B-H3	S-0279	H-3	5	2.552560129	13.14	18.192	5.052	AMRAD\BSTEFFENS	11/13/2012			

16 of 86

ID_031001_040	ABatch	AnalysisCode	ABatchSampleID	ClientID	IC_ID	S01_1_EnrichCellNo	S01_2_TareCell	S01_3_TareResv	S02_GrossWtResv	S03_1_WtNa2O2	C_GrossSampleAdded
444	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-01			4	327.7	200.9	701.14	2.07	500.24
445	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-02			33	336.25	215.3	718.8	2.08	503.5
446	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-03			74	328.56	197.95	701.97	2.06	504.02
447	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-04	CAMO-13-24279		61	335.51	213.55	714.87	2	501.32
448	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-05	CAMO-13-24241		64	331.04	209.03	714.77	2.01	505.74
449	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-06	CAMO-13-24242		68	334.63	204.08	706.25	2.02	502.17
450	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-07	CAMO-13-24225		29	335.72	206.2	707.31	2.06	501.11
451	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-08	CAMO-13-24247		55	331.14	208.66	711.99	2.02	503.33
452	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-09	CAMO-13-24248		84	336.66	197.55	700.94	2.05	503.39
453	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-10	CAMO-13-24276		89	340.12	203.22	707.98	2.08	504.76
454	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-11	CASA-13-24209		97	332.94	202.132	708.3	2	506.168
455	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-12	CASA-13-24213		3	332.17	214.84	717.62	2.03	502.78
456	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-13	CASA-13-24214		16	329.44	217.7	718.25	2.09	500.55
457	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-14	CASA-13-24210		26	337.76	213.12	716.43	2	503.31
458	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-15	CAMO-13-24245		44	331.35	214.173	718.93	2.08	504.757
459	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-16	CAMO-13-24246		50	329.91	216.33	717.493	2.07	501.163
460	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-17	CAMO-13-24249		31	334.66	204.09	709.85	2.08	505.76
461	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-18	CAMO-13-24250		8	332.1	204.54	705.56	2	501.02
462	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-19	CAMO-13-24253		87	334.14	207.46	710.88	2.01	503.42
463	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-20	CAMO-13-24228		94	337.21	197.78	700.71	2.05	502.93
464	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-21	CASA-13-24211		99	336.65	206.9	709.24	2.06	502.34

12-4-12

S04_1_ElectrolSD	S04_2_StartAmp	S04_3_StartBathC	S05_1_ElectrolED	S05_2_EndBathC	S05_3_EndCellWt	C_GrossSmplRec	C_EnrichmentF	S06_TareWt	S07_GrossWt	C_RecoveredWa
11/16/2012 15:00:00	5	1.8	11/30/2012 14:58:00	2	545.34	16.74	29.88291517	117.45	130.16	12.71
11/16/2012 15:00:00	5	1.8	11/30/2012 15:00:00	2	567.84	16.29	30.90853284	117.71	129.56	11.85
11/16/2012 15:00:00	5	1.8	11/29/2012 07:51:00	1.8	543.45	16.94	29.75324675	101.5	114.12	12.62
11/16/2012 15:00:00	5	1.8	11/29/2012 07:53:00	1.8	565.75	16.69	30.03714799	108.55	121.28	12.73
11/16/2012 15:00:00	5	1.8	11/30/2012 15:01:00	2	555.66	15.59	32.44002566	104.53	115.28	10.75
11/16/2012 15:00:00	5	1.8	12/03/2012 12:24:00	1.9	553.86	15.15	33.14653465	102.66	112.87	10.21
11/16/2012 15:00:00	5	1.8	11/29/2012 13:10:00	2	558.94	17.02	29.44242068	116.99	128.81	11.82
11/16/2012 15:00:00	5	1.8	11/30/2012 15:03:00	2	555.09	15.29	32.91890124	110.03	121.82	11.79
11/16/2012 15:00:00	5	1.8	11/30/2012 15:05:00	2	549.5	15.29	32.92282538	109.95	120.14	10.19
11/16/2012 15:00:00	5	1.8	11/30/2012 15:06:00	2	560.19	16.85	29.95608309	96.23	110.02	13.79
11/16/2012 15:00:00	5	1.8	11/30/2012 15:07:00	2	552.49	17.418	29.06005282	107.55	120.29	12.74
11/16/2012 15:00:00	5	1.8	11/29/2012 13:08:00	2	563.52	16.51	30.45305875	117.92	129.06	11.14
11/16/2012 15:00:00	5	1.8	12/04/2012 07:37:00	2.1	564.03	16.89	29.63587922	105.46	120.29	14.83
11/16/2012 15:00:00	5	1.8	12/04/2012 07:39:00	2.1	565.2	14.32	35.14734637	101.94	114.75	12.81
11/16/2012 15:00:00	5	1.8	12/04/2012 07:42:00	2.1	563.27	17.747	28.44182115	116.81	128.38	11.57
11/16/2012 15:00:00	5	1.8	12/04/2012 07:45:00	2.1	563.14	16.9	29.65461538	109.51	121.45	11.94
11/16/2012 15:00:00	5	1.8	12/04/2012 11:41:00	2.1	555.31	16.56	30.5410628	111.9	124.2	12.3
11/16/2012 15:00:00	5	1.8	11/29/2012 07:56:00	1.8	553.44	16.8	29.82261905	105.48	117.84	12.36
11/16/2012 15:00:00	5	1.8	11/29/2012 07:58:00	1.8	558.66	17.06	29.5087925	112	125.02	13.02
11/16/2012 15:00:00	5	1.8	11/29/2012 13:05:00	1.9	551.09	16.1	31.2378882	115.1	127.71	12.61
11/16/2012 15:00:00	5	1.8	11/29/2012 13:03:00	1.9	560.98	17.43	28.82042456	104.78	117.5	12.72

12-4-12

18 of 86

S08_TearWtLSCVial	S09_VialPlusSmpl	C_NetSample	S10_1_WtVislSmplDrWatFill	C_NetDeadWaterAdded	C_TareWtBFCocktail	S10_2_GrossWtVSC	C_NetWtCocktailAdded	UserID	ModDate
6.44	16.44	10	0	0	16.44	27.34	10.9	AMRAD\RUSEY	12/03/2012 12:16:52
6.44	16.45	10.01	0	0	16.45	27.43	10.98	AMRAD\RUSEY	12/03/2012 12:18:50
6.51	16.53	10.02	0	0	16.53	27.02	10.49	AMRAD\RUSEY	11/29/2012 14:42:42
6.53	16.54	10.01	0	0	16.54	26.83	10.29	AMRAD\RUSEY	11/29/2012 14:44:17
6.45	16.5	10.05	0	0	16.5	26.92	10.42	AMRAD\RUSEY	12/03/2012 12:20:31
6.53	16.54	10.01	0	0	16.54	26.86	10.32	AMRAD\RUSEY	12/03/2012 14:37:15
6.38	16.42	10.04	0	0	16.42	27.17	10.75	AMRAD\RUSEY	11/29/2012 15:39:24
6.59	16.64	10.05	0	0	16.64	26.96	10.32	AMRAD\RUSEY	12/03/2012 12:23:43
6.47	16.53	10.06	0	0	16.53	26.85	10.32	AMRAD\RUSEY	12/03/2012 14:39:07
6.54	16.54	10	0	0	16.54	26.89	10.35	AMRAD\RUSEY	12/03/2012 14:41:26
6.68	16.69	10.01	0	0	16.69	26.99	10.3	AMRAD\RUSEY	12/03/2012 14:43:02
6.52	16.56	10.04	0	0	16.56	26.84	10.28	AMRAD\RUSEY	11/29/2012 15:42:09
6.64	16.69	10.05	0	0	16.69	26.89	10.2	AMRAD\RUSEY	12/04/2012 10:57:08
6.38	16.39	10.01	0	0	16.39	26.6	10.21	AMRAD\RUSEY	12/04/2012 10:59:05
6.61	16.64	10.03	0	0	16.64	26.99	10.35	AMRAD\RUSEY	12/04/2012 11:01:07
6.49	16.54	10.05	0	0	16.54	26.84	10.3	AMRAD\RUSEY	12/04/2012 11:02:49
6.46	16.53	10.07	0	0	16.53	26.79	10.26	AMRAD\RUSEY	12/04/2012 13:55:27
6.5	16.58	10.08	0	0	16.58	26.89	10.31	AMRAD\RUSEY	11/29/2012 14:45:59
6.56	16.58	10.02	0	0	16.58	26.94	10.36	AMRAD\RUSEY	11/29/2012 14:47:45
6.46	16.49	10.03	0	0	16.49	26.79	10.3	AMRAD\RUSEY	11/29/2012 15:43:57
6.57	16.59	10.02	0	0	16.59	26.89	10.3	AMRAD\RUSEY	11/29/2012 15:45:48

12-4-12

AMRAD
AMERICAN RADIATION SERVICES, LLC

LSC Instrument Data Transfer Report

\\Packard3170\Results\H3 Low Level\Low Level H3_3\

Batch Sample ID	Non-BKG Samples Transferred	Samples Eligible To Save	
ARS1-B12-02721	21	21	LSC 1

LIMS Batch Sample ID	LSC P#	LSC PID	LSC S#	LSC SMPL_ID	LSC Count Date	LSC CPMA	LSC tSIE	LSC EFF	LSC Count Dur	Analysis Batch	LIMS SDG	LIMS Run
BKG	10		1	BACKGROUND	12/04/12 14:45	1.11	395.29	25.3300	240.00	ARS1-B12-02721		
ARS1-B12-02721-01	10		2	B12-02721-01	12/04/12 18:56	4.84	378.07	24.5900	240.00	ARS1-B12-02721		
ARS1-B12-02721-02	10		3	B12-02721-02	12/04/12 23:07	4.79	377.91	24.5800	240.00	ARS1-B12-02721		
ARS1-B12-02721-03	10		4	B12-02721-03	12/05/12 03:18	1.09	407.72	25.9200	240.00	ARS1-B12-02721		
ARS1-B12-02721-04	10		5	B12-02721-04	12/05/12 07:29	1.08	378.13	24.5900	240.00	ARS1-B12-02721	ARS1-12-02261	1
ARS1-B12-02721-05	10		6	B12-02721-05	12/05/12 11:40	1.28	395.32	25.3300	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-06	2		1	B12-02721-06	12/06/12 16:58	3.80	401.27	25.6100	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-07	2		2	B12-02721-07	12/06/12 21:09	1.32	410.59	26.0600	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-08	2		3	B12-02721-08	12/07/12 01:20	1.47	395.87	25.3500	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-09	2		4	B12-02721-09	12/07/12 05:31	1.35	351.17	23.5500	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-10	2		5	B12-02721-10	12/07/12 09:42	1.06	286.28	20.1600	240.00	ARS1-B12-02721	ARS1-12-02263	1
ARS1-B12-02721-11	2		6	B12-02721-11	12/07/12 13:53	1.82	354.31	23.6700	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-12	10		13	B12-02721-12	12/05/12 15:52	1.03	220.99	15.6400	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-13	10		14	B12-02721-13	12/05/12 20:03	1.28	402.67	25.6800	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-14	10		15	B12-02721-14	12/06/12 00:14	1.00	286.72	20.1900	240.00	ARS1-B12-02721	ARS1-12-02305	1
ARS1-B12-02721-15	10		16	B12-02721-15	12/06/12 04:24	1.16	290.87	20.4700	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-16	10		17	B12-02721-16	12/06/12 08:35	1.17	258.02	18.2400	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-17	10		18	B12-02721-17	12/06/12 12:46	3.55	251.93	17.8300	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-18	10		1	B12-02721-18	12/07/12 18:04	1.08	258.29	18.2500	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-19	10		2	B12-02721-19	12/07/12 22:15	1.85	308.77	21.6900	240.00	ARS1-B12-02721	ARS1-12-02307	1
ARS1-B12-02721-20	10		3	B12-02721-20	12/08/12 02:26	1.39	304.39	21.3900	240.00	ARS1-B12-02721	ARS1-12-02307	1
ARS1-B12-02721-21	10		4	B12-02721-21	12/08/12 06:37	1.07	280.53	19.7700	240.00	ARS1-B12-02721	ARS1-12-02309	1

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Total_Bkg_Count_Duration_min	DF	Sample_Activity_Conc	Standard_Counting_Uncertainty	CU_1	CSU_1	CU_1_96	CSU_1_96	MDC	DLC	ActivityReportUnits
LSC-A-022	ARS1-B12-02721-01	240.000	0.98654	25.875	1.091	1.091	4.032	2.139	7.902	2.269	1.095	pCi
LSC-A-022	ARS1-B12-02721-02	240.000	0.98638	24.604	1.047	1.047	3.836	2.052	7.519	2.186	1.055	pCi
LSC-A-022	ARS1-B12-02721-03	240.000	0.99908	-0.085	0.625	0.625	0.625	1.225	1.225	2.135	1.031	pCi
LSC-A-022	ARS1-B12-02721-04	240.000	0.99478	-0.213	0.655	0.655	0.655	1.283	1.285	2.247	1.085	pCi
LSC-A-022	ARS1-B12-02721-05	240.000	0.99462	1.037	0.608	0.608	0.628	1.192	1.230	1.997	0.964	pCi
LSC-A-022	ARS1-B12-02721-06	240.000	0.99447	15.912	0.845	0.845	2.532	1.656	4.963	1.933	0.933	pCi
LSC-A-022	ARS1-B12-02721-07	240.000	0.99432	1.394	0.661	0.661	0.694	1.296	1.359	2.153	1.039	pCi
LSC-A-022	ARS1-B12-02721-08	240.000	0.99524	2.149	0.620	0.620	0.699	1.215	1.369	1.959	0.946	pCi
LSC-A-022	ARS1-B12-02721-09	240.000	0.99524	1.567	0.650	0.650	0.691	1.274	1.355	2.102	1.015	pCi
LSC-A-022	ARS1-B12-02721-10	240.000	0.99508	-0.376	0.795	0.795	0.797	1.559	1.563	2.738	1.322	pCi
LSC-A-022	ARS1-B12-02721-11	240.000	0.99508	5.262	0.817	0.817	1.136	1.601	2.227	2.422	1.169	pCi
LSC-A-022	ARS1-B12-02721-12	240.000	0.99570	-0.793	0.998	0.998	1.005	1.956	1.970	3.460	1.670	pCi
LSC-A-022	ARS1-B12-02721-13	240.000	0.99554	1.108	0.657	0.657	0.678	1.288	1.329	2.159	1.042	pCi
LSC-A-022	ARS1-B12-02721-14	240.000	0.99646	-0.723	0.658	0.658	0.667	1.290	1.307	2.296	1.109	pCi
LSC-A-022	ARS1-B12-02721-15	240.000	0.99631	0.469	0.844	0.844	0.847	1.655	1.661	2.843	1.372	pCi
LSC-A-022	ARS1-B12-02721-16	240.000	0.99631	0.613	0.905	0.905	0.910	1.775	1.784	3.040	1.468	pCi
LSC-A-022	ARS1-B12-02721-17	240.000	0.99585	22.455	1.280	1.280	3.603	2.510	7.063	3.008	1.452	pCi
LSC-A-022	ARS1-B12-02721-18	240.000	0.99570	-0.287	0.882	0.882	0.883	1.729	1.731	3.027	1.461	pCi
LSC-A-022	ARS1-B12-02721-19	240.000	0.99539	5.878	0.879	0.879	1.245	1.723	2.440	2.593	1.252	pCi
LSC-A-022	ARS1-B12-02721-20	240.000	0.99539	2.120	0.766	0.766	0.830	1.502	1.626	2.460	1.188	pCi
LSC-A-022	ARS1-B12-02721-21	240.000	0.99631	-0.311	0.846	0.846	0.847	1.658	1.661	2.906	1.403	pCi

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Initial_Mass_sample_g	Mass_Na2O2_added_g	Final_mass_electrolyzed_sample_NaOH_g	Mass_equivalent_NaOH_g	Final_Mass_Electrolyzed_sample_g	VolumeFactor_X	Enrichment_Factor_Y
LSC-A-022	ARS1-B12-02721-01	500.240	2.070	16.740	2.124	14.616	0.029	26.782
LSC-A-022	ARS1-B12-02721-02	503.500	2.080	16.290	2.134	14.156	0.028	27.791
LSC-A-022	ARS1-B12-02721-03	504.020	2.060	16.940	2.114	14.826	0.029	26.608
LSC-A-022	ARS1-B12-02721-04	501.320	2.000	16.690	2.052	14.638	0.029	26.799
LSC-A-022	ARS1-B12-02721-05	505.740	2.010	15.590	2.062	13.528	0.027	29.154
LSC-A-022	ARS1-B12-02721-06	502.170	2.020	15.150	2.073	13.077	0.026	29.914
LSC-A-022	ARS1-B12-02721-07	501.110	2.060	17.020	2.114	14.906	0.030	26.324
LSC-A-022	ARS1-B12-02721-08	503.330	2.020	15.290	2.073	13.217	0.026	29.675
LSC-A-022	ARS1-B12-02721-09	503.390	2.050	15.290	2.103	13.187	0.026	29.745
LSC-A-022	ARS1-B12-02721-10	504.760	2.080	16.850	2.134	14.716	0.029	26.838
LSC-A-022	ARS1-B12-02721-11	506.168	2.000	17.418	2.052	15.366	0.030	25.815
LSC-A-022	ARS1-B12-02721-12	502.780	2.030	16.510	2.083	14.427	0.029	27.251
LSC-A-022	ARS1-B12-02721-13	500.550	2.090	16.890	2.144	14.746	0.029	26.571
LSC-A-022	ARS1-B12-02721-14	503.310	2.000	14.320	2.052	12.268	0.024	31.878
LSC-A-022	ARS1-B12-02721-15	504.757	2.080	17.747	2.134	15.613	0.031	25.354
LSC-A-022	ARS1-B12-02721-16	501.163	2.070	16.900	2.124	14.776	0.029	26.550
LSC-A-022	ARS1-B12-02721-17	505.760	2.080	16.560	2.134	14.426	0.029	27.409
LSC-A-022	ARS1-B12-02721-18	501.020	2.000	16.800	2.052	14.748	0.029	26.591
LSC-A-022	ARS1-B12-02721-19	503.420	2.010	17.060	2.062	14.998	0.030	26.286
LSC-A-022	ARS1-B12-02721-20	502.930	2.050	16.100	2.103	13.997	0.028	28.064
LSC-A-022	ARS1-B12-02721-21	502.340	2.060	17.430	2.114	15.316	0.030	25.707

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Average_Sample_CPM	Bkg_CPM	tSIE	Detector_Eff_decimal	Aliquot	AliqUnits	Activity_reference_date	Start_Date_of_Count	Sample_Count_Duration_min
LSC-A-022	ARS1-B12-02721-01	4.839	1.107	378.070	0.246	0.01000	L	9/7/2012	12/4/2012	240.000
LSC-A-022	ARS1-B12-02721-02	4.791	1.107	377.910	0.246	0.01001	L	9/7/2012	12/4/2012	240.000
LSC-A-022	ARS1-B12-02721-03	1.094	1.107	407.720	0.259	0.01002	L	11/29/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-04	1.076	1.107	378.130	0.246	0.01001	L	11/1/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-05	1.277	1.107	395.320	0.253	0.01005	L	10/31/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-06	3.801	1.107	401.270	0.256	0.01001	L	10/31/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-07	1.319	1.107	410.590	0.261	0.01004	L	10/31/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-08	1.466	1.107	395.870	0.254	0.01005	L	11/6/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-09	1.351	1.107	351.170	0.236	0.01006	L	11/6/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-10	1.062	1.107	286.280	0.202	0.01000	L	11/5/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-11	1.818	1.107	354.310	0.237	0.01001	L	11/5/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-12	1.032	1.107	220.990	0.156	0.01004	L	11/7/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-13	1.275	1.107	402.670	0.257	0.01005	L	11/7/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-14	1.004	1.107	286.720	0.202	0.01001	L	11/13/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-15	1.161	1.107	290.870	0.205	0.01003	L	11/12/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-16	1.173	1.107	258.020	0.182	0.01005	L	11/12/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-17	3.550	1.107	251.930	0.178	0.01007	L	11/9/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-18	1.076	1.107	258.290	0.183	0.01008	L	11/9/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-19	1.849	1.107	308.770	0.217	0.01002	L	11/8/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-20	1.389	1.107	304.390	0.214	0.01003	L	11/8/2012	12/8/2012	240.000
LSC-A-022	ARS1-B12-02721-21	1.072	1.107	280.530	0.198	0.01002	L	11/14/2012	12/8/2012	240.000

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	AliquotReportUnits	UserID	ModDate
LSC-A-022	ARS1-B12-02721-01	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-02	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-03	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-04	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-05	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-06	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-07	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-08	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-09	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-10	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-11	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-12	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-13	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-14	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-15	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-16	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-17	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-18	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-19	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-20	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-21	L	AMRAD\RUSEY	12/10/2012

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\20121204_1437.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

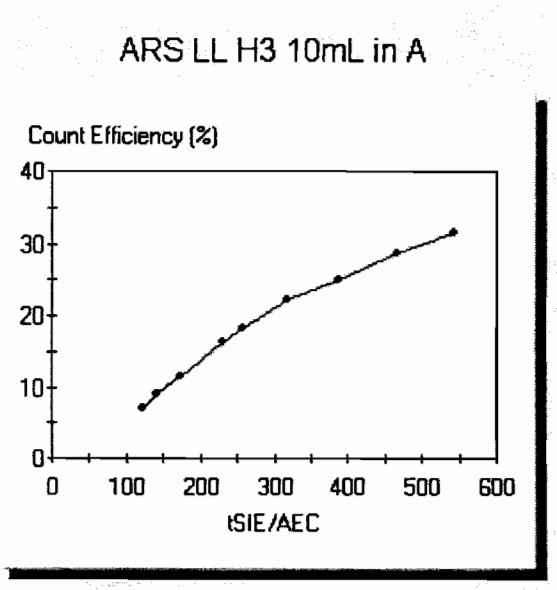
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
10	1	BACKGROUND	1.107	4.37	395.29	25.33	240.00	12/4/2012	2:45:58 PM	
10	2	B12-02721-01	4.839	19.68	378.07	24.59	240.00	12/4/2012	6:56:59 PM	
10	3	B12-02721-02	4.791	19.49	377.91	24.58	240.00	12/4/2012	11:07:59 PM	
10	4	B12-02721-03	1.094	4.22	407.72	25.92	240.00	12/5/2012	3:18:59 AM	
10	5	B12-02721-04	1.076	4.37	378.13	24.59	240.00	12/5/2012	7:29:54 AM	
10	6	B12-02721-05	1.277	5.04	395.32	25.33	240.00	12/5/2012	11:40:51 AM	
Missing vial 7.										
Missing vial 8.										
Missing vial 9.										
Missing vial 10.										
Missing vial 11.										
Missing vial 12.										
10	13	B12-02721-12	1.032	6.60	220.99	15.64	240.00	12/5/2012	3:52:07 PM	
10	14	B12-02721-13	1.275	4.96	402.67	25.68	240.00	12/5/2012	8:03:04 PM	
10	15	B12-02721-14	1.004	4.97	286.72	20.19	240.00	12/6/2012	12:14:02 AM	
10	16	B12-02721-15	1.161	5.67	290.87	20.47	240.00	12/6/2012	4:24:59 AM	
10	17	B12-02721-16	1.173	6.43	258.02	18.24	240.00	12/6/2012	8:35:55 AM	
10	18	B12-02721-17	3.550	19.91	251.93	17.83	240.00	12/6/2012	12:46:52 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\20121206_1649.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

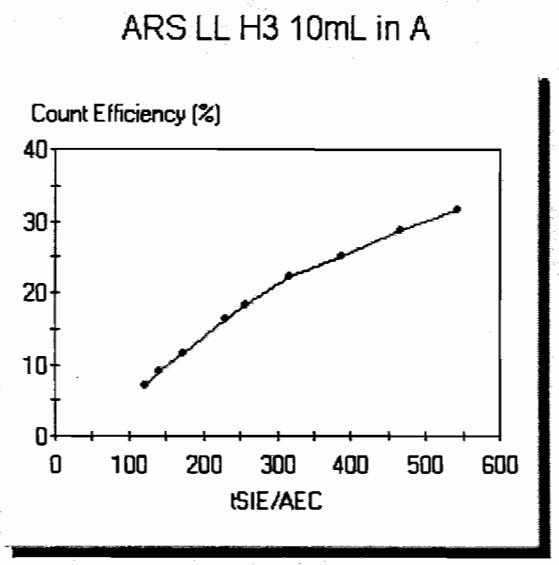
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	B12-02721-06	3.801	14.84	401.27	25.61	240.00	12/6/2012	4:58:25 PM	
2	2	B12-02721-07	1.319	5.06	410.59	26.06	240.00	12/6/2012	9:09:28 PM	
2	3	B12-02721-08	1.466	5.78	395.87	25.35	240.00	12/7/2012	1:20:23 AM	
2	4	B12-02721-09	1.351	5.73	351.17	23.55	240.00	12/7/2012	5:31:20 AM	
2	5	B12-02721-10	1.062	5.27	286.28	20.16	240.00	12/7/2012	9:42:17 AM	
2	6	B12-02721-11	1.818	7.68	354.31	23.67	240.00	12/7/2012	1:53:14 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\20121207_1755.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

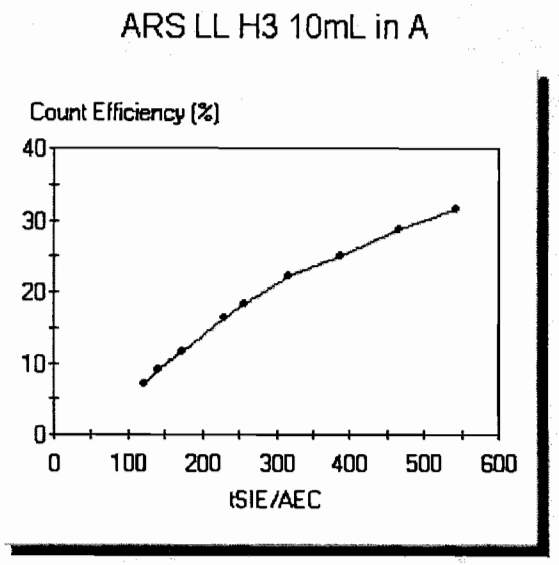
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
10	1	B12-02721-18	1.076	5.89	258.29	18.25	240.00	12/7/2012	6:04:50 PM	
10	2	B12-02721-19	1.849	8.53	308.77	21.69	240.00	12/7/2012	10:15:50 PM	
10	3	B12-02721-20	1.389	6.50	304.39	21.39	240.00	12/8/2012	2:26:47 AM	
10	4	B12-02721-21	1.072	5.42	280.53	19.77	240.00	12/8/2012	6:37:44 AM	

ARS Batch Number: ARS1-B12 - 02721

Enter these Values for LCS			Report Name	Field Name on the Report
	Current ACT	5.6490	Standards Report	ACT at Date Above (dpm/g)
	NetWt	5.0530	LCS Report	NetWt
	Aliquot	0.5002	Tritium Enrichment Data	Gross Sample Added/1000

Enter these Values for LCSD			Report Name	Field Name on the Report
	Current ACT	5.6490	Standards Report	ACT at Date Above (dpm/g)
	NetWt	5.0520	LCS Report	NetWt
	Aliquot	0.5035	Tritium Enrichment Data	Gross Sample Added/1000

Expected Value Calculations

ARS Batch Number: ARS1-B11 - 02721

LCS	**CALCULATED EXPECTED VALUE**	=	25.703			
			Range	20.563	-	30.844
LCSD	**CALCULATED EXPECTED VALUE**	=	25.532			
			Range	20.425	-	30.638

Exit

AMRAD
AMERICAN RADIATION SERVICES, LLC

Standards Activity as of: 12/03/12 12:16

Active	Std ID	Isotope	PSCLT	Verification Date	Exp Date	Status	Ref Date	Ref ACT (dpm)	ACT at Date Above (dpm/g)	Halflife (days)	Parent ID	Expended Date	Comments
A	**S-0279**	H-3	**SL**	09/10/12	09/10/13	OK	09/07/12	5.7255E+00	**5.6493**	4.500E+03	**S-0237**		H3 LCS standard. Dilution performed as stated above by B Steffens. -B

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
11-21-12	0702	SNC-16	QA	QA	[illegible]
11-21-12	1136	Background	B12 02616	1417	[illegible]
↓	↓	B12-02616-01	↓	↓	[illegible]
↓	↓	B12-02616-02	↓	↓	[illegible]
↓	↓	B12-02616-03	↓	↓	[illegible]
↓	↓	B12-02616-04	↓	↓	[illegible]
↓	↓	B12-02616-05	↓	↓	[illegible]
↓	↓	B12-02616-06	↓	↓	[illegible]
↓	↓	B12-02616-07	↓	↓	[illegible]
↓	↓	B12-02616-08	↓	↓	[illegible]
↓	↓	B12-02616-09	↓	↓	[illegible]
↓	↓	B12-02616-10	↓	↓	[illegible]
11-21-12	1200	SNC-16	QA	QA	[illegible]
12-4-12	0732	SNC-16	QA	QA	[illegible]
12-4-12	1434	Background	B12-02721	1437	[illegible]
↓	↓	B12-02721-01	↓	↓	[illegible]
↓	↓	B12-02721-02	↓	↓	[illegible]
↓	↓	B12-02721-03	↓	↓	[illegible]
↓	↓	B12-02721-04	↓	↓	[illegible]
↓	↓	B12-02721-05	↓	↓	[illegible]

Reviewed By: [illegible] Date: 12-10-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-4-12	1434	B12-02721-06	B12-02721	1437	[illegible]
↓	↓	B12-02721-07	↓	↓	[illegible]
↓	↓	B12-02721-08	↓	↓	[illegible]
↓	↓	B12-02721-09	↓	↓	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
↓	↓	B12-02721-12	↓	↓	[illegible]
↓	↓	B12-02721-13	↓	↓	[illegible]
↓	↓	B12-02721-14	↓	↓	[illegible]
↓	↓	B12-02721-15	↓	↓	[illegible]
↓	↓	B12-02721-16	↓	↓	[illegible]
↓	↓	B12-02721-17	↓	↓	[illegible]
↓	↓	B12-02721-18	↓	↓	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]
12-4-12	1437	SNC-16	QA	QA	[illegible]
* 12-5-12	1604	B12-02721-06	B12-02721	1649	[illegible]
↓	↓	B12-02721-07	↓	↓	[illegible]
↓	↓	B12-02721-08	↓	↓	[illegible]

* Will count before SNC 12-5-12

Reviewed By: [illegible] Date: 12-10-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-5-12	1604	B12-02721-09	B12-02721	1649	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
12-7-12	1026	B12-02721-18	B12-02721	1755	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]

12-10-12

Reviewed By: SDR Date: 12-10-12
Initials

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

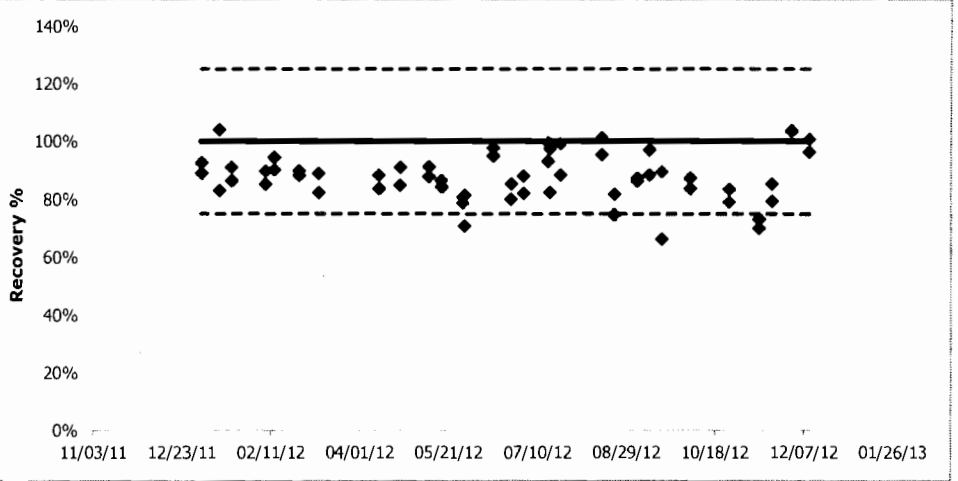
Low Level Tritium by Low Level Liquid Scintillation Counting

Control Charts

American Radiation Services
Baton Rouge Laboratory

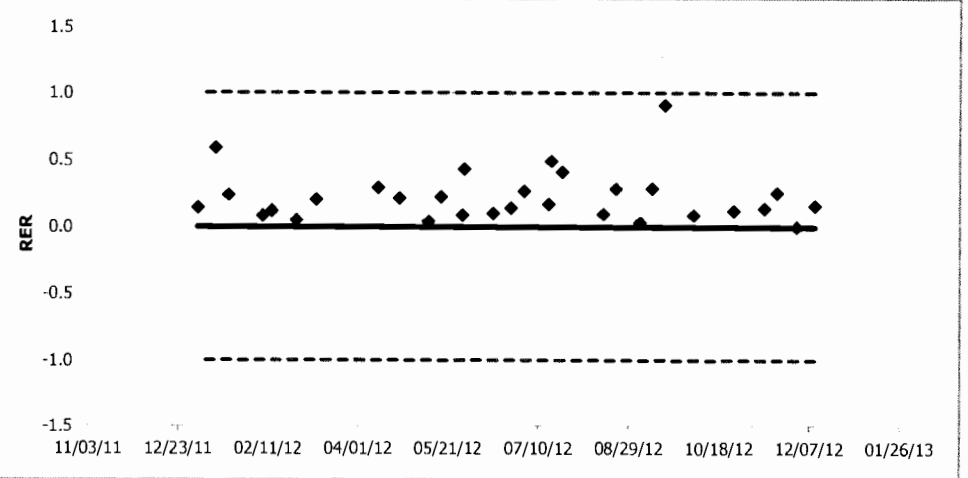
QC Chart

LLH-3 LCS



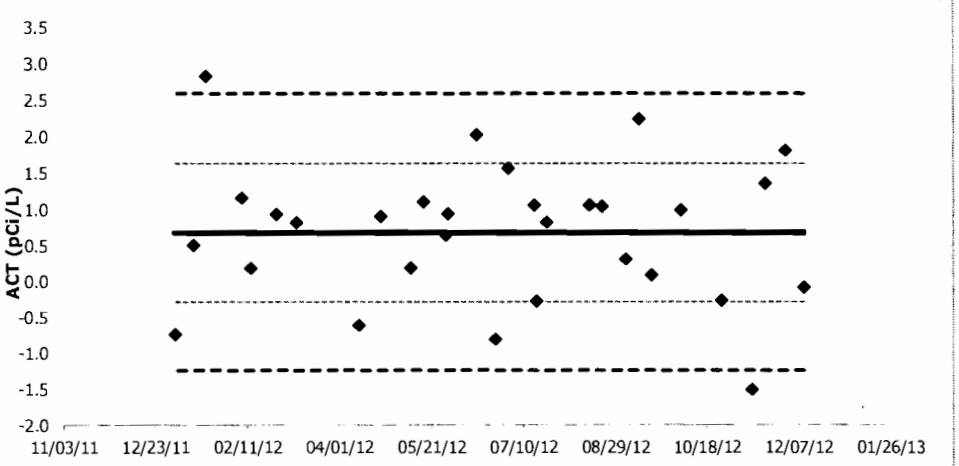
Average	STDEV	n	UCL	LCL
0.8778	0.0828	30	1.2500	0.7500

LLH-3 RER



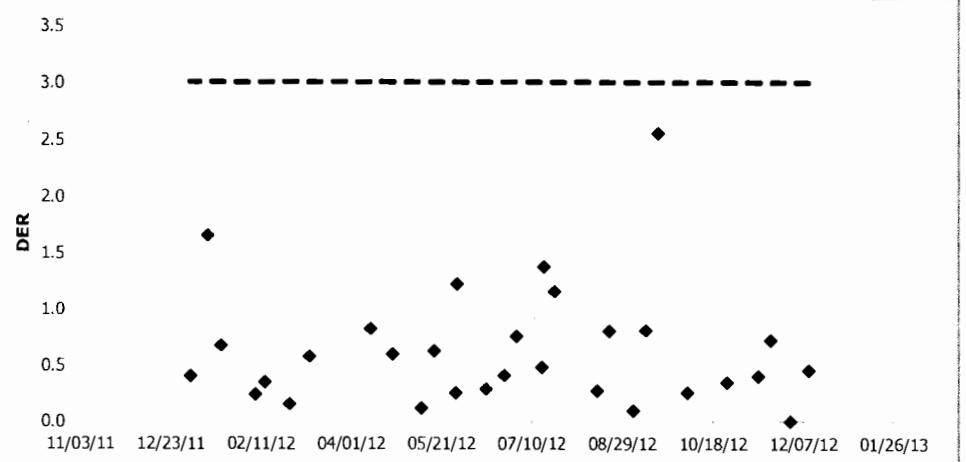
n	UCL	LCL
30	1.0000	-1.0000

LLH-3 Blank



Average	STDEV	n	UCL	LCL
0.6761	0.9576	30	2.5912	-1.2390

LLH-3 DER



n	UCL
30	3.0000

3H Efficiency

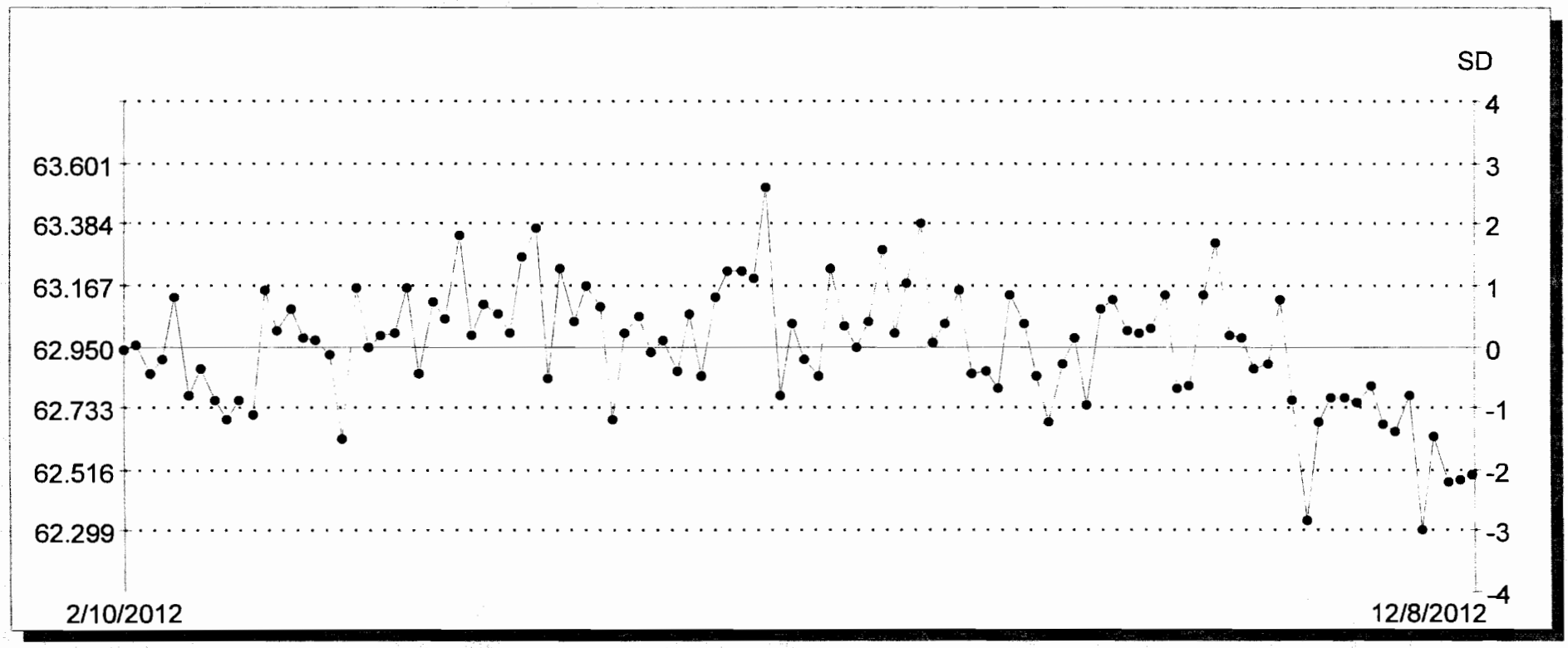
Total # pts : 5553
Valid # pts : 106
Mean : 62.95
SD : 0.22

Date	Value	Valid Pt
Feb 10, 2012	62.94	X
Feb 15, 2012	62.96	X
Feb 16, 2012	62.86	X
Feb 17, 2012	62.90	X
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X

Jun 30, 2012	62.97	X
Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X
Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 23, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X

Nov 13, 2012	62.76	X
Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X
Nov 18, 2012	62.68	X
Nov 19, 2012	62.65	X
Nov 19, 2012	62.78	X
Nov 20, 2012	62.30	X
Nov 21, 2012	62.63	X
Nov 23, 2012	62.47	X
Dec 04, 2012	62.48	X
Dec 08, 2012	62.49	X

3H Efficiency
Total # pts : 5553
Valid # pts : 106
Mean : 62.95
SD : 0.22



3H Background

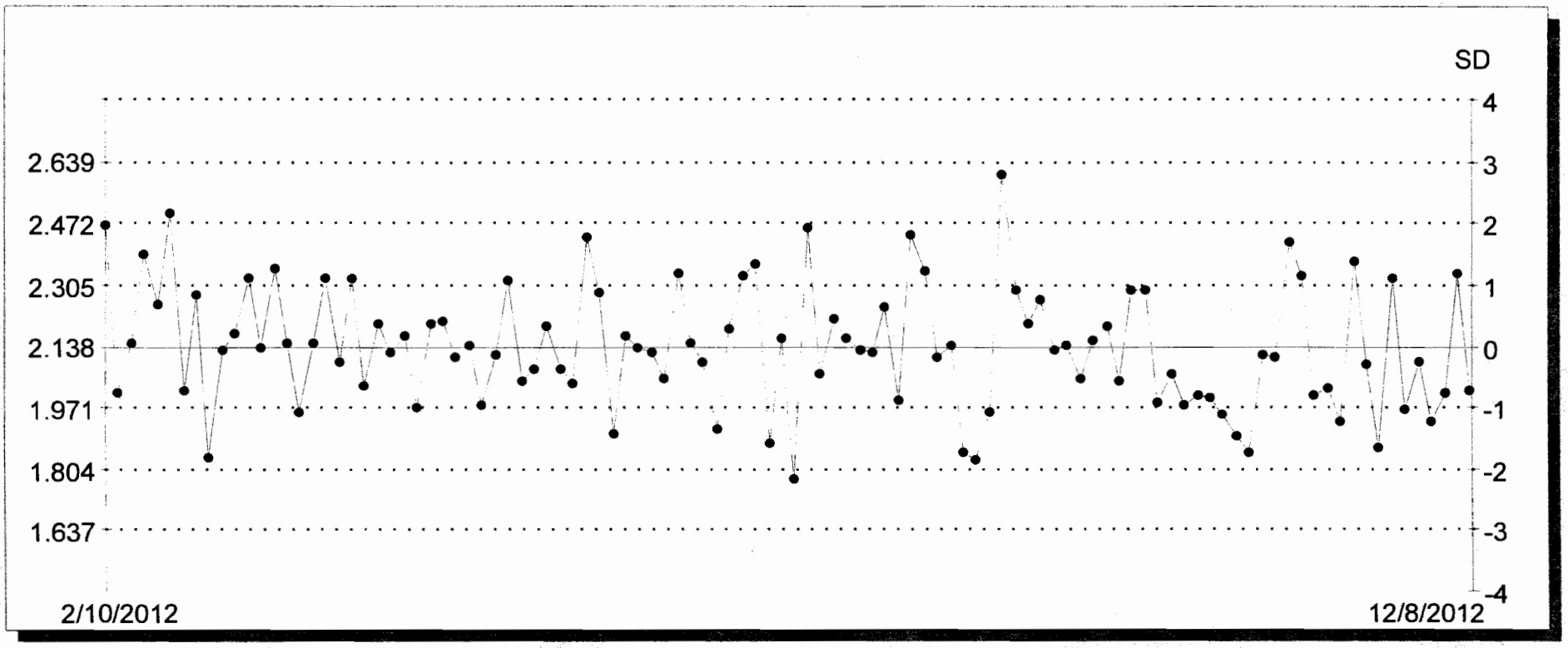
Total # pts : 5479
Valid # pts : 106
Mean : 2.14
SD : 0.17

Date	Value	Valid Pt
Feb 10, 2012	2.47	X
Feb 15, 2012	2.01	X
Feb 16, 2012	2.15	X
Feb 17, 2012	2.39	X
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X

Jun 30, 2012	2.12	X
Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X
Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 23, 2012	2.19	X
Jul 26, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 09, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X

Nov 13, 2012	1.93	X
Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X
Nov 18, 2012	1.86	X
Nov 19, 2012	2.32	X
Nov 19, 2012	1.96	X
Nov 20, 2012	2.09	X
Nov 21, 2012	1.93	X
Nov 23, 2012	2.01	X
Dec 04, 2012	2.34	X
Dec 08, 2012	2.02	X

3H Background
Total # pts : 5479
Valid # pts : 106
Mean : 2.14
SD : 0.17



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium- Screening by Low Level Liquid Scintillation Counting

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting Samples

Procedures: **ARS-060** **ARS-040** *Section 14.1 Tritium Screen in Clean Water without Distillation*

ARS File ID Numbers: ARS1-12-02261; 2262; 2263; 2264
ARS Batch ID: ARS1-B12-02676

	Sample ID:	COUNT TIME	CPMA	Background CPMA	Eff Nucl In A	Aliquot (grams)	ACTIVITY	units	MDA	Sample Must be analyzed as LSC-A-001
1	B12-02676-04	120	1.295	1.161	26.74	10.00	22.573	pCi/L	98.37195	NO
2	B12-02676-05	120	1 175	1.161	26.28	10.00	2.400	pCi/L	100.0938	NO
3	B12-02676-06	120	1.362	1.237	27.42	10.00	20.535	pCi/L	98.90302	NO
4	B12-02676-07	120	1.543	1.161	26.41	10.00	65.154	pCi/L	99.60114	NO
5	B12-02676-08	120	1.396	1.161	26.38	10.00	40.127	pCi/L	99.71441	NO
6	B12-02676-09	120	1.678	1.237	27.9	10.00	71.200	pCi/L	97.20146	NO
7	B12-02676-10	120	1.596	1.237	27.66	10.00	58.464	pCi/L	98.04486	NO
8	B12-02676-11	120	1.250	1.237	27.44	10.00	2.134	pCi/L	98.83093	NO
9	B12-02676-12	120	1.420	1.237	27.33	10.00	30.162	pCi/L	99.22872	NO
10	B12-02676-13	120	1.206	1.237	27.82	10.00	-5.019	pCi/L	97.48098	NO
11							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
12							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
13							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
14							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
15							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
16							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
17							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
18							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
19							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
20							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
21							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
22							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
23							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

ARS INTERNATIONAL

Analysis Batch ID **ARS1-B12-02676**

Method **ARS-054** **Analysis** **LSC-A-021** **Matrix** **AQ**

Description **Low Level Tritium Screening**

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02676-01	LCS									
ARS1-B12-02676-02	LCSD									
ARS1-B12-02676-03	MBL									
ARS1-B12-02676-04	TRG				**ARS1-12-02261**	001	1	CAMO-13-24279	STD	11/29/12
ARS1-B12-02676-05	TRG				**ARS1-12-02262**	001	1	CAMO-13-24241	STD	12/06/12
ARS1-B12-02676-06	TRG				**ARS1-12-02262**	002	1	CAMO-13-24242	STD	12/06/12
ARS1-B12-02676-07	TRG				**ARS1-12-02262**	003	1	CAMO-13-24225	STD	12/06/12
ARS1-B12-02676-08	TRG				**ARS1-12-02262**	004	1	CAMO-13-24247	STD	12/06/12
ARS1-B12-02676-09	TRG				**ARS1-12-02262**	005	1	CAMO-13-24248	STD	12/06/12
ARS1-B12-02676-10	TRG				**ARS1-12-02263**	001	1	CAMO-13-24276	STD	12/06/12
ARS1-B12-02676-11	TRG				**ARS1-12-02264**	001	1	CASA-13-24209	STD	12/06/12
ARS1-B12-02676-12	TRG				**ARS1-12-02264**	002	1	CASA-13-24213	STD	12/06/12
ARS1-B12-02676-13	TRG				**ARS1-12-02264**	003	1	CASA-13-24214	STD	12/06/12

126503
12-02261-001-1
WRAD

126506
12-02262-001-1
WRAD

126507
12-02262-002-1
WRAD

126508
12-02262-003-1
WRAD

126509
12-02262-004-1
WRAD

126510
12-02262-005-1
WRAD

126511
12-02263-001-1
WRAD

126512
12-02264-001-1
WRAD

126513
12-02264-002-1
WRAD

126514
12-02264-003-1
WRAD

ARS-054

53 of 86

ID_91001_054	ABatch	ABatchSampleID	ClientID	Aliquot1	AliquotUnits1	IC_ID1	Aliquot2	AliquotUnits2	IC_ID2	UserID	ModDate
11960	ARS1-B12-02676	ARS1-B12-02676-01		1	g					AMRAD\RUSEY	11/12/2012 14:02:14
11961	ARS1-B12-02676	ARS1-B12-02676-02		1	g					AMRAD\RUSEY	11/12/2012 14:02:14
11962	ARS1-B12-02676	ARS1-B12-02676-03		1	g					AMRAD\RUSEY	11/12/2012 14:02:14
11963	ARS1-B12-02676	ARS1-B12-02676-04	CAMO-13-24279	10	g	126503				AMRAD\RUSEY	11/12/2012 14:02:14
11964	ARS1-B12-02676	ARS1-B12-02676-05	CAMO-13-24241	10	g	126506				AMRAD\RUSEY	11/12/2012 14:02:14
11965	ARS1-B12-02676	ARS1-B12-02676-06	CAMO-13-24242	10	g	126507				AMRAD\RUSEY	11/12/2012 14:02:14
11966	ARS1-B12-02676	ARS1-B12-02676-07	CAMO-13-24225	10	g	126508				AMRAD\RUSEY	11/12/2012 14:02:14
11967	ARS1-B12-02676	ARS1-B12-02676-08	CAMO-13-24247	10	g	126509				AMRAD\RUSEY	11/12/2012 14:02:15
11968	ARS1-B12-02676	ARS1-B12-02676-09	CAMO-13-24248	10	g	126510				AMRAD\RUSEY	11/12/2012 14:02:15
11969	ARS1-B12-02676	ARS1-B12-02676-10	CAMO-13-24276	10	g	126511				AMRAD\RUSEY	11/12/2012 14:02:15
11970	ARS1-B12-02676	ARS1-B12-02676-11	CASA-13-24209	10	g	126512				AMRAD\RUSEY	11/12/2012 14:02:15
11971	ARS1-B12-02676	ARS1-B12-02676-12	CASA-13-24213	10	g	126513				AMRAD\RUSEY	11/12/2012 14:02:15
11972	ARS1-B12-02676	ARS1-B12-02676-13	CASA-13-24214	10	g	126514				AMRAD\RUSEY	11/12/2012 14:02:16

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121113_1339
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121113_1339\20121113_1339.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121113_1339\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121113_1339\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

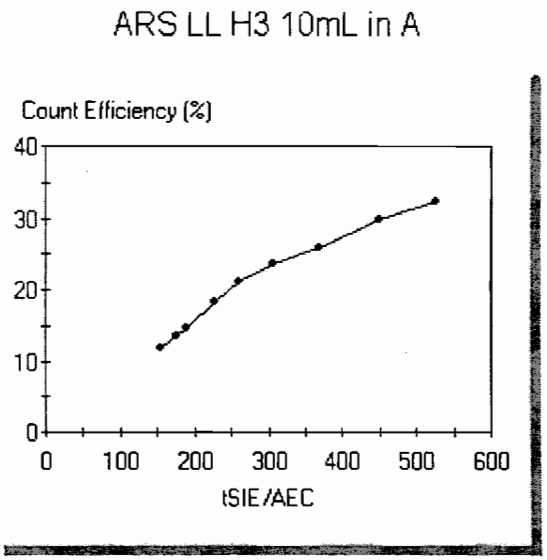
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/18/2011
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
526.29	32.47
450.16	29.90
370.15	25.92
306.68	23.60
260.68	20.99
228.69	18.21
189.46	14.53
177.14	13.64
155.73	11.73

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	BACKGROUND	1.161	4.63	346.75	25.07	120.00	11/13/2012	1:48:10 PM	
2	2	B12-02676-04	1.295	4.84	386.58	26.74	120.00	11/13/2012	3:58:07 PM	
2	3	B12-02676-05	1.175	4.47	377.35	26.28	120.00	11/13/2012	6:08:00 PM	
2	4	B12-02676-06	2.297	8.70	379.47	26.39	120.00	11/13/2012	8:17:56 PM	
2	5	B12-02676-07	1.543	5.84	379.91	26.41	120.00	11/13/2012	10:27:52 PM	
2	6	B12-02676-08	1.396	5.29	379.25	26.38	120.00	11/14/2012	12:37:45 AM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121114_0812
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121114_0812\20121114_0812.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121114_0812\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121114_0812\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

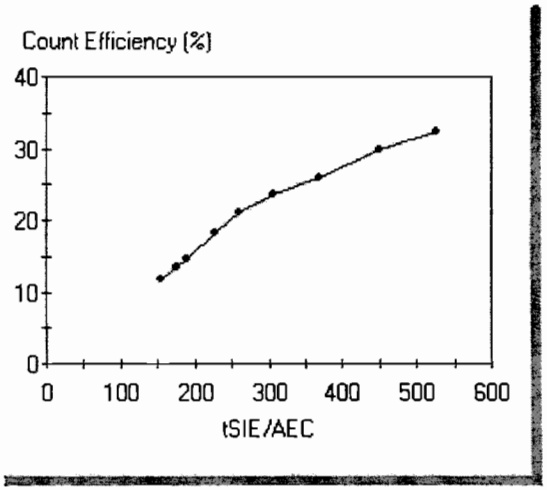
Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A 58 of 86
B
C

Cycle 1 Results
Quench Curve Block Data

ARS LL H3 10mL in A



Date Acquired: 11/18/2011
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
526.29	32.47
450.16	29.90
370.15	25.92
306.68	23.60
260.68	20.99
228.69	18.21
189.46	14.53
177.14	13.64
155.73	11.73

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	BACKGROUND	1.237	4.79	366.64	25.80	120.00	11/14/2012	8:21:32 AM	
2	2	B12-02676-06	1.362	4.97	400.26	27.42	120.00	11/14/2012	10:31:28 AM	
2	3	B12-02676-09	1.678	6.01	409.90	27.90	120.00	11/14/2012	12:41:23 PM	
2	4	B12-02676-10	1.596	5.77	405.21	27.66	120.00	11/14/2012	2:51:17 PM	
2	5	B12-02676-11	1.250	4.56	400.64	27.44	120.00	11/14/2012	5:01:10 PM	
2	6	B12-02676-12	1.420	5.19	398.45	27.33	120.00	11/14/2012	7:11:07 PM	
2	7	B12-02676-13	1.206	4.34	408.26	27.82	120.00	11/14/2012	9:21:01 PM	

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Control Charts

3H Efficiency

Total # pts : 5545
Valid # pts : 97
Mean : 62.98
SD : 0.19

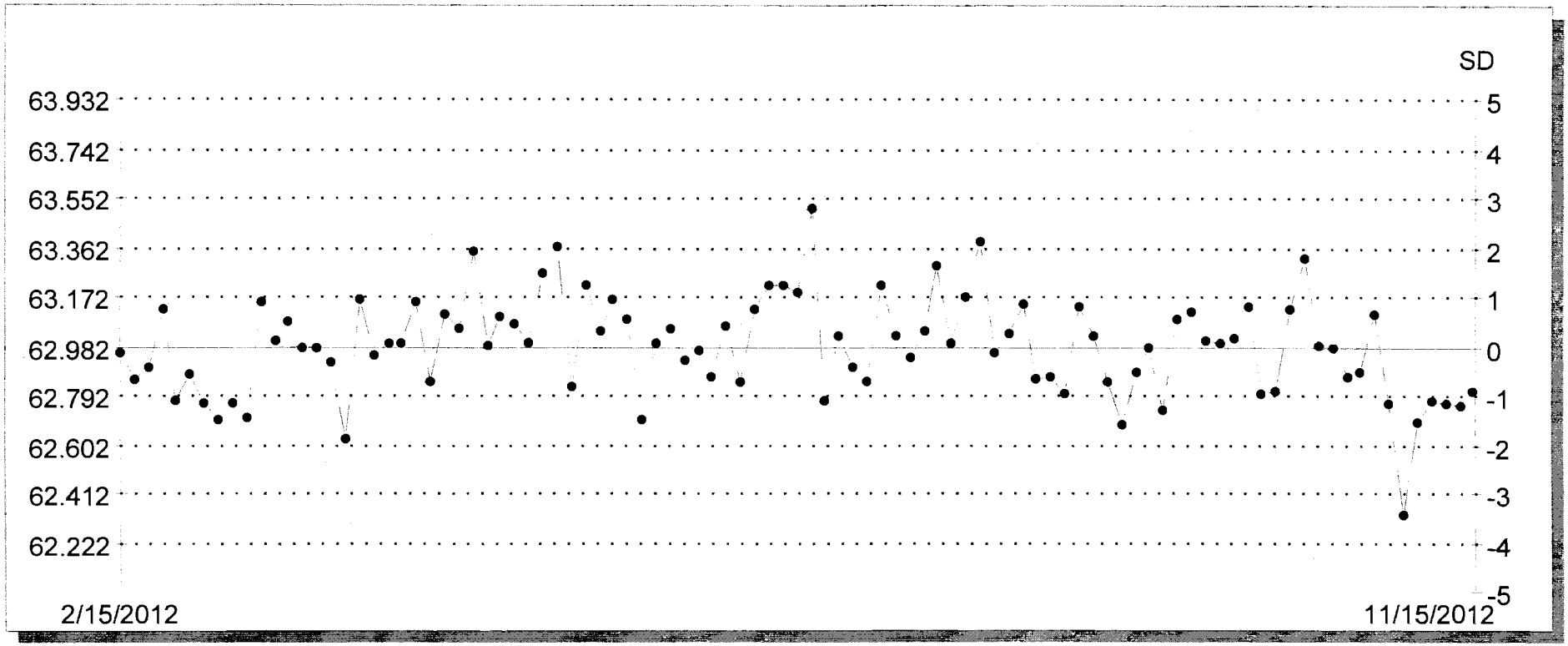
Date	Value	Valid Pt
Feb 15, 2012	62.96	X
Feb 16, 2012	62.86	X
Feb 17, 2012	62.90	X
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X
Jun 30, 2012	62.97	X

Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X
Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 22, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X
Nov 12, 2012	62.77	X

Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X

3H Efficiency

Total # pts	: 5545
Valid # pts	: 97
Mean	: 62.98
SD	: 0.19



3H Background

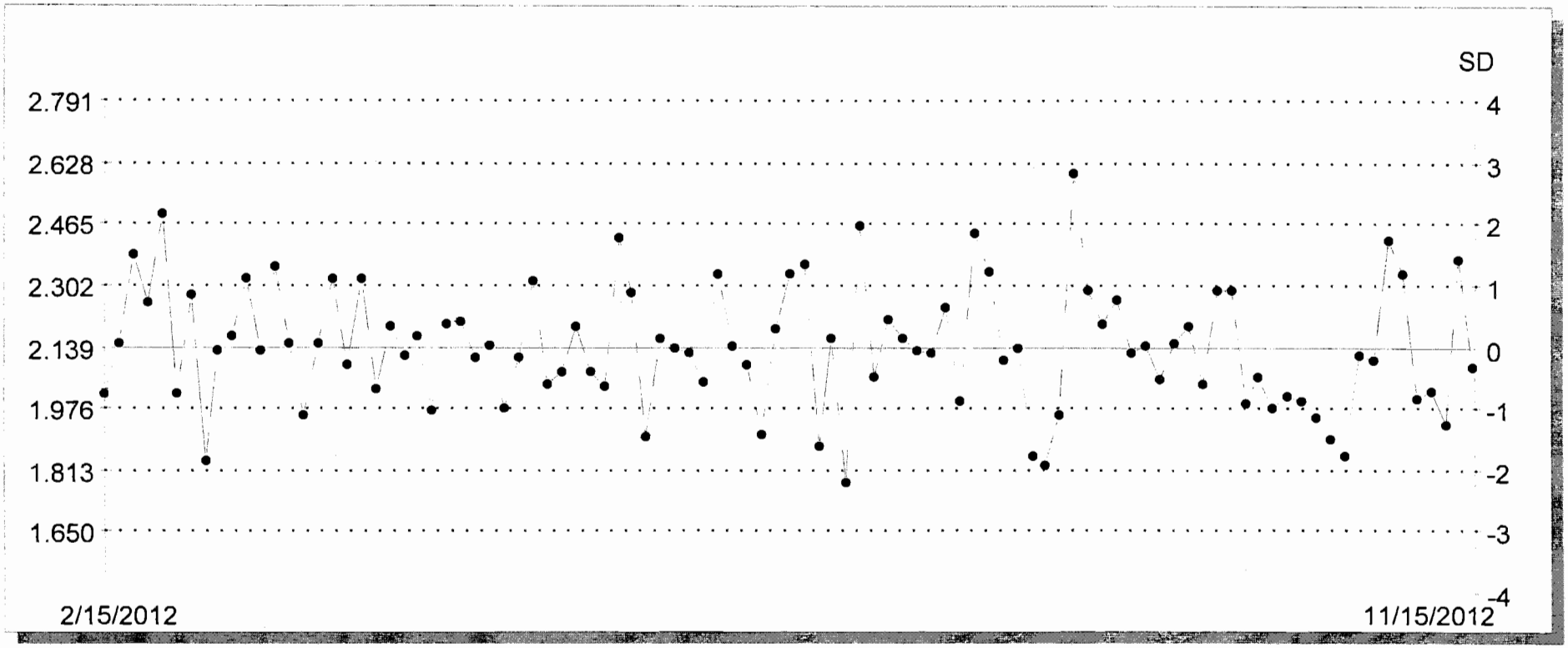
Total # pts : 5471
Valid # pts : 97
Mean : 2.14
SD : 0.16

Date	Value	Valid Pt
Feb 15, 2012	2.01	X
Feb 16, 2012	2.15	X
Feb 17, 2012	2.39	X
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X
Jun 30, 2012	2.12	X

Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X
Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 22, 2012	2.19	X
Jul 25, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 09, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X
Nov 12, 2012	2.02	X

Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X

3H Background
Total # pts : 5471
Valid # pts : 97
Mean : 2.14
SD : 0.16



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Liquid Scintillation Counting

Calibration Information

ARS INTERNATIONAL

QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS

ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE: 9/10/2012 20:16 *date counted*
STANDARD REFERENCE #: S-0279

Principal Radionuclide		Half Life, Years		Half Life, Days
H-3	*ENTER -->*		*OR -->*	4.4998E+03
		1.232E+01		4.4998E+03

Radionuclide: H-3 Dilution Reference Date: 9/7/2012 10:40

Dilution Activity	2.58	pCi per gram ===> dpm/g	5.73
Verif. Date Decay Corrected	2.58	pCi per gram ===> dpm/g	5.72

Minimum of 3 Required

Trial ID	Sample Counts	Count Time (min)	Detector	Efficiency	Bkg. (cpm)	Net Weight	Decay Corrected Activity Result (dpm/g)	Decay Corrected Activity Result (pCi/g)
S-0279-V1	15.91	1	LSC	0.3302	6.49	5.019	5.68	2.56
S-0279-V2	16.21	1	LSC	0.3291	6.49	5.018	5.89	2.65
S-0279-V3	15.76	1	LSC	0.3290	6.49	5.018	5.62	2.53
S-0279-V4	15.62	1	LSC	0.3293	6.49	5.008	5.54	2.49
S-0279-V5	15.76	1	LSC	0.3280	6.49	5.018	5.63	2.54

	Average	5.67	2.55
	Two Sigma Uncertainty	0.26	0.12
10% Max *PASS*	Standard Deviation percent of known concentration	2.30%	2.30%
	Target Activity	5.72	2.58
5% Max *PASS*	% Diff	-0.91%	-0.91%

Verification Expiration Date: ##############

Prepared & Counted By: [signature] Date: 9/10/2012 20:16

Verified & Approved By: [signature] Date: 9-11-12 0817

QC Approval: [signature] Date: 8-11-12 0817

S-0279		
H-3	Verified	*9/10/12*
SL	**Expires**	**9/10/13**
Manufactuer	**NIST SRM 4927F**	
Sol Matrix	H2O	
Ref No	NIST SRM 4927F	
Tech	Unknown	
Parent ID	S-0237	

ARS INTERNATIONAL

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

H-3 Standard Verification

Verifier's Name: Brian Steffens

Date: 9/7/2012

Pipettor ID: FJ40469
Pipettor ID: Auto-pipettor
Pipettor ID: na
Standard ID: S-0279
Standard ID: N/A

Standards brought up to ~5g with distilled dead water.
Standards made in glass vials.

15mL of Ultima Gold added to standard

	Weight of Standard
S-0279-V1	5.019 **g**
S-0279-V2	5.018 **g**
S-0279-V3	5.018 **g**
S-0279-V4	5.008 **g**
S-0279-V5	5.018 **g**

Balance ID: H1331122173560P

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931
Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\20120910_0931.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\H-3 Normal 3.lsa

Count Conditions-

Nuclide: H-3 Normal
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: UG STD H-3
Count Time (min): 120.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

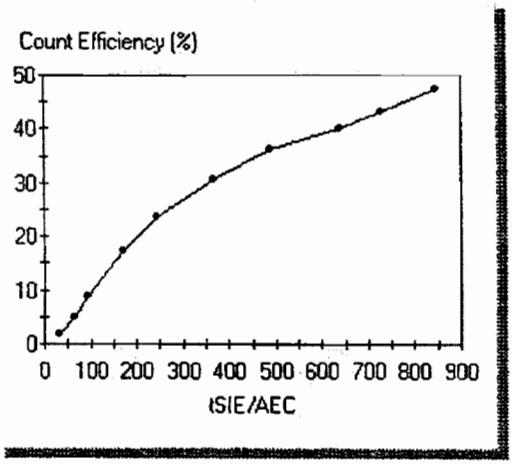
Half Life

Half Life Correction: Off
Regions Half Life Units Reference Date Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data

UG STD H-3 in A



Date Acquired: 06/27/2012
Date Modified:
UG STD H-3 in A

tSIE/AEC	Count Efficiency (%)
846.90	47.58
730.85	43.21
639.47	40.08
487.78	36.36
365.41	30.73
244.81	23.69
169.28	17.31
95.01	8.79
64.60	4.97
34.32	.64

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
54	1	BACKGROUND	6.49	19.81	409.74	32.77	120.00	9/10/2012	9:36:46 AM	
54	2	S-0279-V1	15.91	48.18	415.20	33.02	120.00	9/10/2012	11:44:40 AM	
54	3	S-0279-V2	16.21	49.25	412.72	32.91	120.00	9/10/2012	1:52:36 PM	
54	4	S-0279-V3	15.76	47.89	412.56	32.90	120.00	9/10/2012	4:00:32 PM	
54	5	S-0279-V4	15.62	47.44	413.22	32.93	120.00	9/10/2012	6:08:27 PM	
54	6	S-0279-V5	15.76	48.04	410.40	32.80	120.00	9/10/2012	8:16:20 PM	

STD ID: S-0279

ARS INTERNATIONAL

Add/Edit *Secondary Stds*

Planning

Planning Comments	Create a H3 LCS standard.
Target dpm/g (on dil. date)	5.5
Target Final volume mL	2000
Appx mass g of Parent Sol'n	3.606433954
Appx vol ml of Parent Sol'n	3.612937241
Expected Addition for Analysis g	5

Standards Preparation / Dilution

Secondary Solution #	S-0279
Dilution Date (New Ref Date)	09/07/2012 10:40
Ampoule, Empty (g)	
Ampoule /Solution Gross (g)	
Net Wt Removed (g)	
Transfer Container, empty (g)	13.144
Container Plus Solution (g)	16.89
Net Wt Transferred (g)	3.746
DPM Xferred on 09/07/2012 10:40	11425.69101
Diluent/matrix	DI H2O
Diluent Density Cont, empty (g)	
Test Mass of 5 ml of Diluent (g)	
Diluent Density Test - (g/mL)	
Dilution Empty Container Mass (g)	473.93
Dilution Full Cont g (if measured)	2469.52
Dilution Final Volume ml (if measured)	2000
Final Dilution Density (g/mL)	0.997795
Final Dilution Measured Mass g	1995.59

Comments: H3 LCS standard. Dilution performed as stated above by B Steffens. -BJS 9/7/12

Final Dilution dpm/g	5.725470166
Final Dil New Ref Date/Time	09/07/2012 10:40

Parent Standard Data

Parent Solution Reference #	NIST SRM 4927F			
Parent Solution #	S-0237			
Parent Principal Radionuclide	H-3	Half Life (Days)	4499.8000000	
Parent Reference Date	03/22/2010 10:10			
Parent Certified Act	3503.682716	Certl Act/Vol Units	dpm	g
Parent Cert Act Uncert 1 Sigma	0.0036			
Parent Sp. Gravity G/Ml	0.9982			
Parent Supplier	NIST SRM 4927F			
Parent Date Recvd	01/02/00			
Parent Received By	Unknown			
Parent Cert Exp Date				
Parent Matrix	H2O			
Certified dpm/g At Ref Date	3503.682716			
Certified dpm/g on 09/07/2012 10:40	3050.10438			
Parent Comments	Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Steffens. -BJS 3/22/10			
Parent Tech	Unknown			
Is_Primary	FALSE			
Is_LCS	TRUE			
Is_Tracer	FALSE			
Is_Calib	FALSE			

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Folder Duplicate

Report Compilation Checklist

ARS SDG: 12-02264 **Client Name:** LANL **Sample Matrix:** AQ

LEVEL 1 COMPONENTS	1st Reviewer	
1) Cover Page Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
2) Technical Review Checklist(s) Complete and Accurate?	~~Yes~~ No N/A	
3) Case Narrative Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
4) Form 1s Present for all Samples and Tests?	~~Yes~~ No N/A	
5) Client Specific Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 2 COMPONENTS	1st Reviewer	
6) Batch Quality Control Report is Present and Accurate?	~~Yes~~ No N/A	
7) DQO Report is Present and Accurate?	~~Yes~~ No N/A	
8) Client Specific Batch QC Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 3 COMPONENTS	1st Reviewer	
9) Efficiencies are Present?	~~Yes~~ No N/A	
10) Calibrations are Present?	~~Yes~~ No N/A	
11) Backgrounds are Present?	~~Yes~~ No N/A	
12) Spectrum Analysis is Present?	~~Yes~~ No N/A	
13) Spectral Plots are Present?	~~Yes~~ No N/A	
14) Plateaus are Present?	~~Yes~~ No N/A	
15) Control Charts are Present?	~~Yes~~ No N/A	
16) Other:	Yes No ~~N/A~~	

LEVEL 4 COMPONENTS	1st Reviewer	
17) Preparation Raw Data Present, Signed and Complete?	~~Yes~~ No N/A	
18) Instrument Raw Data Present and Complete?	~~Yes~~ No N/A	
19) Calibration Certificates Present?	~~Yes~~ No N/A	
20) Copies of Log Book Pages Present?	~~Yes~~ No N/A	
21) Sample Receiving Documentation Present?	~~Yes~~ No N/A	
22) LIMS Reports Present?	~~Yes~~ No N/A	
23) Applicable Correspondence Present?	~~Yes~~ No N/A	
24) Other:	Yes No ~~N/A~~	

Report Generator Signature — Date: 12-10-12

Management Review Signature — Date: 12-10-12

LSC
Technical Review Checklist

ARS SDG ARS1-12-02264

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-B12-02676 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-021 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) **Sample Prep Anomaly?** ☑ **No** ☐ **Yes** (See Tech Notes) **NCR #** (If initiated): _____

Chemist Signature _____ Date 11-13-12 Verifier Review Signature _____ Date 11-13-12

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature _____ Date 12-10-12

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) **Test/Sample Specific Parameters** (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) **Analysis Anomaly?** ☑ **No** ☐ **Yes** (See Comments) **NCR #** (If initiated): _____

Analyst Signature _____ Date 11-12-12 Technicial Reviewer Signature _____ Date N/A

Batch A: ARS1-B12-02676

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes No ~~N/A~~	Yes No (N/A)
2) RDL Criteria are Met?	Yes No ~~N/A~~	Yes No (N/A)
3) Method Blank Criterion Met?	Yes No ~~N/A~~	Yes No (N/A)
4) LCS/LCD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
[signature]	12-10-12	James D. [signature]	12-10-12

GENERAL COMMENTS

LSC
Technical Review Checklist

ARS SDG ARS1-12-02264

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-B12-02721 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-022 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) Sample Prep Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Chemist Signature 12-4-12 Date Verifier Review Signature 12-4-12 Date

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature 12-10-12 Date

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) NCR # (If initiated): _____

Analyst Signature 12-10-12 Date Technicial Reviewer Signature 12-10-12 Date

Batch A: ARS1-B12-02721

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review			QA Officer Review		
1) Activity + 3xCSU a Negative Number?	Yes	~~No~~	N/A	Yes	(No)	N/A
2) RDL Criteria are Met?	~~Yes~~	No	N/A	(Yes)	No	N/A
3) Method Blank Criterion Met?	~~Yes~~	No	N/A	(Yes)	No	N/A
4) LCS/LCD Criteria Met?	~~Yes~~	No	N/A	(Yes)	No	N/A
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	~~Yes~~	No	N/A	(Yes)	No	N/A
6) MS/MSD Criteria Met?	Yes	No	~~N/A~~	Yes	No	(N/A)

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
[signature]	12-10-12	[signature]	12-10-12

GENERAL COMMENTS

DQO Report for SDG
ARS1-12-02264

Analysis Code	Group	Isotope	Activity Units	Aliquot Units	ProcedureNo	RDL	LCS_LL	LCS_UL	MS_LL	MS_UL	RadY_LL	RadY_UL	GravY_LL	GravY_LL	RER	RPD	DiltionReq	RoughPrepReq	BlankCorrectionMDA	BlankCorrectionAll	CountTimeReq	AliquotRequired
LSC-A-021	STD	H-3	pCi	L	ARS-054	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		
LSC-A-022	STD	Enriched H-3	pCi	L	ARS-040	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		

SDG Report - Samples and Containers

83

SDG Specific Data

SDG	ARS1-12-02264	TAT Days	28	Project Type	Environmental
Sample Count	3 Rpt Level 4	Date Received	11/9/2012	COC Number	2013-293
Client	Los Alamos National Laboratory	Client Deadline	12/9/2012	PO Number	63641-001-10
Client Code	114	Internal Deadline	12/8/2012	Job Number	
Profile Number	PN-00094	Lab Deadline	12/6/2012	Job Location	
Comments					

Samples and Containers (➔) Checked In Thus Far

FR	ClientID	Matrix	SampleStartDate	SampleEndDate	Disp	Hold	Arch	Storage	X	Units	Y	Units	Z	Units	Comments
001	CASA-13-24209	AQ	11/05/12 01:50 PM	11/05/12 01:50 PM	H	90	5	O1							
➔	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126374	1	1000.00				80	24		N	N/A				
002	CASA-13-24213	AQ	11/07/12 12:44 PM	11/07/12 12:44 PM	H	90	5	O1							
➔	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126375	1	1000.00				80	24		N	N/A				
003	CASA-13-24214	AQ	11/07/12 02:36 PM	11/07/12 02:36 PM	H	90	5	O1							
➔	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126376	1	1000.00				80	24		N	N/A				

SDG Report - Analysis Assignments

Temp SDG	ARS1-12-02264	Sample Count	3
Client	Los Alamos National Laboratory	Analysis Count	2-6

Samples Count Totals per Analysis

Analysis Code	Analysis Description	Samples Count
LSC-A-021	Low Level Tritium Screen in (Aqueous)	3
LSC-A-022	Low Level Tritium by Enrichment Process in (Aqueous [AQ])	3

Analyses Assigned Per Fraction

Fraction	Analysis Code	X = Assigned
001	LSC-A-021	X
001	LSC-A-022	X
002	LSC-A-021	X
002	LSC-A-022	X
003	LSC-A-021	X
003	LSC-A-022	X

ARS FILE TRACKING SHEET

SDG: ARS1-12-02264

Task	Date / Time	Initials
Date & Time Samples Received	11/9/12 10:30	cad
ICOC Initiated / Storage Location: O1	11/9/12 12:37	cad
Technical Checks Performed	See Batch	
Report Written / EDD Generated: 12-10-12/14:31 SDL (Date/Time, Initials)	12-10-12/1420	SDL
Quality Assurance Checks Performed on Report	12-10-12 1517	JDT
Management Check Performed on Report		
Preliminary Report Sent		
Report E-mailed		
Report Faxed		
Report Reviewed		
Report Mailed		
Invoice Completed Invoice #:_____		
Report Imaged		

SPECIAL REQUIREMENTS

Requirement	Yes	No
3 Hour Rush		✓
24 Hour Rush		✓
48 Hour Rush		✓
3 Day TAT		✓
5 Day TAT		✓

NOTES:

ARS-062
08/08/2012

COMPANY NAME: LANL

SDG: ARS1-12-02264

SHIPPING CONTAINER

Good Condition	☑ Yes	☐ No
Radioactive	☐ Yes	☑ No
UN2910	☐ Yes	☑ No
Sec. Seals	☑ Yes	☐ No
Seals Intact	☑ Yes ☐ No	☑ N/A
Air Bill	☐ Yes	☑ No

COC PRESENT WITH SAMPLES

COC	☑ Yes	☐ No

SAMPLE CONTAINER(S)

Good Condition	☑ Yes	☐ No
Sec. Seals	☑ Yes	☐ No
Seal Intact	☑ Yes ☐ No	☑ N/A
Marked Radioactive	☐ Yes	☑ No

Samples Rcv 10

Matrix [AF , AQ , BI , FE , LT , SI , SO , UR , VG]

External and Internal Surveys

Exposure Rate Meter: M3 242861 Serial No.: PR 244264 Calibration Due Date: 4-18-13

Count Rate Meter: M2 154859 Serial No.: PR 184559 Calibration Due Date: 4-18-13

Background Exposure Rate (µR/hr): 24 Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd): 28 µR/hr

Background Count Rate (cpm): 80 Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd): 80 cpm

Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd): 80 cpm

Sample Label/Comments/Notes	pH Orig	pH Final (pH ≤ 2 is Acceptable)	Mark if Preserve	Acid Lot #	Weight(g) / Volume(mL)	µR/hr (Acceptance Limits <500 µR/hr)	cpm (Acceptance Limits <100 cpm/cm²)
CAMO-13-24279			☐		1000mL	24	80
			☐				
CAMO-13-24241			☐		1000mL	24	80
-24242			☐			24	80
-24225			☐			24	80
-24247			☐			24	80
-24248			☐			24	80
			☐				
CAMO-13-24276			☐		1000mL	24	80
			☐				
CASA-13-24209			☐		1000mL	24	80
-24213			☐			24	80
-24214			☐			24	80
			☐				
			☐				
			☐				
			☐				
			☐				
			☐				

11/9/12

Surveyors' Name: [signature]

Date/Time Surveyed: HO 11/9/12 1045

* These samples only in this SDG

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-291

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

- 24 Hour - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒
- Other - ☐

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3
CAMO-13-24241	Oct 31 2012	13:53	W	1
CAMO-13-24242	Oct 31 2012	12:20	W	1
CAMO-13-24225	Oct 31 2012	13:30	W	1
CAMO-13-24247	Nov 6 2012	12:40	W	1
CAMO-13-24248	Nov 6 2012	11:07	W	1

Special Instructions:

Special Instructions:

Relinquished by:		Date/Time: 11/8/12 3:00	Received by:	
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24225

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/31/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1330	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	DC
LOCATION ID:	R-15	↓	FIELD PREP:	UF	OK
LOCATION TYPE:		↓	FIELD QC TYPE:	PEB	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	~~2~~ 1	ICE DF 10/31/12	~~N~~ Y	NA
↓	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	DF 10/31/12 ↓	↓
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	~~2~~ 1	ICE DF 10/31/12	↓	↓
↓	WSP-8290-D/F	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-8321A-NMED HEXP	1 LITER AMBER GLASS	~~2~~ 1	ICE DF 10/31/12	↓	↓
↓	WSP-CL04	250 ML POLY	1	ICE	↓	↓
↓	WSP-GENINORG	1 LITER POLY	1	ICE	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-H-3	250 ML AMBER GLASS	1	ICE	↓	↓
↓	WSP-HEXMOD	1 LITER AMBER GLASS	2	ICE	↓	↓

Analyses continued on next page

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24225 **WORK ORDER:**

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-LL-H-3	1 LITER POLY	1	NONE	Y	NA
	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS: NA DF 10/31/12

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) (Signature) W. Shaw	**Date/Time** 10/31/12 1400	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time** 10/31/12 1400
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24241

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/31/2012	FIELD MATRIX: WG		ok
TIME COLLECTED (HH:MM):		1353	MEDIA: UA		↓
PRS ID:		ok	SAMPLE TECH CODE: UA		6SP
LOCATION ID: R-13		↓	FIELD PREP: UF		ok
LOCATION TYPE: MON		↓	FIELD QC TYPE: REG		↓
PORT: SINGLE COMPLETION		↓	SAMPLE USAGE: INV		↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: see CAMO-13-24258

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) D. Woody

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Megan Green (Signature)	10/31/12 1515	(Printed Name) C. Martin (Signature)	10/31/12 1515
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24242

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/31/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1220	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-15	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-LL-H-3	1 LITER POLY	1	NONE	Y	NA
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Sampled within 50' of running diesel generator.

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 7.05 mg/L Oxidation-Reduction Potential 119.1 MV pH 8.23 SU

Specific Conductance 150 uS/cm Temperature 16.45 deg C Turbidity 2.31 NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) William Shaw **(Signature)**	**Date/Time** 10/31/12 1216	**RECEIVED BY (Printed Name)** **(Signature)**	**Date/Time** 10/31/12 1400
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24247

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/6/2012	FIELD MATRIX: WG		ok
TIME COLLECTED (HH:MM):		1240	MEDIA: UA		
PRS ID:		ok	SAMPLE TECH CODE: UA		GSP
LOCATION ID: R-45 S1			FIELD PREP: UF		ok
LOCATION TYPE: MON			FIELD QC TYPE: REG		
PORT: P1A			SAMPLE USAGE: INV		

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: well sampled ~40' away from a running Diesel generator

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 7.22 mg/L Oxidation-Reduction Potential 97.1 MV pH 7.84 SU

Specific Conductance 173 uS/cm Temperature 20.71 deg C Turbidity 0.37 NTU

COLLECTED BY (PRINT) R Waldy

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/06/12 1340	(Printed Name) Sherwood (Signature) Sheri Sherwood	11/06/12 1340
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24248

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/6/2012	FIELD MATRIX:	WG	gK
TIME COLLECTED (HH:MM):		1107	MEDIA:	UA	
PRS ID:		OLC	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-45 S2		FIELD PREP:	UF	gK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P2A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: well sampled ~40' away from running diesel generator

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 6.69 mg/L Oxidation-Reduction Potential 86.8 MV pH 8.10 SU

Specific Conductance 164 uS/cm Temperature 20.82 deg C Turbidity 0.40 NTU

COLLECTED BY (PRINT) D. Woody

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) D Woody	11/06/12 1340	(Printed Name) S. Sherwood (Signature) Sherri Sherwood	11/06/12 1340
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-291

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
ARS1-12-02262	Generic:Low_Level_Tritium	2				
ARS1-12-02262	Generic:Low_Level_Tritium	2				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
ARS1-12-02262	Generic:Low_Level_Tritium	ARS1-B12-02721	ARS1-B12-02721	4					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
Generic:Low_Level_Tritium	RAD							
LCS	ARS1-B12-02721-01	LCS	0	0	1	0		
Generic:Low_Level_Tritium	RAD	CAMO-13-24225	ARS1-B12-02721-07	PEB	1	0	0	0
Generic:Low_Level_Tritium	RAD	CAMO-13-24241	ARS1-B12-02721-05	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	CAMO-13-24242	ARS1-B12-02721-06	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	CAMO-13-24247	ARS1-B12-02721-08	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	CAMO-13-24248	ARS1-B12-02721-09	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	LCSD	ARS1-B12-02721-02	LCSD	0	0	1	0
Generic:Low_Level_Tritium	RAD	MB	ARS1-B12-02721-03	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

No.

Any samples affected by the presence of contaminants in blanks?

No.

Data Validation Report for:

Chain Of Custody No. 2013-291

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1	1						

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

No.

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-15	2013-291	CAMO-13-24225	PEB	INIT	RAD	Generic:Low_Level_Tritium	Tritium	U	U	R5	N
R-13	2013-291	CAMO-13-24241	REG	INIT	RAD	Generic:Low_Level_Tritium	Tritium	U	U	R5	N
R-45 S2	2013-291	CAMO-13-24248	REG	INIT	RAD	Generic:Low_Level_Tritium	Tritium	U	U	R5	N

Reason Code	Description
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24225	R-15	PEB	Generic:Low_Level_Tritium	0	1
CAMO-13-24241	R-13	REG	Generic:Low_Level_Tritium	0	1
CAMO-13-24242	R-15	REG	Generic:Low_Level_Tritium	0	1
CAMO-13-24247	R-45 S1	REG	Generic:Low_Level_Tritium	0	1

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
1.394	pCi/L	1.394	pCi/L	2.153	0.694	W	10/31/2012		ARS1-B12-02721	VAL	Y
1.037	pCi/L	1.037	pCi/L	1.997	0.628	W	10/31/2012		ARS1-B12-02721	VAL	Y
1.567	pCi/L	1.567	pCi/L	2.102	0.691	W	11/6/2012		ARS1-B12-02721	VAL	Y

CAMO-13-24248	R-45 S2	REG	Generic:Low_Level_Tritium	0	1

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Request Number: 2013-291

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-291

Original COC

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-291

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3
CAMO-13-24241	Oct 31 2012	13:53	W	1
CAMO-13-24242	Oct 31 2012	12:20	W	1
CAMO-13-24225	Oct 31 2012	13:30	W	1
CAMO-13-24247	Nov 6 2012	12:40	W	1
CAMO-13-24248	Nov 6 2012	11:07	W	1

Special Instructions:

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
		11/8/12 3:00		11/9/12 1030
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-291

Case Narrative

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

December 7, 2012

LANL
Keith Greene
PO Box 1663 MS M992
Los Alamos, NM 87545

Request Number: **2013-291**
LANL Sample ID: **CAMO-13-24241; CAMO-13-24242; CAMO-13-24225; CAMO-13-24247; CAMO-13-24248. .**

Dear Mr. Greene;

On November 9, 2012, ARS International received five (5) water samples to be analyzed for Low Level Tritium.

The samples underwent enrichment and were counted using the appropriate counting equipment and QA/QC for this type of analysis. Results of the analysis and QA/QC are attached in the data package.

The client and QA/QC samples were counted with a count time sufficient to meet quality control parameters for counting equipment and were within acceptance criteria and statistical sound detection limits.

If you have any questions please do not hesitate to call at 225.381.2991 or email LANL@amrad.com.

Sincerely,

Laboratory Management
ARS International

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

COVER PAGE

PROJECT SAMPLE IDENTIFICATION
CROSS-REFERENCE
TO ARS SAMPLE LABORATORY IDs
Subcontract (LANL Agreement Number) 63641-001-10

Request Number	LANL PROJECT SAMPLE ID NUMBER	American Radiation Services SAMPLE ID NUMBER(S)
2013-291	CAMO-13-24241	ARS1-12-02262-001
2013-291	CAMO-13-24242	ARS1-12-02262-002
2013-291	CAMO-13-24225	ARS1-12-02262-003
2013-291	CAMO-13-24247	ARS1-12-02262-004
2013-291	CAMO-13-24248	ARS1-12-02262-005

ANALYTICAL METHODS
Tritium analyses were performed using **ARS-040 Tritium Assay in Water Samples Using Electrolytic Enrichment.**

ANALYTICAL RESULTS
The result data that are flagged with "U" indicate that the activity is below the MDC.

American Radiation Services Project Manager/Laboratory Director's Comments:
"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

"I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the LANL specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."

Signature	Title	Date
James D. [illegible]	Laboratory Management, ARS International	12-10-12

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02262	**Request or PO Number:**	2013-291
Client Sample ID:	CAMO-13-24241	**ARS Sample ID:**	ARS1-12-02262-001
Sample Collection Date:	10/31/12	**Date Received:**	11/09/12
Sample Matrix:	Aqueous	**Report Date:**	12/10/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	1.037	0.628	1.997	0.964	U	pCi/L	ARS-040	12/05/12 13:41	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02262	**Request or PO Number:**	2013-291
Client Sample ID:	CAMO-13-24242	**ARS Sample ID:**	ARS1-12-02262-002
Sample Collection Date:	10/31/12	**Date Received:**	11/09/12
Sample Matrix:	Aqueous	**Report Date:**	12/10/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	15.912	2.532	1.933	0.933		pCi/L	ARS-040	12/06/12 18:58	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02262	**Request or PO Number:**	2013-291
Client Sample ID:	CAMO-13-24225	**ARS Sample ID:**	ARS1-12-02262-003
Sample Collection Date:	10/31/12	**Date Received:**	11/09/12
Sample Matrix:	Aqueous	**Report Date:**	12/10/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	1.394	0.694	2.153	1.039	U	pCi/L	ARS-040	12/06/12 23:09	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02262	**Request or PO Number:**	2013-291
Client Sample ID:	CAMO-13-24247	**ARS Sample ID:**	ARS1-12-02262-004
Sample Collection Date:	11/06/12	**Date Received:**	11/09/12
Sample Matrix:	Aqueous	**Report Date:**	12/10/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	2.149	0.699	1.959	0.946		pCi/L	ARS-040	12/07/12 03:20	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02262	**Request or PO Number:**	2013-291
Client Sample ID:	CAMO-13-24248	**ARS Sample ID:**	ARS1-12-02262-005
Sample Collection Date:	11/06/12	**Date Received:**	11/09/12
Sample Matrix:	Aqueous	**Report Date:**	12/10/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	1.567	0.691	2.102	1.015	U	pCi/L	ARS-040	12/07/12 07:31	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

QC Results Report

Sample Delivery Group: ARS1-12-02262
Date Received: 11/9/2012

Laboratory Control Sample Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Percent Recovery (%)	LCS Acceptance Range
ARS1-B12-02721	LCS	H3	25.875	4.032	2.269	25.703		pCi/L	ARS-040	12/4/12 18:56	RJU	101	80%-120%

Blank Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician
ARS1-B12-02721	MBL	H3	-0.085	0.625	2.135	NA	U	pCi/L	ARS-040	12/4/12 18:56	RJU

Sample RER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	RER	RER AcceptanceRange
ARS1-B12-02721	LCSD	H3	25.875	4.032	24.604	3.836		pCi/L	ARS-040	12/4/12 18:56	RJU	0.16	< 1

Sample DER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	DER	DER AcceptanceRange
ARS1-B12-02721	LCSD	H3	25.875	4.032	24.604	3.836		pCi/L	ARS-040	12/4/12 18:56	RJU	0.46	< 3

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of ARS International.

LELAP Certificate# 01949 NELAP Certificate # E87558

QC Evaluation

EPA Method: ARS-040
Batch ID: ARS1-B12-02721
SDG's: ARS1-12-02261;2262;2263;2264;2305;2306;2307;2309

LCS	25.8750	**CSU (2s)**	7.9020
LCSD	24.6040	**CSU-D (2s)**	7.5190

DER = abs(LSC-LSCD) / sqr((2s CSU/2)^2)+((2s CSU-D/2)^2) *at 1 sigma* = **< 3**

DER 1.271 / 5.453828 = 0.233047 **< 3**

% RPD= ABS(LCS - LSCD) / (LCS+LCSD)/2 * 100 = **< 25%**

%RPD 1.271 / 25.2395 *100 = 5.035757 **< 25%**

The *RPD* shall be less than 25% or other client-applied criteria

RER= abs((LCS-LCSD)) / (CSU)+(CSD) *at 2 sigma* = **<1** ***<--LANL Requirement***

RER = 1.271 / 15.4210 0.082420077 **<1**

Blank Information

	Act	CSU(2s)	MDA	Act>MDA
AM-241				
U-234				
U-235				
U-238				
Pu-238				
Pu-239/240				
Th-228				
Th-230				
Th-232				
H3	-0.085	1.225	2.135	
Ra-226				
Ra-228				
Total U				
Pb-210				
Po-209				
Sr-90				
TC-99				
NI-63				

*MDA should be below RDL
*Blank activity must be below MDA
*Blank activity must be < 1.65*CSU (DOE only)

ACT = -0.085
CSU = 1.225
Is ACT<1.65*CSU? **YES**

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

16 of 38

Analysis Batch ID **ARS1-B12-02721**

Method	ARS-040	Analysis	LSC-A-022	Matrix	AQ
Description	Low Level Tritium by Electrolytic Enrichment				

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02721-01	LCS	B-14793								
ARS1-B12-02721-02	LCSD	B-14794								
ARS1-B12-02721-03	MBL									
ARS1-B12-02721-04	TRG				**ARS1-12-02261**	001	1	CAMO-13-24279	STD	11/29/12
ARS1-B12-02721-05	TRG				**ARS1-12-02262**	001	1	CAMO-13-24241	STD	12/06/12
ARS1-B12-02721-06	TRG				**ARS1-12-02262**	002	1	CAMO-13-24242	STD	12/06/12
ARS1-B12-02721-07	TRG				**ARS1-12-02262**	003	1	CAMO-13-24225	STD	12/06/12
ARS1-B12-02721-08	TRG				**ARS1-12-02262**	004	1	CAMO-13-24247	STD	12/06/12
ARS1-B12-02721-09	TRG				**ARS1-12-02262**	005	1	CAMO-13-24248	STD	12/06/12
ARS1-B12-02721-10	TRG				**ARS1-12-02263**	001	1	CAMO-13-24276	STD	12/06/12
ARS1-B12-02721-11	TRG				**ARS1-12-02264**	001	1	CASA-13-24209	STD	12/06/12
ARS1-B12-02721-12	TRG				**ARS1-12-02264**	002	1	CASA-13-24213	STD	12/06/12
ARS1-B12-02721-13	TRG				**ARS1-12-02264**	003	1	CASA-13-24214	STD	12/06/12
ARS1-B12-02721-14	TRG				**ARS1-12-02305**	001	1	CASA-13-24210	STD	12/12/12
ARS1-B12-02721-15	TRG				**ARS1-12-02306**	001	1	CAMO-13-24245	STD	12/12/12
ARS1-B12-02721-16	TRG				**ARS1-12-02306**	002	1	CAMO-13-24246	STD	12/12/12
ARS1-B12-02721-17	TRG				**ARS1-12-02306**	003	1	CAMO-13-24249	STD	12/12/12
ARS1-B12-02721-18	TRG				**ARS1-12-02306**	004	1	CAMO-13-24250	STD	12/12/12
ARS1-B12-02721-19	TRG				**ARS1-12-02307**	001	1	CAMO-13-24253	STD	12/12/12
ARS1-B12-02721-20	TRG				**ARS1-12-02307**	002	1	CAMO-13-24228	STD	12/12/12
ARS1-B12-02721-21	TRG				**ARS1-12-02309**	001	1	CASA-13-24211	STD	12/12/12

127700
12-02261-001-1
WRAD

127702
12-02262-001-1
WRAD

127704
12-02262-002-1
WRAD

127706
12-02262-003-1
WRAD

127708
12-02262-004-1
WRAD

127710
12-02262-005-1
WRAD

127712
12-02263-001-1
WRAD

127714
12-02264-001-1
WRAD

127716
12-02264-002-1
WRAD

127718
12-02264-003-1
WRAD

127720
12-02305-001-1
WRAD

127722
12-02306-001-1
WRAD

127724
12-02306-002-1
WRAD

127726
12-02306-003-1
WRAD

127728
12-02306-004-1
WRAD

127730
12-02307-001-1
WRAD

127732
12-02307-002-1
WRAD

127734
12-02309-001-1
WRAD

American Radiation Services
Baton Rouge Laboratory

LCS Report
Analytical Batch: ARS1-B12-02721

17 of 80

BlindID	ABatch	ABatchSampleID	BlindGroup	StdID	Isotope	ExpectedAddition	ExpectedValue	EmptyWt	GrossWt	NetWt	UserID	ModDate	ExpectedValue_CT	MidPointCountDate	KnownValue
B-14793	ARS1-B12-02721	ARS1-B12-02721-01	B-H3	S-0279	H-3	5	2.552560129	13.098	18.151	5.053	AMRAD\BSTEFFENS	11/13/2012			
B-14794	ARS1-B12-02721	ARS1-B12-02721-02	B-H3	S-0279	H-3	5	2.552560129	13.14	18.192	5.052	AMRAD\BSTEFFENS	11/13/2012			

18 of 88

ID_31001_040	ABatch	AnalysisCode	ABatchSampleID	ClientID	IC_ID	S01_1_EnrichCellNo	S01_2_TareCell	S01_3_TareResv	S02_GrossWtResv	S03_1_WtNa2O2	C_GrossSampleAdded
444	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-01			4	327.7	200.9	701.14	2.07	500.24
445	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-02			33	336.25	215.3	718.8	2.08	503.5
446	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-03			74	328.56	197.95	701.97	2.06	504.02
447	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-04	CAMO-13-24279		61	335.51	213.55	714.87	2	501.32
448	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-05	CAMO-13-24241		64	331.04	209.03	714.77	2.01	505.74
449	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-06	CAMO-13-24242		68	334.63	204.08	706.25	2.02	502.17
450	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-07	CAMO-13-24225		29	335.72	206.2	707.31	2.06	501.11
451	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-08	CAMO-13-24247		55	331.14	208.66	711.99	2.02	503.33
452	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-09	CAMO-13-24248		84	336.66	197.55	700.94	2.05	503.39
453	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-10	CAMO-13-24276		89	340.12	203.22	707.98	2.08	504.76
454	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-11	CASA-13-24209		97	332.94	202.132	708.3	2	506.168
455	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-12	CASA-13-24213		3	332.17	214.84	717.62	2.03	502.78
456	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-13	CASA-13-24214		16	329.44	217.7	718.25	2.09	500.55
457	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-14	CASA-13-24210		26	337.76	213.12	716.43	2	503.31
458	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-15	CAMO-13-24245		44	331.35	214.173	718.93	2.08	504.757
459	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-16	CAMO-13-24246		50	329.91	216.33	717.493	2.07	501.163
460	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-17	CAMO-13-24249		31	334.66	204.09	709.85	2.08	505.76
461	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-18	CAMO-13-24250		8	332.1	204.54	705.56	2	501.02
462	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-19	CAMO-13-24253		87	334.14	207.46	710.88	2.01	503.42
463	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-20	CAMO-13-24228		94	337.21	197.78	700.71	2.05	502.93
464	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-21	CASA-13-24211		99	336.65	206.9	709.24	2.06	502.34

12-4-12

S04_1_ElectrolSD	S04_2_StartAmp	S04_3_StartBathC	S05_1_ElectrolED	S05_2_EndBathC	S05_3_EndCellWt	C_GrossSmplRec	C_EnrichmentF	S06_TareWt	S07_GrossWt	C_RecoveredWa
11/16/2012 15:00:00	5	1.8	11/30/2012 14:58:00	2	545.34	16.74	29.88291517	117.45	130.16	12.71
11/16/2012 15:00:00	5	1.8	11/30/2012 15:00:00	2	567.84	16.29	30.90853284	117.71	129.56	11.85
11/16/2012 15:00:00	5	1.8	11/29/2012 07:51:00	1.8	543.45	16.94	29.75324675	101.5	114.12	12.62
11/16/2012 15:00:00	5	1.8	11/29/2012 07:53:00	1.8	565.75	16.69	30.03714799	108.55	121.28	12.73
11/16/2012 15:00:00	5	1.8	11/30/2012 15:01:00	2	555.66	15.59	32.44002566	104.53	115.28	10.75
11/16/2012 15:00:00	5	1.8	12/03/2012 12:24:00	1.9	553.86	15.15	33.14653465	102.66	112.87	10.21
11/16/2012 15:00:00	5	1.8	11/29/2012 13:10:00	2	558.94	17.02	29.44242068	116.99	128.81	11.82
11/16/2012 15:00:00	5	1.8	11/30/2012 15:03:00	2	555.09	15.29	32.91890124	110.03	121.82	11.79
11/16/2012 15:00:00	5	1.8	11/30/2012 15:05:00	2	549.5	15.29	32.92282538	109.95	120.14	10.19
11/16/2012 15:00:00	5	1.8	11/30/2012 15:06:00	2	560.19	16.85	29.95608309	96.23	110.02	13.79
11/16/2012 15:00:00	5	1.8	11/30/2012 15:07:00	2	552.49	17.418	29.06005282	107.55	120.29	12.74
11/16/2012 15:00:00	5	1.8	11/29/2012 13:08:00	2	563.52	16.51	30.45305875	117.92	129.06	11.14
11/16/2012 15:00:00	5	1.8	12/04/2012 07:37:00	2.1	564.03	16.89	29.63587922	105.46	120.29	14.83
11/16/2012 15:00:00	5	1.8	12/04/2012 07:39:00	2.1	565.2	14.32	35.14734637	101.94	114.75	12.81
11/16/2012 15:00:00	5	1.8	12/04/2012 07:42:00	2.1	563.27	17.747	28.44182115	116.81	128.38	11.57
11/16/2012 15:00:00	5	1.8	12/04/2012 07:45:00	2.1	563.14	16.9	29.65461538	109.51	121.45	11.94
11/16/2012 15:00:00	5	1.8	12/04/2012 11:41:00	2.1	555.31	16.56	30.5410628	111.9	124.2	12.3
11/16/2012 15:00:00	5	1.8	11/29/2012 07:56:00	1.8	553.44	16.8	29.82261905	105.48	117.84	12.36
11/16/2012 15:00:00	5	1.8	11/29/2012 07:58:00	1.8	558.66	17.06	29.5087925	112	125.02	13.02
11/16/2012 15:00:00	5	1.8	11/29/2012 13:05:00	1.9	551.09	16.1	31.2378882	115.1	127.71	12.61
11/16/2012 15:00:00	5	1.8	11/29/2012 13:03:00	1.9	560.98	17.43	28.82042456	104.78	117.5	12.72

12-4-12

S08_TearWtLSCVial	S09_VialPlusSmpl	C_NetSample	S10_1_WtVislSmplDrWatFill	C_NetDeadWaterAdded	C_TareWtBFCocktail	S10_2_GrossWtVSC	C_NetWtCocktailAdded	UserID	ModDate
6.44	16.44	10	0	0	16.44	27.34	10.9	AMRAD\RUSEY	12/03/2012 12:16:52
6.44	16.45	10.01	0	0	16.45	27.43	10.98	AMRAD\RUSEY	12/03/2012 12:18:50
6.51	16.53	10.02	0	0	16.53	27.02	10.49	AMRAD\RUSEY	11/29/2012 14:42:42
6.53	16.54	10.01	0	0	16.54	26.83	10.29	AMRAD\RUSEY	11/29/2012 14:44:17
6.45	16.5	10.05	0	0	16.5	26.92	10.42	AMRAD\RUSEY	12/03/2012 12:20:31
6.53	16.54	10.01	0	0	16.54	26.86	10.32	AMRAD\RUSEY	12/03/2012 14:37:15
6.38	16.42	10.04	0	0	16.42	27.17	10.75	AMRAD\RUSEY	11/29/2012 15:39:24
6.59	16.64	10.05	0	0	16.64	26.96	10.32	AMRAD\RUSEY	12/03/2012 12:23:43
6.47	16.53	10.06	0	0	16.53	26.85	10.32	AMRAD\RUSEY	12/03/2012 14:39:07
6.54	16.54	10	0	0	16.54	26.89	10.35	AMRAD\RUSEY	12/03/2012 14:41:26
6.68	16.69	10.01	0	0	16.69	26.99	10.3	AMRAD\RUSEY	12/03/2012 14:43:02
6.52	16.56	10.04	0	0	16.56	26.84	10.28	AMRAD\RUSEY	11/29/2012 15:42:09
6.64	16.69	10.05	0	0	16.69	26.89	10.2	AMRAD\RUSEY	12/04/2012 10:57:08
6.38	16.39	10.01	0	0	16.39	26.6	10.21	AMRAD\RUSEY	12/04/2012 10:59:05
6.61	16.64	10.03	0	0	16.64	26.99	10.35	AMRAD\RUSEY	12/04/2012 11:01:07
6.49	16.54	10.05	0	0	16.54	26.84	10.3	AMRAD\RUSEY	12/04/2012 11:02:49
6.46	16.53	10.07	0	0	16.53	26.79	10.26	AMRAD\RUSEY	12/04/2012 13:55:27
6.5	16.58	10.08	0	0	16.58	26.89	10.31	AMRAD\RUSEY	11/29/2012 14:45:59
6.56	16.58	10.02	0	0	16.58	26.94	10.36	AMRAD\RUSEY	11/29/2012 14:47:45
6.46	16.49	10.03	0	0	16.49	26.79	10.3	AMRAD\RUSEY	11/29/2012 15:43:57
6.57	16.59	10.02	0	0	16.59	26.89	10.3	AMRAD\RUSEY	11/29/2012 15:45:48

12-4-12

AMRAD
AMERICAN RADIATION SERVICES, LLC

LSC Instrument Data Transfer Report

\\Packard3170\Results\H3 Low Level\Low Level H3_3\

Batch Sample ID	Non-BKG Samples Transferred	Samples Eligible To Save	
ARS1-B12-02721	21	21	LSC 1

LIMS Batch Sample ID	LSC P#	LSC PID	LSC S#	LSC SMPL_ID	LSC Count Date	LSC CPMA	LSC tSIE	LSC EFF	LSC Count Dur	Analysis Batch	LIMS SDG	LIMS Run
BKG	10		1	BACKGROUND	12/04/12 14:45	1.11	395.29	25.3300	240.00	ARS1-B12-02721		
ARS1-B12-02721-01	10		2	B12-02721-01	12/04/12 18:56	4.84	378.07	24.5900	240.00	ARS1-B12-02721		
ARS1-B12-02721-02	10		3	B12-02721-02	12/04/12 23:07	4.79	377.91	24.5800	240.00	ARS1-B12-02721		
ARS1-B12-02721-03	10		4	B12-02721-03	12/05/12 03:18	1.09	407.72	25.9200	240.00	ARS1-B12-02721		
ARS1-B12-02721-04	10		5	B12-02721-04	12/05/12 07:29	1.08	378.13	24.5900	240.00	ARS1-B12-02721	ARS1-12-02261	1
ARS1-B12-02721-05	10		6	B12-02721-05	12/05/12 11:40	1.28	395.32	25.3300	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-06	2		1	B12-02721-06	12/06/12 16:58	3.80	401.27	25.6100	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-07	2		2	B12-02721-07	12/06/12 21:09	1.32	410.59	26.0600	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-08	2		3	B12-02721-08	12/07/12 01:20	1.47	395.87	25.3500	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-09	2		4	B12-02721-09	12/07/12 05:31	1.35	351.17	23.5500	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-10	2		5	B12-02721-10	12/07/12 09:42	1.06	286.28	20.1600	240.00	ARS1-B12-02721	ARS1-12-02263	1
ARS1-B12-02721-11	2		6	B12-02721-11	12/07/12 13:53	1.82	354.31	23.6700	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-12	10		13	B12-02721-12	12/05/12 15:52	1.03	220.99	15.6400	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-13	10		14	B12-02721-13	12/05/12 20:03	1.28	402.67	25.6800	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-14	10		15	B12-02721-14	12/06/12 00:14	1.00	286.72	20.1900	240.00	ARS1-B12-02721	ARS1-12-02305	1
ARS1-B12-02721-15	10		16	B12-02721-15	12/06/12 04:24	1.16	290.87	20.4700	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-16	10		17	B12-02721-16	12/06/12 08:35	1.17	258.02	18.2400	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-17	10		18	B12-02721-17	12/06/12 12:46	3.55	251.93	17.8300	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-18	10		1	B12-02721-18	12/07/12 18:04	1.08	258.29	18.2500	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-19	10		2	B12-02721-19	12/07/12 22:15	1.85	308.77	21.6900	240.00	ARS1-B12-02721	ARS1-12-02307	1
ARS1-B12-02721-20	10		3	B12-02721-20	12/08/12 02:26	1.39	304.39	21.3900	240.00	ARS1-B12-02721	ARS1-12-02307	1
ARS1-B12-02721-21	10		4	B12-02721-21	12/08/12 06:37	1.07	280.53	19.7700	240.00	ARS1-B12-02721	ARS1-12-02309	1

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Total_Bkg_Count_Duration_min	DF	Sample_Activity_Conc	Standard_Counting_Uncertainty	CU_1	CSU_1	CU_1_96	CSU_1_96	MDC	DLC	ActivityReportUnits
LSC-A-022	ARS1-B12-02721-01	240.000	0.98654	25.875	1.091	1.091	4.032	2.139	7.902	2.269	1.095	pCi
LSC-A-022	ARS1-B12-02721-02	240.000	0.98638	24.604	1.047	1.047	3.836	2.052	7.519	2.186	1.055	pCi
LSC-A-022	ARS1-B12-02721-03	240.000	0.99908	-0.085	0.625	0.625	0.625	1.225	1.225	2.135	1.031	pCi
LSC-A-022	ARS1-B12-02721-04	240.000	0.99478	-0.213	0.655	0.655	0.655	1.283	1.285	2.247	1.085	pCi
LSC-A-022	ARS1-B12-02721-05	240.000	0.99462	1.037	0.608	0.608	0.628	1.192	1.230	1.997	0.964	pCi
LSC-A-022	ARS1-B12-02721-06	240.000	0.99447	15.912	0.845	0.845	2.532	1.656	4.963	1.933	0.933	pCi
LSC-A-022	ARS1-B12-02721-07	240.000	0.99432	1.394	0.661	0.661	0.694	1.296	1.359	2.153	1.039	pCi
LSC-A-022	ARS1-B12-02721-08	240.000	0.99524	2.149	0.620	0.620	0.699	1.215	1.369	1.959	0.946	pCi
LSC-A-022	ARS1-B12-02721-09	240.000	0.99524	1.567	0.650	0.650	0.691	1.274	1.355	2.102	1.015	pCi
LSC-A-022	ARS1-B12-02721-10	240.000	0.99508	-0.376	0.795	0.795	0.797	1.559	1.563	2.738	1.322	pCi
LSC-A-022	ARS1-B12-02721-11	240.000	0.99508	5.262	0.817	0.817	1.136	1.601	2.227	2.422	1.169	pCi
LSC-A-022	ARS1-B12-02721-12	240.000	0.99570	-0.793	0.998	0.998	1.005	1.956	1.970	3.460	1.670	pCi
LSC-A-022	ARS1-B12-02721-13	240.000	0.99554	1.108	0.657	0.657	0.678	1.288	1.329	2.159	1.042	pCi
LSC-A-022	ARS1-B12-02721-14	240.000	0.99646	-0.723	0.658	0.658	0.667	1.290	1.307	2.296	1.109	pCi
LSC-A-022	ARS1-B12-02721-15	240.000	0.99631	0.469	0.844	0.844	0.847	1.655	1.661	2.843	1.372	pCi
LSC-A-022	ARS1-B12-02721-16	240.000	0.99631	0.613	0.905	0.905	0.910	1.775	1.784	3.040	1.468	pCi
LSC-A-022	ARS1-B12-02721-17	240.000	0.99585	22.455	1.280	1.280	3.603	2.510	7.063	3.008	1.452	pCi
LSC-A-022	ARS1-B12-02721-18	240.000	0.99570	-0.287	0.882	0.882	0.883	1.729	1.731	3.027	1.461	pCi
LSC-A-022	ARS1-B12-02721-19	240.000	0.99539	5.878	0.879	0.879	1.245	1.723	2.440	2.593	1.252	pCi
LSC-A-022	ARS1-B12-02721-20	240.000	0.99539	2.120	0.766	0.766	0.830	1.502	1.626	2.460	1.188	pCi
LSC-A-022	ARS1-B12-02721-21	240.000	0.99631	-0.311	0.846	0.846	0.847	1.658	1.661	2.906	1.403	pCi

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Initial_Mass_sample_g	Mass_Na2O2_added_g	Final_mass_electrolyzed_sample_NaOH_g	Mass_equivalent_NaOH_g	Final_Mass_Electrolyzed_sample_g	VolumeFactor_X	Enrichment_Factor_Y
LSC-A-022	ARS1-B12-02721-01	500.240	2.070	16.740	2.124	14.616	0.029	26.782
LSC-A-022	ARS1-B12-02721-02	503.500	2.080	16.290	2.134	14.156	0.028	27.791
LSC-A-022	ARS1-B12-02721-03	504.020	2.060	16.940	2.114	14.826	0.029	26.608
LSC-A-022	ARS1-B12-02721-04	501.320	2.000	16.690	2.052	14.638	0.029	26.799
LSC-A-022	ARS1-B12-02721-05	505.740	2.010	15.590	2.062	13.528	0.027	29.154
LSC-A-022	ARS1-B12-02721-06	502.170	2.020	15.150	2.073	13.077	0.026	29.914
LSC-A-022	ARS1-B12-02721-07	501.110	2.060	17.020	2.114	14.906	0.030	26.324
LSC-A-022	ARS1-B12-02721-08	503.330	2.020	15.290	2.073	13.217	0.026	29.675
LSC-A-022	ARS1-B12-02721-09	503.390	2.050	15.290	2.103	13.187	0.026	29.745
LSC-A-022	ARS1-B12-02721-10	504.760	2.080	16.850	2.134	14.716	0.029	26.838
LSC-A-022	ARS1-B12-02721-11	506.168	2.000	17.418	2.052	15.366	0.030	25.815
LSC-A-022	ARS1-B12-02721-12	502.780	2.030	16.510	2.083	14.427	0.029	27.251
LSC-A-022	ARS1-B12-02721-13	500.550	2.090	16.890	2.144	14.746	0.029	26.571
LSC-A-022	ARS1-812-02721-14	503.310	2.000	14.320	2.052	12.268	0.024	31.878
LSC-A-022	ARS1-B12-02721-15	504.757	2.080	17.747	2.134	15.613	0.031	25.354
LSC-A-022	ARS1-B12-02721-16	501.163	2.070	16.900	2.124	14.776	0.029	26.550
LSC-A-022	ARS1-B12-02721-17	505.760	2.080	16.560	2.134	14.426	0.029	27.409
LSC-A-022	ARS1-B12-02721-18	501.020	2.000	16.800	2.052	14.748	0.029	26.591
LSC-A-022	ARS1-B12-02721-19	503.420	2.010	17.060	2.062	14.998	0.030	26.286
LSC-A-022	ARS1-B12-02721-20	502.930	2.050	16.100	2.103	13.997	0.028	28.064
LSC-A-022	ARS1-B12-02721-21	502.340	2.060	17.430	2.114	15.316	0.030	25.707

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Average_Sample_CPM	Bkg_CPM	tSIE	Detector_Eff_decimal	Aliquot	AliqUnits	Activity_reference_date	Start_Date_of_Count	Sample_Count_Duration_min
LSC-A-022	ARS1-B12-02721-01	4.839	1.107	378.070	0.246	0.01000	L	9/7/2012	12/4/2012	240.000
LSC-A-022	ARS1-B12-02721-02	4.791	1.107	377.910	0.246	0.01001	L	9/7/2012	12/4/2012	240.000
LSC-A-022	ARS1-B12-02721-03	1.094	1.107	407.720	0.259	0.01002	L	11/29/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-04	1.076	1.107	378.130	0.246	0.01001	L	11/1/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-05	1.277	1.107	395.320	0.253	0.01005	L	10/31/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-06	3.801	1.107	401.270	0.256	0.01001	L	10/31/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-07	1.319	1.107	410.590	0.261	0.01004	L	10/31/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-08	1.466	1.107	395.870	0.254	0.01005	L	11/6/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-09	1.351	1.107	351.170	0.236	0.01006	L	11/6/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-10	1.062	1.107	286.280	0.202	0.01000	L	11/5/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-11	1.818	1.107	354.310	0.237	0.01001	L	11/5/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-12	1.032	1.107	220.990	0.156	0.01004	L	11/7/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-13	1.275	1.107	402.670	0.257	0.01005	L	11/7/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-14	1.004	1.107	286.720	0.202	0.01001	L	11/13/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-15	1.161	1.107	290.870	0.205	0.01003	L	11/12/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-16	1.173	1.107	258.020	0.182	0.01005	L	11/12/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-17	3.550	1.107	251.930	0.178	0.01007	L	11/9/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-18	1.076	1.107	258.290	0.183	0.01008	L	11/9/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-19	1.849	1.107	308.770	0.217	0.01002	L	11/8/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-20	1.389	1.107	304.390	0.214	0.01003	L	11/8/2012	12/8/2012	240.000
LSC-A-022	ARS1-B12-02721-21	1.072	1.107	280.530	0.198	0.01002	L	11/14/2012	12/8/2012	240.000

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	AliquotReportUnits	UserID	ModDate
LSC-A-022	ARS1-B12-02721-01	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-02	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-03	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-04	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-05	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-06	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-07	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-08	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-09	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-10	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-11	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-12	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-13	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-14	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-15	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-16	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-17	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-18	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-19	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-20	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-21	L	AMRAD\RUSEY	12/10/2012

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\20121204_1437.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

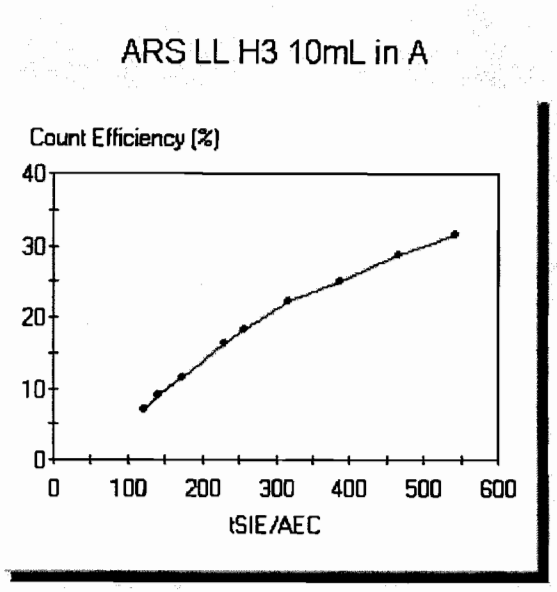
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
10	1	BACKGROUND	1.107	4.37	395.29	25.33	240.00	12/4/2012	2:45:58 PM	
10	2	B12-02721-01	4.839	19.68	378.07	24.59	240.00	12/4/2012	6:56:59 PM	
10	3	B12-02721-02	4.791	19.49	377.91	24.58	240.00	12/4/2012	11:07:59 PM	
10	4	B12-02721-03	1.094	4.22	407.72	25.92	240.00	12/5/2012	3:18:59 AM	
10	5	B12-02721-04	1.076	4.37	378.13	24.59	240.00	12/5/2012	7:29:54 AM	
10	6	B12-02721-05	1.277	5.04	395.32	25.33	240.00	12/5/2012	11:40:51 AM	
Missing vial 7.										
Missing vial 8.										
Missing vial 9.										
Missing vial 10.										
Missing vial 11.										
Missing vial 12.										
10	13	B12-02721-12	1.032	6.60	220.99	15.64	240.00	12/5/2012	3:52:07 PM	
10	14	B12-02721-13	1.275	4.96	402.67	25.68	240.00	12/5/2012	8:03:04 PM	
10	15	B12-02721-14	1.004	4.97	286.72	20.19	240.00	12/6/2012	12:14:02 AM	
10	16	B12-02721-15	1.161	5.67	290.87	20.47	240.00	12/6/2012	4:24:59 AM	
10	17	B12-02721-16	1.173	6.43	258.02	18.24	240.00	12/6/2012	8:35:55 AM	
10	18	B12-02721-17	3.550	19.91	251.93	17.83	240.00	12/6/2012	12:46:52 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\20121206_1649.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

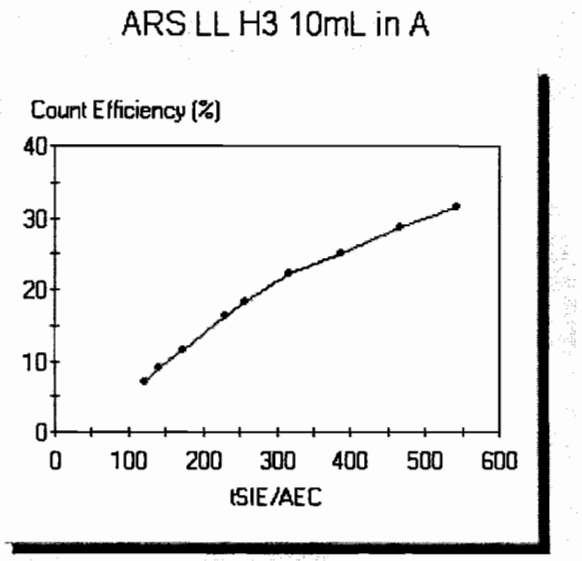
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	B12-02721-06	3.801	14.84	401.27	25.61	240.00	12/6/2012	4:58:25 PM	
2	2	B12-02721-07	1.319	5.06	410.59	26.06	240.00	12/6/2012	9:09:28 PM	
2	3	B12-02721-08	1.466	5.78	395.87	25.35	240.00	12/7/2012	1:20:23 AM	
2	4	B12-02721-09	1.351	5.73	351.17	23.55	240.00	12/7/2012	5:31:20 AM	
2	5	B12-02721-10	1.062	5.27	286.28	20.16	240.00	12/7/2012	9:42:17 AM	
2	6	B12-02721-11	1.818	7.68	354.31	23.67	240.00	12/7/2012	1:53:14 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\20121207_1755.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

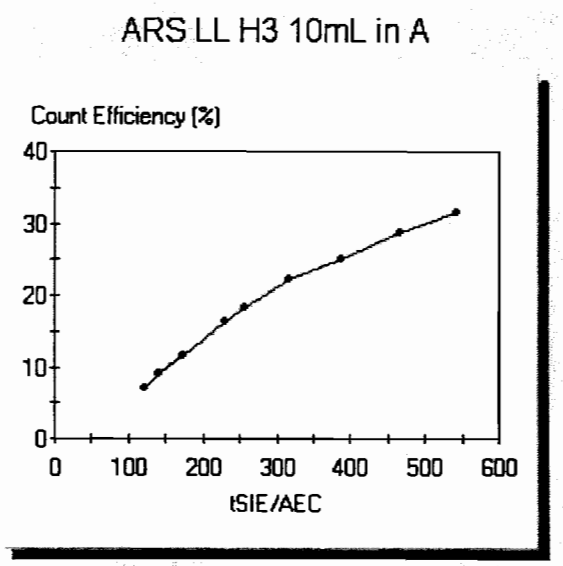
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nuc1 In A	Count Time	DATE	TIME	MESSAGES
10	1	B12-02721-18	1.076	5.89	258.29	18.25	240.00	12/7/2012	6:04:50 PM	
10	2	B12-02721-19	1.849	8.53	308.77	21.69	240.00	12/7/2012	10:15:50 PM	
10	3	B12-02721-20	1.389	6.50	304.39	21.39	240.00	12/8/2012	2:26:47 AM	
10	4	B12-02721-21	1.072	5.42	280.53	19.77	240.00	12/8/2012	6:37:44 AM	

ARS Batch Number: ARS1-B12 - 02721

Enter these Values for LCS			Report Name	Field Name on the Report
	Current ACT	5.6490	Standards Report	ACT at Date Above (dpm/g)
	NetWt	5.0530	LCS Report	NetWt
	Aliquot	0.5002	Tritium Enrichment Data	Gross Sample Added/1000

Enter these Values for LCSD			Report Name	Field Name on the Report
	Current ACT	5.6490	Standards Report	ACT at Date Above (dpm/g)
	NetWt	5.0520	LCS Report	NetWt
	Aliquot	0.5035	Tritium Enrichment Data	Gross Sample Added/1000

Expected Value Calculations

ARS Batch Number: ARS1-B11 - 02721

LCS	**CALCULATED EXPECTED VALUE**	=	25.703			
			Range	20.563	-	30.844
LCSD	**CALCULATED EXPECTED VALUE**	=	25.532			
			Range	20.425	-	30.638

Exit

AMRAD
AMERICAN RADIATION SERVICES, LLC

Standards Activity as of: 12/03/12 12:16

Active	Std ID	Isotope	PSCLT	Verification Date	Exp Date	Status	Ref Date	Ref ACT (dpm)	ACT at Date Above (dpm/g)	Halflife (days)	Parent ID	Expended Date	Comments
A	**S-0279**	H-3	**SL**	09/10/12	09/10/13	OK	09/07/12	5.7255E+00	**5.6493**	4.500E+03	**S-0237**		H3 LCS standard. Dilution performed as stated above by B Steffens. -B

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
11-21-12	0702	SNC-16	QA	QA	[illegible]
11-21-12	1136	Background	B12-02616	1417	[illegible]
↓	↓	B12-02616-01	↓	↓	[illegible]
↓	↓	B12-02616-02	↓	↓	[illegible]
↓	↓	B12-02616-03	↓	↓	[illegible]
↓	↓	B12-02616-04	↓	↓	[illegible]
↓	↓	B12-02616-05	↓	↓	[illegible]
↓	↓	B12-02616-06	↓	↓	[illegible]
↓	↓	B12-02616-07	↓	↓	[illegible]
↓	↓	B12-02616-08	↓	↓	[illegible]
↓	↓	B12-02616-09	↓	↓	[illegible]
↓	↓	B12-02616-10	↓	↓	[illegible]
11-21-12	1200	SNC-16	QA	QA	[illegible]
12-4-12	0732	SNC-16	QA	QA	[illegible]
12-4-12	1434	Background	B12-02721	1437	[illegible]
↓	↓	B12-02721-01	↓	↓	[illegible]
↓	↓	B12-02721-02	↓	↓	[illegible]
↓	↓	B12-02721-03	↓	↓	[illegible]
↓	↓	B12-02721-04	↓	↓	[illegible]
↓	↓	B12-02721-05	↓	↓	[illegible]

Reviewed By: [illegible] Date: 12-10-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-4-12	1434	B12-02721-06	B12-02721	1437	[illegible]
↓	↓	B12-02721-07	↓	↓	[illegible]
↓	↓	B12-02721-08	↓	↓	[illegible]
↓	↓	B12-02721-09	↓	↓	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
↓	↓	B12-02721-12	↓	↓	[illegible]
↓	↓	B12-02721-13	↓	↓	[illegible]
↓	↓	B12-02721-14	↓	↓	[illegible]
↓	↓	B12-02721-15	↓	↓	[illegible]
↓	↓	B12-02721-16	↓	↓	[illegible]
↓	↓	B12-02721-17	↓	↓	[illegible]
↓	↓	B12-02721-18	↓	↓	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]
12-4-12	1437	SNC-16	QA	QA	[illegible]
* 12-5-12	1604	B12-02721-06	B12-02721	1649	[illegible]
↓	↓	B12-02721-07	↓	↓	[illegible]
↓	↓	B12-02721-08	↓	↓	[illegible]

* Will count before SNC † 12-5-12

Reviewed By: [illegible] Date: 12-10-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-5-12	1604	B12-02721-09	B12-02721	1649	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
12-7-12	1026	B12-02721-18	B12-02721	1755	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]

12-10-12

Reviewed By: SDR Date: 12-10-12
Initials

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

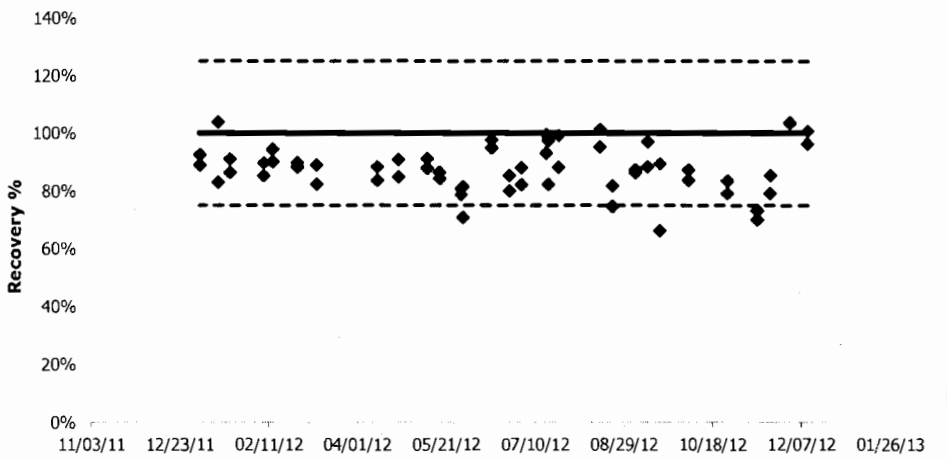
Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Control Charts

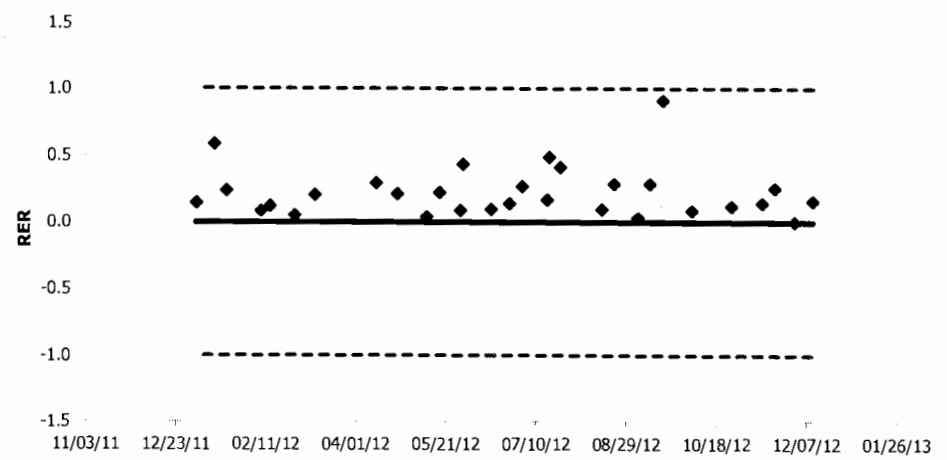
QC Chart

LLH-3 LCS



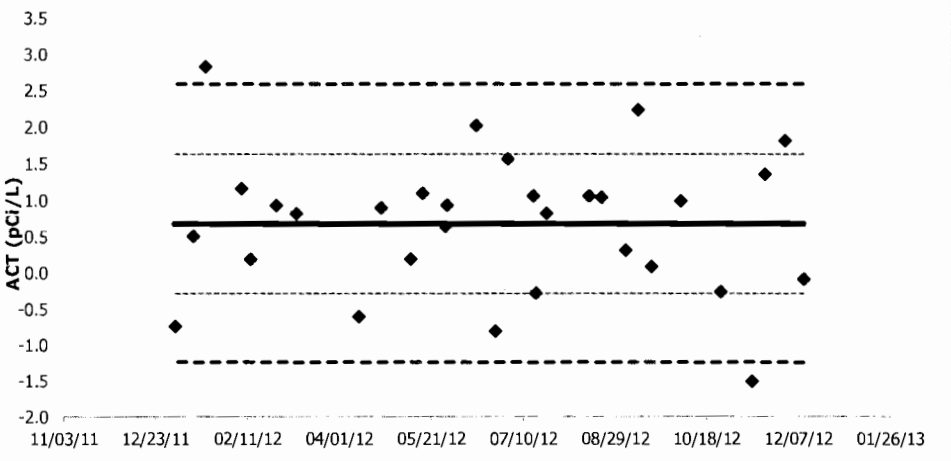
Average	STDEV	n	UCL	LCL
0.8778	0.0828	30	1.2500	0.7500

LLH-3 RER



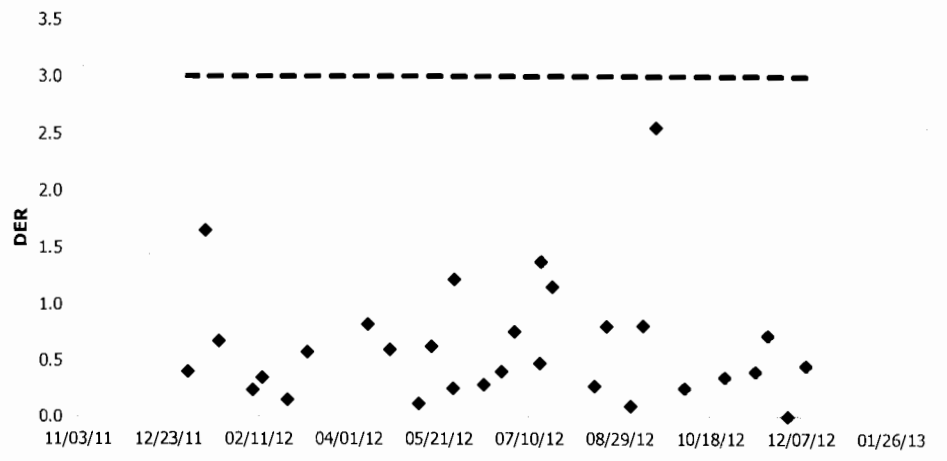
		n	UCL	LCL
		30	1.0000	-1.0000

LLH-3 Blank



Average	STDEV	n	UCL	LCL
0.6761	0.9576	30	2.5912	-1.2390

LLH-3 DER



		n	UCL	
		30	3.0000	

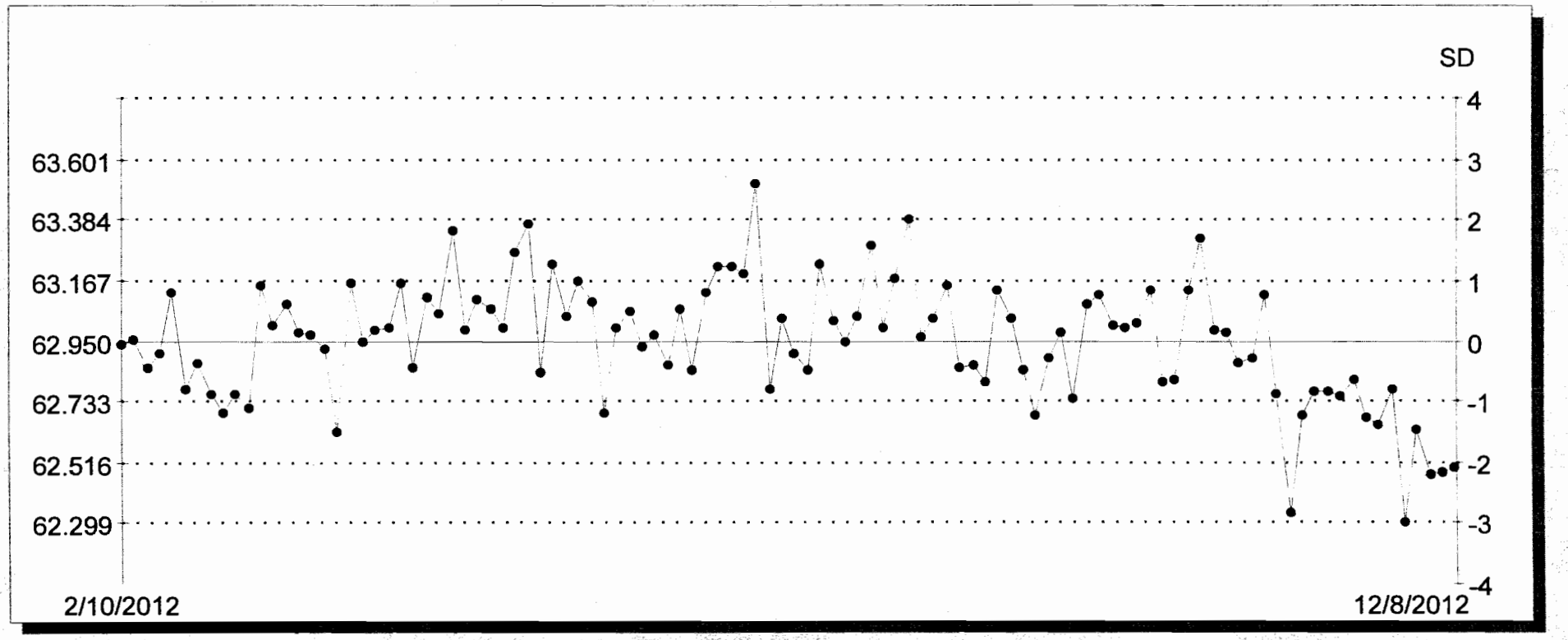
3H Efficiency
Total # pts : 5553
Valid # pts : 106
Mean : 62.95
SD : 0.22

Date	Value	Valid Pt
Feb 10, 2012	62.94	X
Feb 15, 2012	62.96	X
Feb 16, 2012	62.86	X
Feb 17, 2012	62.90	X
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X

Jun 30, 2012	62.97	X
Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X
Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 23, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X

Nov 13, 2012	62.76	X
Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X
Nov 18, 2012	62.68	X
Nov 19, 2012	62.65	X
Nov 19, 2012	62.78	X
Nov 20, 2012	62.30	X
Nov 21, 2012	62.63	X
Nov 23, 2012	62.47	X
Dec 04, 2012	62.48	X
Dec 08, 2012	62.49	X

3H Efficiency
Total # pts : 5553
Valid # pts : 106
Mean : 62.95
SD : 0.22



3H Background

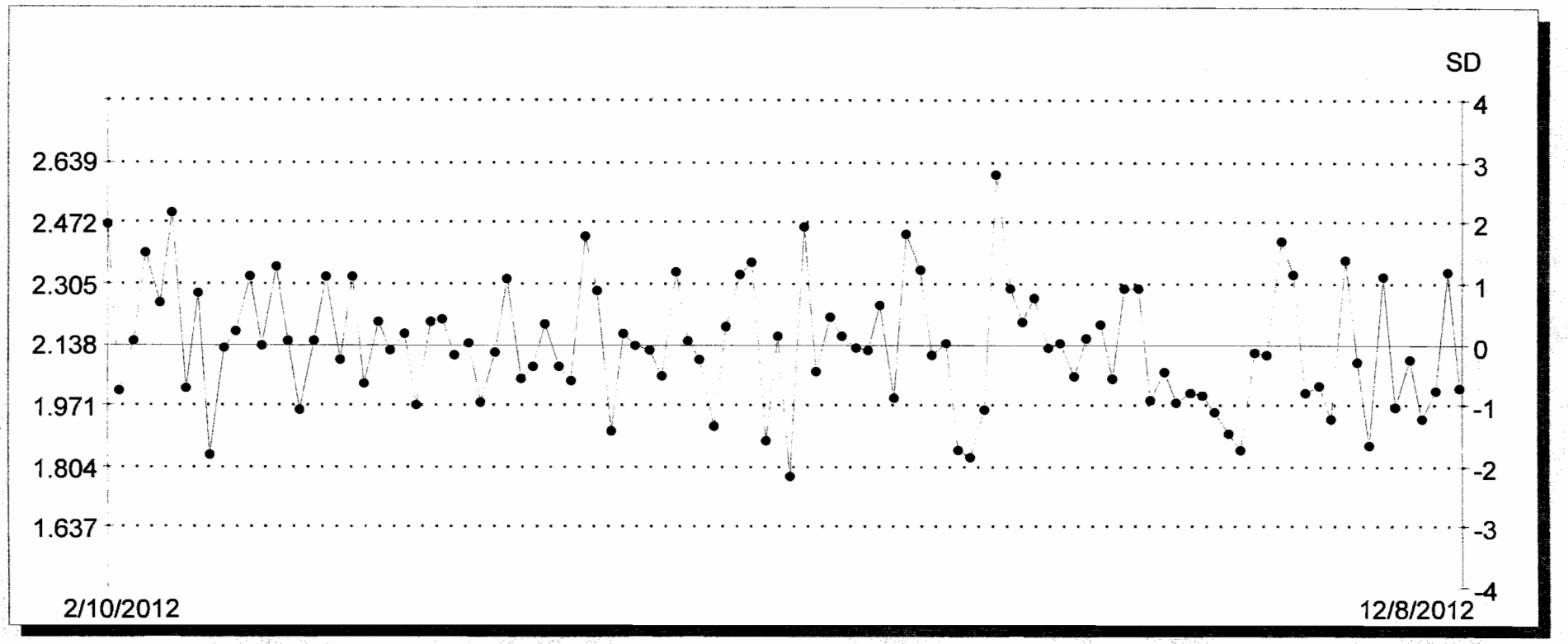
Total # pts : 5479
Valid # pts : 106
Mean : 2.14
SD : 0.17

Date	Value	Valid Pt
Feb 10, 2012	2.47	X
Feb 15, 2012	2.01	X
Feb 16, 2012	2.15	X
Feb 17, 2012	2.39	X
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X

Jun 30, 2012	2.12	X
Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X
Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 23, 2012	2.19	X
Jul 26, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 09, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X

Nov 13, 2012	1.93	X
Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X
Nov 18, 2012	1.86	X
Nov 19, 2012	2.32	X
Nov 19, 2012	1.96	X
Nov 20, 2012	2.09	X
Nov 21, 2012	1.93	X
Nov 23, 2012	2.01	X
Dec 04, 2012	2.34	X
Dec 08, 2012	2.02	X

3H Background
Total # pts : 5479
Valid # pts : 106
Mean : 2.14
SD : 0.17



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium- Screening by Low Level Liquid Scintillation Counting

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Samples

Procedures: **ARS-060** **ARS-040** *Section 14.1 Tritium Screen in Clean Water without Distillation*

ARS File ID Numbers: ARS1-12-02261; 2262; 2263; 2264
ARS Batch ID: ARS1-B12-02676

	Sample ID:	COUNT TIME	CPMA	Background CPMA	Eff Nucl In A	Aliquot (grams)	ACTIVITY	units	MDA	Sample Must be analyzed as LSC-A-001
1	B12-02676-04	120	1.295	1.161	26.74	10.00	22.573	pCi/L	98.37195	NO
2	B12-02676-05	120	1 175	1.161	26.28	10.00	2.400	pCi/L	100.0938	NO
3	B12-02676-06	120	1.362	1.237	27.42	10.00	20.535	pCi/L	98.90302	NO
4	B12-02676-07	120	1.543	1.161	26.41	10.00	65.154	pCi/L	99.60114	NO
5	B12-02676-08	120	1.396	1.161	26.38	10.00	40.127	pCi/L	99.71441	NO
6	B12-02676-09	120	1.678	1.237	27.9	10.00	71.200	pCi/L	97.20146	NO
7	B12-02676-10	120	1.596	1.237	27.66	10.00	58.464	pCi/L	98.04486	NO
8	B12-02676-11	120	1.250	1.237	27.44	10.00	2.134	pCi/L	98.83093	NO
9	B12-02676-12	120	1.420	1.237	27.33	10.00	30.162	pCi/L	99.22872	NO
10	B12-02676-13	120	1.206	1.237	27.82	10.00	-5.019	pCi/L	97.48098	NO
11							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
12							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
13							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
14							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
15							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
16							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
17							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
18							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
19							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
20							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
21							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
22							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
23							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

54 of 68

Analysis Batch ID **ARS1-B12-02676**

Method **ARS-054** **Analysis** **LSC-A-021** **Matrix** **AQ**

Description **Low Level Tritium Screening**

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02676-01	LCS									
ARS1-B12-02676-02	LCSD									
ARS1-B12-02676-03	MBL									
ARS1-B12-02676-04	TRG				**ARS1-12-02261**	001	1	CAMO-13-24279	STD	11/29/12
ARS1-B12-02676-05	TRG				**ARS1-12-02262**	001	1	CAMO-13-24241	STD	12/06/12
ARS1-B12-02676-06	TRG				**ARS1-12-02262**	002	1	CAMO-13-24242	STD	12/06/12
ARS1-B12-02676-07	TRG				**ARS1-12-02262**	003	1	CAMO-13-24225	STD	12/06/12
ARS1-B12-02676-08	TRG				**ARS1-12-02262**	004	1	CAMO-13-24247	STD	12/06/12
ARS1-B12-02676-09	TRG				**ARS1-12-02262**	005	1	CAMO-13-24248	STD	12/06/12
ARS1-B12-02676-10	TRG				**ARS1-12-02263**	001	1	CAMO-13-24276	STD	12/06/12
ARS1-B12-02676-11	TRG				**ARS1-12-02264**	001	1	CASA-13-24209	STD	12/06/12
ARS1-B12-02676-12	TRG				**ARS1-12-02264**	002	1	CASA-13-24213	STD	12/06/12
ARS1-B12-02676-13	TRG				**ARS1-12-02264**	003	1	CASA-13-24214	STD	12/06/12

126503
12-02261-001-1
WRAD

126506
12-02262-001-1
WRAD

126507
12-02262-002-1
WRAD

126508
12-02262-003-1
WRAD

126509
12-02262-004-1
WRAD

126510
12-02262-005-1
WRAD

126511
12-02263-001-1
WRAD

126512
12-02264-001-1
WRAD

126513
12-02264-002-1
WRAD

126514
12-02264-003-1
WRAD

ARS-054

ID_01001_054	ABatch	ABatchSampleID	ClientID	Aliquot1	AliquotUnits1	IC_ID1	Aliquot2	AliquotUnits2	IC_ID2	UserID	ModDate
11960	ARS1-B12-02676	ARS1-B12-02676-01		1	g					AMRAD\RUSEY	11/12/2012 14:02:14
11961	ARS1-B12-02676	ARS1-B12-02676-02		1	g					AMRAD\RUSEY	11/12/2012 14:02:14
11962	ARS1-B12-02676	ARS1-B12-02676-03		1	g					AMRAD\RUSEY	11/12/2012 14:02:14
11963	ARS1-B12-02676	ARS1-B12-02676-04	CAMO-13-24279	10	g	126503				AMRAD\RUSEY	11/12/2012 14:02:14
11964	ARS1-B12-02676	ARS1-B12-02676-05	CAMO-13-24241	10	g	126506				AMRAD\RUSEY	11/12/2012 14:02:14
11965	ARS1-B12-02676	ARS1-B12-02676-06	CAMO-13-24242	10	g	126507				AMRAD\RUSEY	11/12/2012 14:02:14
11966	ARS1-B12-02676	ARS1-B12-02676-07	CAMO-13-24225	10	g	126508				AMRAD\RUSEY	11/12/2012 14:02:14
11967	ARS1-B12-02676	ARS1-B12-02676-08	CAMO-13-24247	10	g	126509				AMRAD\RUSEY	11/12/2012 14:02:15
11968	ARS1-B12-02676	ARS1-B12-02676-09	CAMO-13-24248	10	g	126510				AMRAD\RUSEY	11/12/2012 14:02:15
11969	ARS1-B12-02676	ARS1-B12-02676-10	CAMO-13-24276	10	g	126511				AMRAD\RUSEY	11/12/2012 14:02:15
11970	ARS1-B12-02676	ARS1-B12-02676-11	CASA-13-24209	10	g	126512				AMRAD\RUSEY	11/12/2012 14:02:15
11971	ARS1-B12-02676	ARS1-B12-02676-12	CASA-13-24213	10	g	126513				AMRAD\RUSEY	11/12/2012 14:02:15
11972	ARS1-B12-02676	ARS1-B12-02676-13	CASA-13-24214	10	g	126514				AMRAD\RUSEY	11/12/2012 14:02:16

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121113_1339
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121113_1339\20121113_1339.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121113_1339\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121113_1339\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

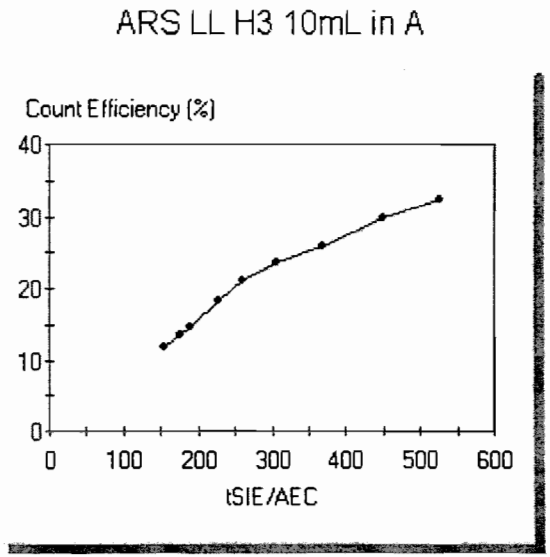
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C
57 of 88

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/18/2011
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
526.29	32.47
450.16	29.90
370.15	25.92
306.68	23.60
260.68	20.99
228.69	18.21
189.46	14.53
177.14	13.64
155.73	11.73

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	BACKGROUND	1.161	4.63	346.75	25.07	120.00	11/13/2012	1:48:10 PM	
2	2	B12-02676-04	1.295	4.84	386.58	26.74	120.00	11/13/2012	3:58:07 PM	
2	3	B12-02676-05	1.175	4.47	377.35	26.28	120.00	11/13/2012	6:08:00 PM	
2	4	B12-02676-06	2.297	8.70	379.47	26.39	120.00	11/13/2012	8:17:56 PM	
2	5	B12-02676-07	1.543	5.84	379.91	26.41	120.00	11/13/2012	10:27:52 PM	
2	6	B12-02676-08	1.396	5.29	379.25	26.38	120.00	11/14/2012	12:37:45 AM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121114_0812
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121114_0812\20121114_0812.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121114_0812\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121114_0812\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

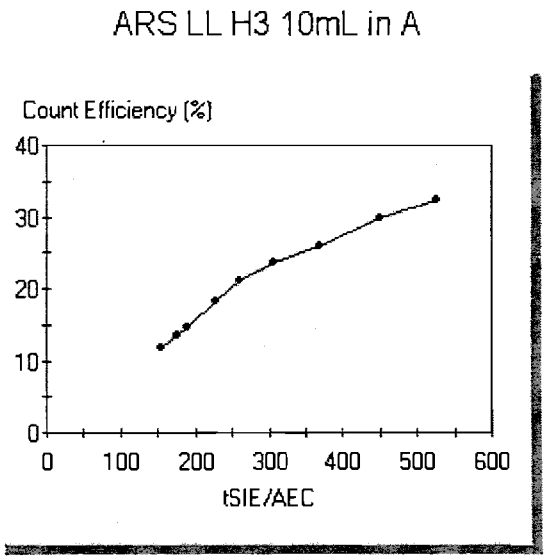
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C
60 of 88

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/18/2011
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
526.29	32.47
450.16	29.90
370.15	25.92
306.68	23.60
260.68	20.99
228.69	18.21
189.46	14.53
177.14	13.64
155.73	11.73

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	BACKGROUND	1.237	4.79	366.64	25.80	120.00	11/14/2012	8:21:32 AM	
2	2	B12-02676-06	1.362	4.97	400.26	27.42	120.00	11/14/2012	10:31:28 AM	
2	3	B12-02676-09	1.678	6.01	409.90	27.90	120.00	11/14/2012	12:41:23 PM	
2	4	B12-02676-10	1.596	5.77	405.21	27.66	120.00	11/14/2012	2:51:17 PM	
2	5	B12-02676-11	1.250	4.56	400.64	27.44	120.00	11/14/2012	5:01:10 PM	
2	6	B12-02676-12	1.420	5.19	398.45	27.33	120.00	11/14/2012	7:11:07 PM	
2	7	B12-02676-13	1.206	4.34	408.26	27.82	120.00	11/14/2012	9:21:01 PM	

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Control Charts

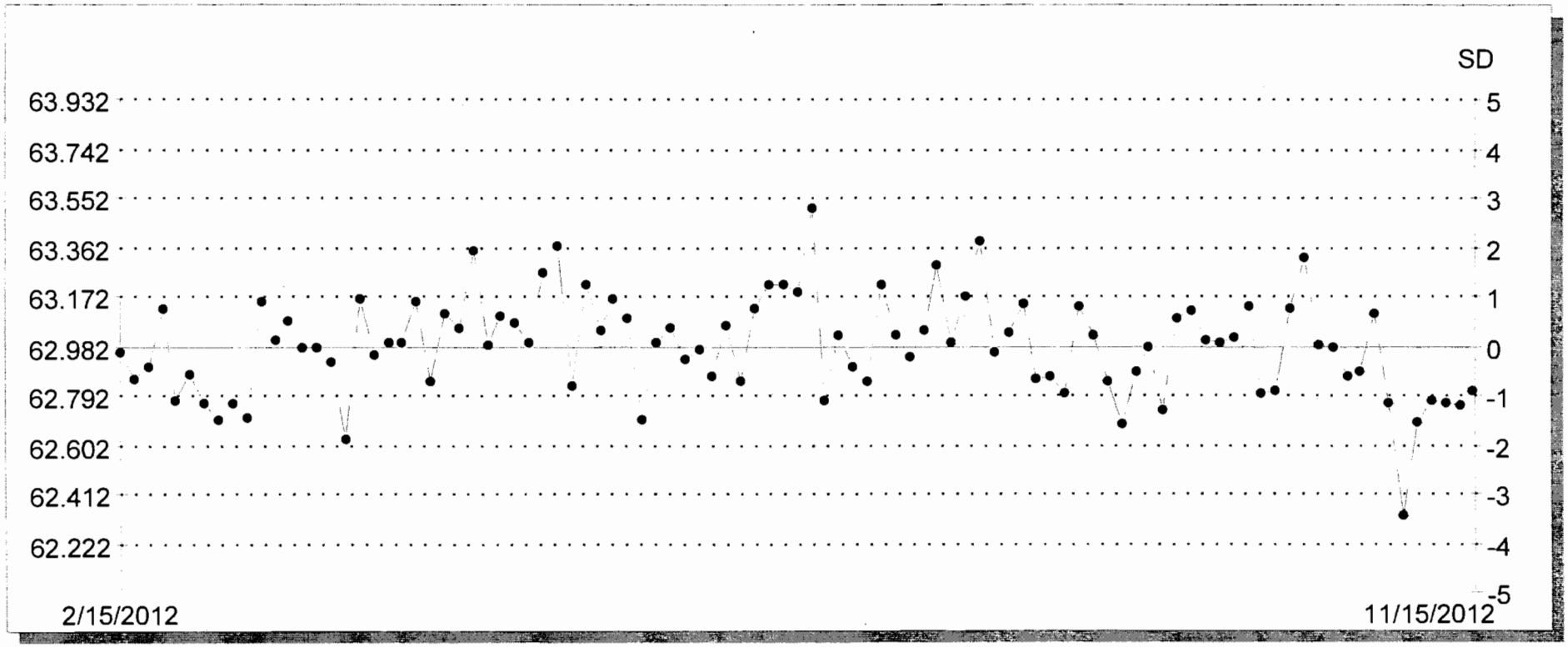
3H Efficiency
Total # pts : 5545
Valid # pts : 97
Mean : 62.98
SD : 0.19

Date	Value	Valid Pt
Feb 15, 2012	62.96	X
Feb 16, 2012	62.86	X
Feb 17, 2012	62.90	X
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X
Jun 30, 2012	62.97	X

Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X
Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 23, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 28, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X
Nov 12, 2012	62.77	X

Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X

3H Efficiency
Total # pts : 5545
Valid # pts : 97
Mean : 62.98
SD : 0.19



3H Background

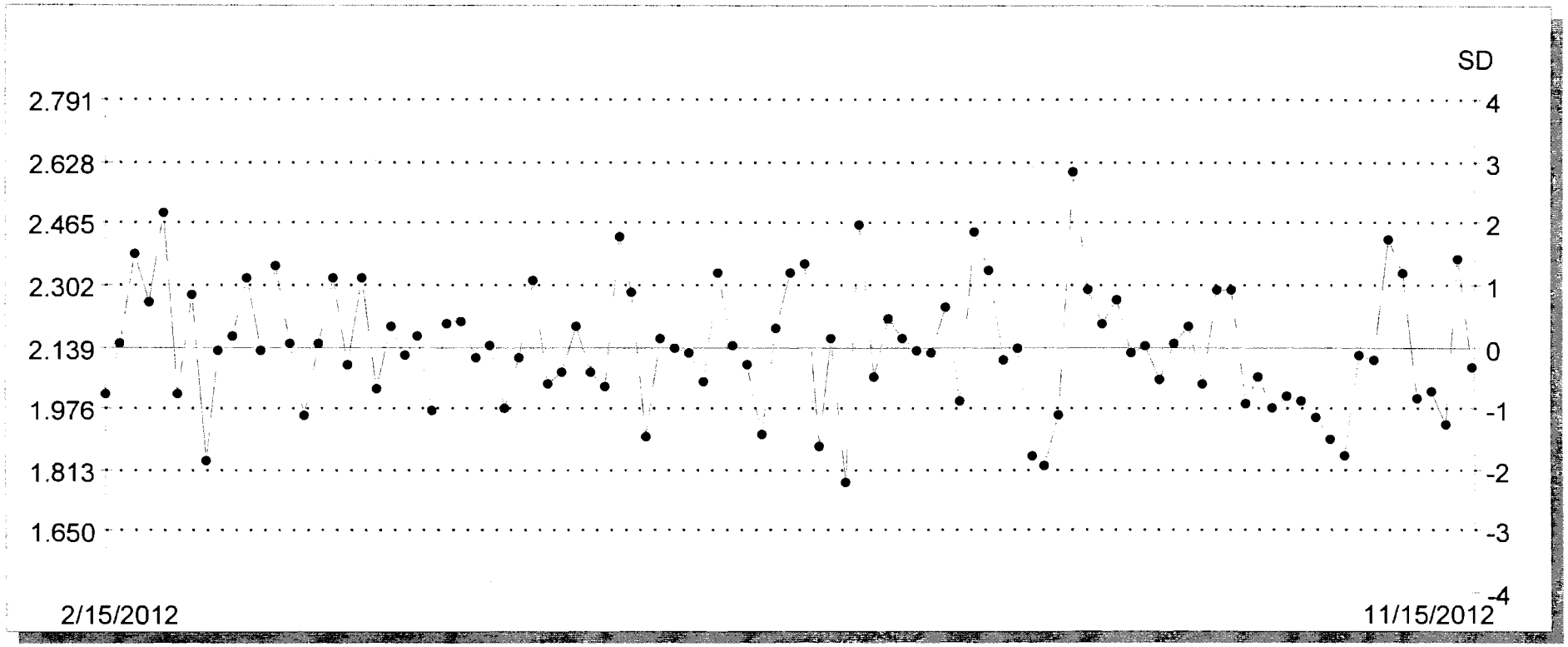
Total # pts : 5471
Valid # pts : 97
Mean : 2.14
SD : 0.16

Date	Value	Valid Pt
Feb 15, 2012	2.01	X
Feb 16, 2012	2.15	X
Feb 17, 2012	2.39	X
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X
Jun 30, 2012	2.12	X

Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X
Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 24, 2012	2.19	X
Jul 26, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 09, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X
Nov 12, 2012	2.02	X

Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X

3H Background
Total # pts : 5471
Valid # pts : 97
Mean : 2.14
SD : 0.16



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Liquid Scintillation Counting

Calibration Information

ARS INTERNATIONAL

QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS

ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE: 9/10/2012 20:16 *date counted*
STANDARD REFERENCE #: S-0279

Principal Radionuclide		Half Life, Years		Half Life, Days
H-3	*ENTER -->*		*OR -->*	4.4998E+03
		1.232E+01		4.4998E+03

Radionuclide: H-3 Dilution Reference Date: 9/7/2012 10:40

Dilution Activity	2.58	pCi per gram ===> dpm/g	5.73
Verif. Date Decay Corrected	2.58	pCi per gram ===> dpm/g	5.72

Minimum of 3 Required

Trial ID	Sample Counts	Count Time (min)	Detector	Efficiency	Bkg. (cpm)	Net Weight	Decay Corrected Activity Result (dpm/g)	Decay Corrected Activity Result (pCi/g)
S-0279-V1	15.91	1	LSC	0.3302	6.49	5.019	5.68	2.56
S-0279-V2	16.21	1	LSC	0.3291	6.49	5.018	5.89	2.65
S-0279-V3	15.76	1	LSC	0.3290	6.49	5.018	5.62	2.53
S-0279-V4	15.62	1	LSC	0.3293	6.49	5.008	5.54	2.49
S-0279-V5	15.76	1	LSC	0.3280	6.49	5.018	5.63	2.54

	Average	5.67	2.55
	Two Sigma Uncertainty	0.26	0.12
10% Max *PASS*	Standard Deviation percent of known concentration	2.30%	2.30%
	Target Activity	5.72	2.58
5% Max *PASS*	% Diff	-0.91%	-0.91%

Verification Expiration Date: ##############

Prepared & Counted By: [signature] Date: 9/10/2012 20:16

Verified & Approved By: [signature] Date: 9-11-12 0817

QC Approval: [signature] Date: 9-11-12 0817

S-0279		
H-3	Verified	*9/10/12*
SL	**Expires**	**9/10/13**
Manufactuer	**NIST SRM 4927F**	
Sol Matrix	H2O	
Ref No	NIST SRM 4927F	
Tech	Unknown	
Parent ID	S-0237	

ARS INTERNATIONAL

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

H-3 Standard Verification

Verifier's Name: Brian Steffens

Date: 9/7/2012

Pipettor ID: FJ40469
Pipettor ID: Auto-pipettor
Pipettor ID: na
Standard ID: S-0279
Standard ID: N/A

Standards brought up to ~5g with distilled dead water.
Standards made in glass vials.

15mL of Ultima Gold added to standard

	Weight of Standard
S-0279-V1	5.019 **g**
S-0279-V2	5.018 **g**
S-0279-V3	5.018 **g**
S-0279-V4	5.008 **g**
S-0279-V5	5.018 **g**

Balance ID: H1331122173560P

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931
Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\20120910_0931.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\H-3 Normal 3.lsa

Count Conditions-

Nuclide: H-3 Normal
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: UG STD H-3
Count Time (min): 120.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

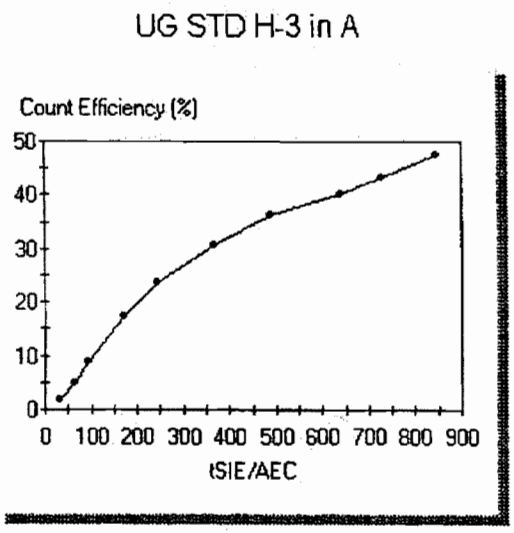
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life

Half Life Correction: Off
Regions Half Life Units Reference Date Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 06/27/2012
Date Modified:
UG STD H-3 in A

tSIE/AEC	Count Efficiency (%)
846.90	47.58
730.85	43.21
639.47	40.08
487.78	36.36
365.41	30.73
244.81	23.69
169.28	17.31
95.01	8.79
64.60	4.97
34.32	.64

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
54	1	BACKGROUND	6.49	19.81	409.74	32.77	120.00	9/10/2012	9:36:46 AM	
54	2	S-0279-V1	15.91	48.18	415.20	33.02	120.00	9/10/2012	11:44:40 AM	
54	3	S-0279-V2	16.21	49.25	412.72	32.91	120.00	9/10/2012	1:52:36 PM	
54	4	S-0279-V3	15.76	47.89	412.56	32.90	120.00	9/10/2012	4:00:32 PM	
54	5	S-0279-V4	15.62	47.44	413.22	32.93	120.00	9/10/2012	6:08:27 PM	
54	6	S-0279-V5	15.76	48.04	410.40	32.80	120.00	9/10/2012	8:16:20 PM	

STD ID: S-0279

ARS INTERNATIONAL

Add/Edit *Secondary Stds*

Planning

Planning Comments	Create a H3 LCS standard.
Target dpm/g (on dil. date)	5.5
Target Final volume mL	2000
Appx mass g of Parent Sol'n	3.606433954
Appx vol ml of Parent Sol'n	3.612937241
Expected Addition for Analysis g	5

Standards Preparation / Dilution

Secondary Solution #	S-0279
Dilution Date (New Ref Date)	09/07/2012 10:40
Ampoule, Empty (g)	
Ampoule /Solution Gross (g)	
Net Wt Removed (g)	
Transfer Container, empty (g)	13.144
Container Plus Solution (g)	16.89
Net Wt Transferred (g)	3.746
DPM Xferred on 09/07/2012 10:40	11425.69101
Diluent/matrix	DI H2O
Diluent Density Cont, empty (g)	
Test Mass of 5 ml of Diluent (g)	
Diluent Density Test - (g/mL)	
Dilution Empty Container Mass (g)	473.93
Dilution Full Cont g (if measured)	2469.52
Dilution Final Volume ml (if measured)	2000
Final Dilution Density (g/mL)	0.997795
Final Dilution Measured Mass g	1995.59

Comments	H3 LCS standard. Dilution performed as stated above by B Steffens. -BJS 9/7/12
Final Dilution dpm/g	5.725470166
Final Dil New Ref Date/Time	09/07/2012 10:40

Parent Standard Data

Parent Solution Reference #	NIST SRM 4927F			
Parent Solution #	S-0237			
Parent Principal Radionuclide	H-3	Half Life (Days)	4499.8000000	
Parent Reference Date	03/22/2010 10:10			
Parent Certified Act	3503.682716	Certi Act/Vol Units	dpm	g
Parent Cert Act Uncert 1 Sigma	0.0036			
Parent Sp. Gravity G/Ml	0.9982			
Parent Supplier	NIST SRM 4927F			
Parent Date Recvd	01/02/00			
Parent Received By	Unknown			
Parent Cert Exp Date				
Parent Matrix	H2O			
Certified dpm/g At Ref Date	3503.682716			
Certified dpm/g on 09/07/2012 10:40	3050.10438			
Parent Comments	Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Steffens. -BJS 3/22/10			
Parent Tech	Unknown			
Is_Primary	FALSE			
Is_LCS	TRUE			
Is_Tracer	FALSE			
Is_Calib	FALSE			

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Folder Duplicate

ARS INTERNATIONAL

Report Compilation Checklist

ARS SDG: 12-02262 **Client Name:** LANL **Sample Matrix:** AQ

LEVEL 1 COMPONENTS	1st Reviewer	
1) Cover Page Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
2) Technical Review Checklist(s) Complete and Accurate?	~~Yes~~ No N/A	
3) Case Narrative Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
4) Form 1s Present for all Samples and Tests?	~~Yes~~ No N/A	
5) Client Specific Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 2 COMPONENTS	1st Reviewer	
6) Batch Quality Control Report is Present and Accurate?	~~Yes~~ No N/A	
7) DQO Report is Present and Accurate?	~~Yes~~ No N/A	
8) Client Specific Batch QC Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 3 COMPONENTS	1st Reviewer	
9) Efficiencies are Present?	~~Yes~~ No N/A	
10) Calibrations are Present?	~~Yes~~ No N/A	
11) Backgrounds are Present?	~~Yes~~ No N/A	
12) Spectrum Analysis is Present?	~~Yes~~ No N/A	
13) Spectral Plots are Present?	~~Yes~~ No N/A	
14) Plateaus are Present?	~~Yes~~ No N/A	
15) Control Charts are Present?	~~Yes~~ No N/A	
16) Other:	Yes No ~~N/A~~	

LEVEL 4 COMPONENTS	1st Reviewer	
17) Preparation Raw Data Present, Signed and Complete?	~~Yes~~ No N/A	
18) Instrument Raw Data Present and Complete?	~~Yes~~ No N/A	
19) Calibration Certificates Present?	~~Yes~~ No N/A	
20) Copies of Log Book Pages Present?	~~Yes~~ No N/A	
21) Sample Receiving Documentation Present?	~~Yes~~ No N/A	
22) LIMS Reports Present?	~~Yes~~ No N/A	
23) Applicable Correspondence Present?	~~Yes~~ No N/A	
24) Other:	Yes No ~~N/A~~	

Report Generator Signature — Date: 12-10-12

Management Review Signature — Date: 12-10-12

LSC
Technical Review Checklist

ARS SDG ARS1-12-02262

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s):	**Batch A:** ARS1-B12-02676	**Batch B:** N/A	**Batch C:** N/A
Test Method(s):	LSC-A-021	N/A	N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) Sample Prep Anomaly? ☑ **No** ☐ **Yes** (See Tech Notes) **NCR #** (If initiated): _____

Chemist Signature	Date 11-13-12	Verifier Review Signature	Date 11-13-12

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature	Date 12-10-12

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) Analysis Anomaly? ☐ **No** ☐ **Yes** (See Comments) **NCR #** (If initiated): _____

Analyst Signature	Date 11-15-12	Technicial Reviewer Signature	Date

Batch A: ARS1-B12-02676

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes No ~~N/A~~	Yes No (N/A)
2) RDL Criteria are Met?	Yes No ~~N/A~~	Yes No (N/A)
3) Method Blank Criterion Met?	Yes No ~~N/A~~	Yes No (N/A)
4) LCS/LCD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
[signature]	12-10-12	[signature]	12-10-12

GENERAL COMMENTS

LSC
Technical Review Checklist

ARS SDG ARS1-12-02262

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-B12-02721 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-022 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) Sample Prep Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Chemist Signature 12-4-12 Date Verifier Review Signature 12-4-12 Date

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature 12-10-12 Date

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) NCR # (If initiated): _____

Analyst Signature 12-10-12 Date Technicial Reviewer Signature 12-10-12 Date

Batch A: ARS1-B12-02721

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes ~~No~~ N/A	Yes (No) N/A
2) RDL Criteria are Met?	~~Yes~~ No N/A	(Yes) No N/A
3) Method Blank Criterion Met?	~~Yes~~ No N/A	(Yes) No N/A
4) LCS/LCD Criteria Met?	~~Yes~~ No N/A	(Yes) No N/A
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	~~Yes~~ No N/A	(Yes) No N/A
6) MS/MSD Criteria Met?	~~Yes~~ No N/A	(Yes) No N/A

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
[signature]	12-10-12	[signature]	12-10-12

GENERAL COMMENTS

DQO Report for SDG
ARS1-12-02262

Analysis Code	Group	Isotope	Activity Units	Aliquot Units	ProcedureNo	RDL	LCS_LL	LCS_UL	MS_LL	MS_UL	RadY_LL	RadY_UL	GravY_LL	GravY_UL	RER	RPD	DiltionReq	RoughPrepReq	BlankCorrectionMDA	BlankCorrectionAll	CountTimeReq	AliquotRequired
LSC-A-021	STD	H-3	pCi	L	ARS-054	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		
LSC-A-022	STD	Enriched H-3	pCi	L	ARS-040	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		

SDG Report - Samples and Containers

58

SDG Specific Data

SDG	ARS1-12-02262	TAT Days	28	Project Type	Environmental
Sample Count	5 Rpt Level 4	Date Received	11/9/2012	COC Number	2013-291
Client	Los Alamos National Laboratory	Client Deadline	12/9/2012	PO Number	63641-001-10
Client Code	114	Internal Deadline	12/8/2012	Job Number	
Profile Number	PN-00094	Lab Deadline	12/6/2012	Job Location	
Comments					

Samples and Containers (→) Checked In Thus Far

FR	ClientID	Matrix	SampleStartDate	SampleEndDate	Disp	Hold	Arch	Storage	X	Units	Y	Units	Z	Units	Comments
001	CAMO-13-24241	AQ	10/31/12 01:53 PM	10/31/12 01:53 PM	H	90	5	O1							
→	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126362	1	1000.00				80	24		N	N/A				
002	CAMO-13-24242	AQ	10/31/12 12:20 PM	10/31/12 12:20 PM	H	90	5	O1							
→	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126363	1	1000.00				80	24		N	N/A				
003	CAMO-13-24225	AQ	10/31/12 01:30 PM	10/31/12 01:30 PM	H	90	5	O1							
→	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126364	1	1000.00				80	24		N	N/A				
004	CAMO-13-24247	AQ	11/06/12 12:40 PM	11/06/12 12:40 PM	H	90	5	O1							
→	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126365	1	1000.00				80	24		N	N/A				
005	CAMO-13-24248	AQ	11/06/12 11:07 AM	11/06/12 11:07 AM	H	90	5	O1							
→	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126366	1	1000.00				80	24		N	N/A				

SDG Report - Analysis Assignments

Temp SDG	ARS1-12-02262	Sample Count	5
Client	Los Alamos National Laboratory	Analysis Count	2-10

Samples Count Totals per Analysis

Analysis Code	Analysis Description	Samples Count
LSC-A-021	Low Level Tritium Screen in (Aqueous)	5
LSC-A-022	Low Level Tritium by Enrichment Process in (Aqueous [AQ])	5

Analyses Assigned Per Fraction

Fraction	Analysis Code	X = Assigned
001	LSC-A-021	X
001	LSC-A-022	X
002	LSC-A-021	X
002	LSC-A-022	X
003	LSC-A-021	X
003	LSC-A-022	X
004	LSC-A-021	X
004	LSC-A-022	X
005	LSC-A-021	X
005	LSC-A-022	X

ARS FILE TRACKING SHEET

SDG: ARS1-12-02262

Task	Date / Time	Initials
Date & Time Samples Received	11/9/12 10:30	cad
ICOC Initiated / Storage Location: O1	11/9/12 12:27	cad
Technical Checks Performed	See Batch	
Report Written / EDD Generated: _____/_____|_____ Date/Time Initials	12-10-12 | 1516	SDR
Quality Assurance Checks Performed on Report	12-10-12 1535	JKT
Management Check Performed on Report		
Preliminary Report Sent		
Report E-mailed		
Report Faxed		
Report Reviewed		
Report Mailed		
Invoice Completed Invoice #:_____		
Report Imaged		

SPECIAL REQUIREMENTS

Requirement	Yes	No
3 Hour Rush		✓
24 Hour Rush		✓
48 Hour Rush		✓
3 Day TAT		✓
5 Day TAT		✓

NOTES:

ARS-062
08/08/2012

COMPANY NAME: LANL **SDG:** ARS1-12-02262

SHIPPING CONTAINER

Good Condition	☑ Yes	☐ No
Radioactive	☐ Yes	☑ No
UN2910	☐ Yes	☑ No
Sec. Seals	☑ Yes	☐ No
Seals Intact	☑ Yes ☐ No	☐ N/A
Air Bill	☐ Yes	☑ No

COC PRESENT WITH SAMPLES

COC	☑ Yes	☐ No

SAMPLE CONTAINER(S)

Good Condition	☑ Yes	☐ No
Sec. Seals	☑ Yes	☐ No
Seal Intact	☑ Yes ☐ No	☐ N/A
Marked Radioactive	☐ Yes	☑ No

Samples Rcv 10

Matrix [AF , AQ , BI , FE , LT , SI , SO , UR , VG]

External and Internal Surveys

Exposure Rate Meter: M3 242861	Serial No.: PR 244264	Calibration Due Date:	4-18-13
Count Rate Meter: M2 154859	Serial No.: PR 184559	Calibration Due Date:	4-18-13
Background Exposure Rate (µR/hr) 24	Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd)	28	µR/hr
Background Count Rate (cpm) 80	Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd)	80	cpm
	Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd)	80	cpm

Sample Label/Comments/Notes	pH Orig	pH Final (pH ≤ 2 is Acceptable)	Mark if Preserve	Acid Lot #	Weight(g) / Volume(mL)	µR/hr (Acceptance Limits <500 µR/hr)	cpm (Acceptance Limits <100 cpm/cm²)
CAMO-13-24279			☐		1000mL	24	80
			☐				
CAMO-13-24241			☐		1000mL	24	80
-24242			☐			24	80
-24225			☐			24	80
-24247			☐			24	80
-24248			☐			24	80
			☐				
CAMO-13-24276			☐		1000mL	24	80
			☐				
CASA-13-24209			☐		1000mL	24	80
-24213			☐			24	80
-24214			☐			24	80
			☐				
			☐				
			☐				
			☐				
			☐				
			☐				

11/9/12

Surveyors' Name: [signature] Date/Time Surveyed: 11/9/12 1045

*these samples only in this SDG

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-286

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CASA-13-24213	Nov 7 2012	12:44	W			1			1	1	
CASA-13-24221	Nov 7 2012	14:44	W	1	1		1	1			
CASA-13-24214	Nov 7 2012	14:36	W			1			1	1	
CASA-13-24222	Nov 7 2012	14:36	W	1	1		1	1			

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 11/8/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24214

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/07/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1436	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-43 S2		FIELD PREP:	UF	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P2A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 50 feet of a running diesel generator.

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 3.07 mg/L Oxidation-Reduction Potential 60.9 MV pH 8.78 SU

Specific Conductance 183 uS/cm Temperature 20.16 deg C Turbidity 0.38 NTU

COLLECTED BY (PRINT) M Green

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/07/12 1540	(Printed Name) S. Sherwood (Signature) Sherri Sherwood	11/07/12 1540
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24213 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/07/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1244	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-43 S1		FIELD PREP:	UF	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P1A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 50 feet of a running diesel generator

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 6.88 mg/L Oxidation-Reduction Potential 83.3 MV pH 8.23 SU

Specific Conductance 176 uS/cm Temperature 20.18 deg C Turbidity 0.51 NTU

COLLECTED BY (PRINT) M Green

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) Doug Woody	11/07/12 1540	(Printed Name) S. Sherwood (Signature) Shari Sherwood	11/07/12 1540
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**
(Printed Name) (Signature)		(Printed Name) (Signature)	

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24222

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/07/~~12~~ 2012 ow 11/07/12	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1436	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-43 S2		FIELD PREP:	F	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P2A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
	WSP-GENINORG	1 LITER POLY	1	ICE		
	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

See CASA-13-24214

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) M Green

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Wooty (Signature) David Wooty	11/07/12 1540	(Printed Name) S Sherwood (Signature) Sheri Sherwood	11/07/12 1540
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24221 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/07/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1244	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-43 S1		FIELD PREP:	F	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P1A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
	WSP-GENINORG	1 LITER POLY	1	ICE		
	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

See CASA-13-24213

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) M green

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/07/12 1540	(Printed Name) S. Sherwood (Signature) Shari Sherwood	11/07/12 1540
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-286

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
314849	EPA:120.1	2				
314849	EPA:150.1	2				
314849	EPA:160.1	2				
314849	EPA:245.2	2				
314849	EPA:300.0	2				
314849	EPA:310.1	2				
314849	EPA:350.1	2				
314849	EPA:351.2	2				
314849	EPA:353.2	2				
314849	EPA:365.4	2				
314849	EPA:900	2				
314849	EPA:901.1	2				
314849	EPA:905.0	2				
314849	HASL-300:AM-241	2				
314849	HASL-300:ISOPU	2				
314849	HASL-300:ISOU	2				
314849	SM:A2340B	2				
314849	SW-846:6010B	2				
314849	SW-846:6020	2				
314849	SW-846:6850	2				
314849	SW-846:9060	2				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
314849	EPA:120.1	1265843	1265843	1							
314849	EPA:120.1	1266189	1266189	1							
314849	EPA:150.1	1262400	1262400	2							
314849	EPA:160.1	1262397	1262397	2					1		
314849	EPA:245.2	1266545	1266544	2					1	1	
314849	EPA:300.0	1262061	1262061	2					1		
314849	EPA:310.1	1264393	1264393	2					1	1	
314849	EPA:350.1	1261640	1261639	2					1	1	1
314849	EPA:351.2	1261638	1261637	2					1	1	1
314849	EPA:353.2	1262537	1262537	2					1		
314849	EPA:365.4	1261643	1261641	2					1	1	1
314849	EPA:900	1263054	1263054	2					1	1	1
314849	EPA:901.1	1262434	1262434	2					1		
314849	EPA:905.0	1263026	1263026	2					1	1	
314849	HASL-300:AM-241	1262092	1262092	2					1		
314849	HASL-300:ISOPU	1262093	1262093	2					1		
314849	HASL-300:ISOU	1262094	1262094	2					1		
314849	SM:A2340B	1267632	1267632	2							
314849	SW-846:6010B	1262051	1262047	2					1	1	
314849	SW-846:6020	1262054	1262053	2					1	1	
314849	SW-846:6850	1262376	1262373	2					1	1	1
314849	SW-846:9060	1261921	1261921	2					1		

Data Validation Report for: Chain Of Custody No. 2013-286

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				2			
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1							
		1				1			

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24264	1202785832	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24266	1202786721	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24270	1202786720	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24280	1202785831	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CASA-13-24221	314849002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CASA-13-24222	314849004	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202785833	LCS	0	0	1	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202786722	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24221	314849002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24222	314849004	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202777999	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	WST05-12-23562	1202777998	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24270	1202778389	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CASA-13-24221	314849002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CASA-13-24222	314849004	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202777984	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202777982	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24266	1202787646	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24266	1202787647	MS	0	0	1	0
EPA:245.2	INORGANIC	CASA-13-24221	314849002	REG	1	0	0	0
EPA:245.2	INORGANIC	CASA-13-24222	314849004	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202787645	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202787644	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CASA-13-24221	314849002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CASA-13-24222	314849004	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202777153	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202777150	MB	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	WST05-12-23562	1202777151	DUP	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CASA-13-24221	314849002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CASA-13-24222	314849004	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202782624	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202782623	MB	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	WST05-12-23563	1202782627	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	WST05-12-23563	1202782628	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776123	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776124	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776125	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24221	314849002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24222	314849004	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202776126	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202776122	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776118	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776119	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776120	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24213	314849001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24214	314849003	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202776121	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202776117	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CASA-13-24221	314849002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CASA-13-24222	314849004	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202778274	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202778267	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	WST05-12-23562	1202778269	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776128	DUP	1	0	0	0

EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776130	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776132	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24221	314849002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24222	314849004	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202776134	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202776127	MB	1	0	0	0
EPA:900	RAD	CASA-13-24213	314849001	REG	2	0	0	0
EPA:900	RAD	CASA-13-24214	1202779587	DUP	2	0	0	0
EPA:900	RAD	CASA-13-24214	1202779588	MS	0	0	2	0
EPA:900	RAD	CASA-13-24214	1202779589	MSD	0	0	2	0
EPA:900	RAD	CASA-13-24214	314849003	REG	2	0	0	0
EPA:900	RAD	LCS	1202779590	LCS	0	0	2	0
EPA:900	RAD	MB	1202779586	MB	2	0	0	0
EPA:901.1	RAD	CASA-13-24213	1202778039	DUP	6	0	0	0
EPA:901.1	RAD	CASA-13-24213	314849001	REG	5	0	0	0
EPA:901.1	RAD	CASA-13-24214	314849003	REG	5	0	0	0
EPA:901.1	RAD	LCS	1202778040	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202778038	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24253	1202779528	DUP	1	0	0	0
EPA:905.0	RAD	CAMO-13-24253	1202779529	MS	0	0	1	0
EPA:905.0	RAD	CASA-13-24213	314849001	REG	1	0	0	0
EPA:905.0	RAD	CASA-13-24214	314849003	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202779530	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202779527	MB	1	0	0	0
HASL-300:AM-241	RAD	CASA-13-24213	1202777246	DUP	1	0	0	0
HASL-300:AM-241	RAD	CASA-13-24213	314849001	REG	1	0	0	0
HASL-300:AM-241	RAD	CASA-13-24214	314849003	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202777247	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202777245	MB	1	0	0	0
HASL-300:ISOPU	RAD	CASA-13-24213	1202777249	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CASA-13-24213	314849001	REG	2	0	0	0
HASL-300:ISOPU	RAD	CASA-13-24214	314849003	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202777250	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202777248	MB	2	0	0	0
HASL-300:ISOU	RAD	CASA-13-24213	1202777252	DUP	3	0	0	0
HASL-300:ISOU	RAD	CASA-13-24213	314849001	REG	3	0	0	0
HASL-300:ISOU	RAD	CASA-13-24214	314849003	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202777253	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202777251	MB	3	0	0	0
SM:A2340B	INORGANIC	CASA-13-24221	314849002	REG	1	0	0	0
SM:A2340B	INORGANIC	CASA-13-24222	314849004	REG	1	0	0	0
SW-846:6010B	INORGANIC	CASA-13-24221	1202777118	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CASA-13-24221	1202777119	MS	0	0	17	0
SW-846:6010B	INORGANIC	CASA-13-24221	314849002	REG	17	0	0	0
SW-846:6010B	INORGANIC	CASA-13-24222	314849004	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202777117	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202777116	MB	17	0	0	0
SW-846:6020	INORGANIC	CASA-13-24221	1202777129	DUP	11	0	0	0
SW-846:6020	INORGANIC	CASA-13-24221	1202777130	MS	0	0	11	0
SW-846:6020	INORGANIC	CASA-13-24221	314849002	REG	11	0	0	0
SW-846:6020	INORGANIC	CASA-13-24222	314849004	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202777128	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202777127	MB	11	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24221	314849002	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24222	314849004	REG	1	0	0	0

SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24224	1202777946	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24224	1202777947	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202777945	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202777944	MB	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24325	1202777399	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CASA-13-24213	314849001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CASA-13-24214	314849003	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202777402	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202777397	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202777116	METHOD BLANK	SW-846:6010B	W	Potassium	130	J	ug/L	150

Any samples affected by the presence of contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CAMO-13-24256	1202776124	1202776125	EPA:350.1	Ammonia as Nitrogen	1261639	11/13/2012	W	114	95.1	110	90
CAMO-13-24239	1202776119	1202776120	EPA:351.2	Total Kjeldahl Nitrogen	1261637	11/14/2012	W	89.7	90.7	110	90
CASA-13-24214	1202779588	1202779589	EPA:900	Gross alpha	1263054	11/27/2012	W	86.3	103	125	75
CASA-13-24214	1202779588	1202779589	EPA:900	Gross alpha	1263054	11/27/2012	W	86.3	103	125	75

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

Rejection Limit	RPD	RPD Limit
10	17.2	15
10	0.939	20
10	17.6	11.5
10	17.6	11.5

Field Sample ID	Lab SampleID	Lab Duplicate Sample ID	Analytical Method	Parameter Name	Sample Matrix	Sample Result	Dup Sample Result	Units	Detected In Sample	Detected In Dup	RPD
CASA-13-24213	314849001	1202777252	HASL-300:ISOU	Uranium-234	W	0.0741	0.061	pCi/L	Y	Y	19.4

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-43 S1	2013-286	CASA-13-24213	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-43 S1	2013-286	CASA-13-24213	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-43 S1	2013-286	CASA-13-24213	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-43 S1	2013-286	CASA-13-24213	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-43 S1	2013-286	CASA-13-24213	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-43 S1	2013-286	CASA-13-24213	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-43 S1	2013-286	CASA-13-24213	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-43 S1	2013-286	CASA-13-24213	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-43 S1	2013-286	CASA-13-24213	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-43 S1	2013-286	CASA-13-24213	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-43 S1	2013-286	CASA-13-24213	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-43 S1	2013-286	CASA-13-24213	REG	INIT	RAD	HASL-300:ISOU	Uranium-234		J	R10	Y
R-43 S1	2013-286	CASA-13-24213	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-43 S1	2013-286	CASA-13-24213	REG	INIT	RAD	HASL-300:ISOU	Uranium-238	U	U	R5	N
R-43 S2	2013-286	CASA-13-24214	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-43 S2	2013-286	CASA-13-24214	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-43 S2	2013-286	CASA-13-24214	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-43 S2	2013-286	CASA-13-24214	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-43 S2	2013-286	CASA-13-24214	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-43 S2	2013-286	CASA-13-24214	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-43 S2	2013-286	CASA-13-24214	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-43 S2	2013-286	CASA-13-24214	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-43 S2	2013-286	CASA-13-24214	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-43 S2	2013-286	CASA-13-24214	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-43 S2	2013-286	CASA-13-24214	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-43 S2	2013-286	CASA-13-24214	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N

Reason Code	Description
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R10	Associated duplicate sample has DER or RER> the analytical laboratory's acceptance limits.
R5	Analyte is not detected because the amount reported is less than the MDC.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

RPD
Limit
0.0488

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
0.0062	pCi/L	0.0062	pCi/L	0.0254	0.00677	W	11/7/2012		1262092	VAL	Y
-0.677	pCi/L	-0.677	pCi/L	5.02	1.4	W	11/7/2012		1262434	VAL	Y
2.33	pCi/L	2.33	pCi/L	5.62	1.29	W	11/7/2012		1262434	VAL	Y
0.307	pCi/L	0.307	pCi/L	2.87	0.743	W	11/7/2012		1263054	VAL	Y
0.317	pCi/L	0.317	pCi/L	2.68	0.738	W	11/7/2012		1263054	VAL	Y
-5.83	pCi/L	-5.83	pCi/L	8.94	2.78	W	11/7/2012		1262434	VAL	Y
0	pCi/L	0	pCi/L	0.0276	0.0038	W	11/7/2012		1262093	VAL	Y
-0.00467	pCi/L	-0.00467	pCi/L	0.0456	0.00504	W	11/7/2012		1262093	VAL	Y
-8.92	pCi/L	-8.92	pCi/L	63.5	17.2	W	11/7/2012		1262434	VAL	Y
-1.44	pCi/L	-1.44	pCi/L	3.12	0.927	W	11/7/2012		1262434	VAL	Y
-0.0196	pCi/L	-0.0196	pCi/L	0.442	0.115	W	11/7/2012		1263026	VAL	Y
0.0741	pCi/L	0.0741	pCi/L	0.0669	0.0167	W	11/7/2012		1262094	VAL	Y
0	pCi/L	0	pCi/L	0.042	0.00476	W	11/7/2012		1262094	VAL	Y
0.034	pCi/L	0.034	pCi/L	0.0455	0.0114	W	11/7/2012		1262094	VAL	Y
-0.00757	pCi/L	-0.00757	pCi/L	0.0254	0.00719	W	11/7/2012		1262092	VAL	Y
-1.62	pCi/L	-1.62	pCi/L	4.71	1.35	W	11/7/2012		1262434	VAL	Y
-0.326	pCi/L	-0.326	pCi/L	5.52	1.53	W	11/7/2012		1262434	VAL	Y
2	pCi/L	2	pCi/L	2.96	0.977	W	11/7/2012		1263054	VAL	Y
2.13	pCi/L	2.13	pCi/L	2.36	0.785	W	11/7/2012		1263054	VAL	Y
0.692	pCi/L	0.692	pCi/L	9.14	2.52	W	11/7/2012		1262434	VAL	Y
-0.00337	pCi/L	-0.00337	pCi/L	0.0232	0.0053	W	11/7/2012		1262093	VAL	Y
0.00669	pCi/L	0.00669	pCi/L	0.0383	0.0073	W	11/7/2012		1262093	VAL	Y
-23.7	pCi/L	-23.7	pCi/L	47.1	15.8	W	11/7/2012		1262434	VAL	Y
1.54	pCi/L	1.54	pCi/L	4.8	1.11	W	11/7/2012		1262434	VAL	Y
-0.0515	pCi/L	-0.0515	pCi/L	0.463	0.123	W	11/7/2012		1263026	VAL	Y
0.015	pCi/L	0.015	pCi/L	0.0439	0.00917	W	11/7/2012		1262094	VAL	Y

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CASA-13-24213	R-43 S1	REG	EPA:351.2	0	1
CASA-13-24213	R-43 S1	REG	EPA:900	0	2
CASA-13-24213	R-43 S1	REG	EPA:901.1	0	5
CASA-13-24213	R-43 S1	REG	EPA:905.0	0	1
CASA-13-24213	R-43 S1	REG	HASL-300:AM-241	0	1
CASA-13-24213	R-43 S1	REG	HASL-300:ISOPU	0	2
CASA-13-24213	R-43 S1	REG	HASL-300:ISOU	0	3
CASA-13-24213	R-43 S1	REG	SW-846:9060	0	1
CASA-13-24214	R-43 S2	REG	EPA:351.2	0	1
CASA-13-24214	R-43 S2	REG	EPA:900	0	2
CASA-13-24214	R-43 S2	REG	EPA:901.1	0	5
CASA-13-24214	R-43 S2	REG	EPA:905.0	0	1
CASA-13-24214	R-43 S2	REG	HASL-300:AM-241	0	1
CASA-13-24214	R-43 S2	REG	HASL-300:ISOPU	0	2
CASA-13-24214	R-43 S2	REG	HASL-300:ISOU	0	3
CASA-13-24214	R-43 S2	REG	SW-846:9060	0	1
CASA-13-24221	R-43 S1	REG	EPA:120.1	0	1
CASA-13-24221	R-43 S1	REG	EPA:150.1	0	1
CASA-13-24221	R-43 S1	REG	EPA:160.1	0	1
CASA-13-24221	R-43 S1	REG	EPA:245.2	0	1
CASA-13-24221	R-43 S1	REG	EPA:300.0	0	4
CASA-13-24221	R-43 S1	REG	EPA:310.1	0	2
CASA-13-24221	R-43 S1	REG	EPA:350.1	0	1
CASA-13-24221	R-43 S1	REG	EPA:353.2	0	1
CASA-13-24221	R-43 S1	REG	EPA:365.4	0	1
CASA-13-24221	R-43 S1	REG	SM:A2340B	0	1
CASA-13-24221	R-43 S1	REG	SW-846:6010B	0	17
CASA-13-24221	R-43 S1	REG	SW-846:6020	0	11
CASA-13-24221	R-43 S1	REG	SW-846:6850	0	1
CASA-13-24222	R-43 S2	REG	EPA:120.1	0	1
CASA-13-24222	R-43 S2	REG	EPA:150.1	0	1
CASA-13-24222	R-43 S2	REG	EPA:160.1	0	1
CASA-13-24222	R-43 S2	REG	EPA:245.2	0	1
CASA-13-24222	R-43 S2	REG	EPA:300.0	0	4
CASA-13-24222	R-43 S2	REG	EPA:310.1	0	2
CASA-13-24222	R-43 S2	REG	EPA:350.1	0	1
CASA-13-24222	R-43 S2	REG	EPA:353.2	0	1
CASA-13-24222	R-43 S2	REG	EPA:365.4	0	1
CASA-13-24222	R-43 S2	REG	SM:A2340B	0	1
CASA-13-24222	R-43 S2	REG	SW-846:6010B	0	17
CASA-13-24222	R-43 S2	REG	SW-846:6020	0	11
CASA-13-24222	R-43 S2	REG	SW-846:6850	0	1

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

December 04, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 314849
SDG: 2013-286

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 09, 2012, and analyzed for General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-286
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 314849
SDG: 2013-286

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....9

Perchlorates by LCMSMS Analysis.....11

Case Narrative.....12

Sample Data Summary.....18

Quality Control Summary.....21

Quality Control Data.....24

Metals Analysis.....30

Case Narrative.....31

Sample Data Summary.....37

Quality Control Summary.....43

General Chem Analysis.....57

Case Narrative.....58

Sample Data Summary.....86

Quality Control Summary.....94

Miscellaneous.....99

Radiological Analysis.....104

Sample Data Summary.....116

Quality Control Data.....121

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 314849
SDG # : 2013-286

December 04, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 09, 2012 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. The containers for Gross A/B were preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). The containers for radiochemistry were received at temperature of 19C. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
314849001	CASA-13-24213
314849002	CASA-13-24221
314849003	CASA-13-24214
314849004	CASA-13-24222

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

for
Valerie Davis
Project Manager

List of current GEL Certifications as of 04 December 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

314849

COC/Lab Request #: 2013-286

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Special Instructions:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CASA-13-24213	Nov 7 2012	12:44	W			1			1	1
CASA-13-24221	Nov 7 2012	14:44	W	1	1		1	1		
CASA-13-24214	Nov 7 2012	14:36	W			1			1	1
CASA-13-24222	Nov 7 2012	14:36	W	1	1		1	1		

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 11/8/12 3:00	Received by: P. Kent	11-9-12 0920
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/AR/COC/Work Order: 2013-286**
Received By: Patricia Dent	**Date Received:November 9, 2012**

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0CPM**
Classified Radioactive II or III by RSO?		X	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		X	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **3,4,19**
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524646**
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			X	Sample ID's, containers affected and observed pH: **CASA-13-24213, 24214 for Gross A/B** If Preservation added, Lot# **L03022**
6	VOA vials free of headspace (defined as < 6mm bubble)? 11-16-12	PD &	X		Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	~~Date & time on COC match date & time on bottles?~~	X			~~Sample ID's affected:~~
11	Number of containers received match number indicated on COC?	X			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			X	**CLIENTS**
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.	X			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9832 5138 3C 5462 9832 5160 4C 5462 9832 5171 4C 4162 9832 5149 19C**

Comments (Use Continuation Form if needed):

PM (PMA) review Initials PD Date 11-12-12 Page 1 of 1

Subject: Issues from 11/09/12
From: Pat Dent <Pat.Dent@gel.com>
Date: 11/10/2012 8:25 AM
To: "Keith R. Greene" <kgreene@lanl.gov>
CC: "team.davis" <team.davis@gel.com>, LANL@amrad.com

Good morning all listed below are issues from 11/09/12

Containers for Gross A/B was preserved prior to analysis

RN#2013-285
Sample ID WST05-12-23564 the lab received 1 8260B container, COC indicates 2.

Thanks!
Pat Dent

--
Patricia Dent
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Rd.
Charleston, S.C. 29407
Main: 843-556-8171 Ext 4264
Fax: 843-766-1178
Email: pad@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 08NOV12
ACTWGT: 51.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A01EA6A00

3

58DC1/6713/18BC

FedEx Express

J111311806068125

1 of 3
TRK# 0201 5462 9832 5138
FRI - 09 NOV A1
PRIORITY OVERNIGHT
MASTER
XX CHSA
29407
SC-US CHS

Part # 156148-434 RITZ 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 08NOV12
ACTWGT: 47.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

4

FedEx Express

1 of 2
TRK# 0201 5462 9832 5160
FRI - 09 NOV A1
PRIORITY OVERNIGHT
MASTER
XX CHSA
29407
SC-US CHS

Part # 156148-434 RITZ 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 08NOV12
ACTWGT: 43.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

4

58DC1/6713/18BC

FedEx Express

J111311806068125

2 of 2
MPS# 0263 5462 9832 5171
Mstr# 5462 9832 5160
FRI - 09 NOV A1
PRIORITY OVERNIGHT
0201
XX CHSA
29407
SC-US CHS

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 08NOV12
ACTWGT: 49.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A01EA6A00

10

58DC1/6713/18BC

FedEx Express

J111311806068125

2 of 3
MPS# 0263 5462 9832 5149
Mstr# 5462 9832 5138
FRI - 09 NOV A1
PRIORITY OVERNIGHT
0201
XX CHSA
29407
SC-US CHS

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC/MSMS
ARS International (ARSL)
SDG 2013-286

Method/Analysis Information

Procedure:	**Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method:	SW846 6850 Modified
Prep Method:	SW846 6850 Modified
Analytical Batch Number:	1262376
Prep Batch Number:	1262373

Sample Analysis

Sample ID	Client ID
314849002	CASA-13-24221
314849004	CASA-13-24222
1202777953	Interference Check Sample (ICS)
1202777944	Method Blank (MB)
1202777945	Laboratory Control Sample (LCS)
1202777946	314639003(CASA-13-24224) Matrix Spike (MS)
1202777947	314639003(CASA-13-24224) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 9.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

ICV Requirements
All associated initial calibration verification standards (ICV) met the acceptance criteria.

CCB Requirements
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

CCV Requirements
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

Low Level Standard (CRI) Requirements
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Interference Check Sample (ICS)
The interference check sample (ICS) met all recovery acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Client sample 314639003 (CASA-13-24224) from SDG 2013-270 was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits.

Retention Time Standard Area Acceptance
The retention time standard areas were within the required acceptance criteria for all samples and QC.

Retention Time
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Sample 314849002 (CASA-13-24221) was diluted to bring the over range concentration within the calibration range.

Parmname	**314849002**
All	2X

Sample Re-extraction/Re-analysis
Sample 314849002 (CASA-13-24221) required several analyses to achieve reportable data. The sample initially required re-analysis due to possible carryover. When over range detections were observed, a second re-analysis was required. The last analysis was completed at a 1:2 dilution. Data are reported from here.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

A data exception report (DER) was not generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

Additional Comments
The concentration observed in each matrix spike was above the calibration range. This was due to the background concentration present in the parent sample, 314639003 (CASA-13-24224). Re-analysis at a dilution was not necessary since the parent sample did not require a dilution.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples.

Please see the isotope ratio criteria in the Miscellaneous Section.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-286 GEL Work Order: 314849

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 20 NOV 2012 **Title: Group Leader**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24221

Date Received: 09-NOV-12

GEL Job No (SDG): 2013-286

GEL Sample ID: 314849002

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.1	.4	0.905	ug/L		2	15-NOV-12 15:07	per1115024a
	Perchlorate Isotope Ratio			3.18			2	15-NOV-12 15:07	per1115024a
14797-73-0	Perchlorate-101	.1	.4	0.881	ug/L		2	15-NOV-12 15:07	per1115024a
	Perchlorate-O(18)			1.02	ug/L		2	15-NOV-12 15:07	per1115024a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24222

Date Received: 09-NOV-12

GEL Job No (SDG): 2013-286

GEL Sample ID: 314849004

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.472	ug/L		1	13-NOV-12 16:38	per1113027a
	Perchlorate Isotope Ratio			3.12			1	13-NOV-12 16:38	per1113027a
14797-73-0	Perchlorate-101	.05	.2	0.482	ug/L		1	13-NOV-12 16:38	per1113027a
	Perchlorate-O(18)			0.502	ug/L		1	13-NOV-12 16:38	per1113027a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2013-286

Extract Batch Code: 1262373

Date Filtered: 13-NOV-12

Matrix: WATER

Sample ID: 1202777945

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.202	ug/L	101		85 - 115
Perchlorate Isotope Ratio		2.92				-
Perchlorate-101	0.200	.22	ug/L	110		85 - 115
Perchlorate-O(18)		.486	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2013-286

Extract Batch Code: 1262373

Date Extracted: 13-NOV-12

GEL MS/PS ID: 1202777946

Client ID: CASA-13-24224

GEL MSD/PSD ID: 1202777947

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec #	MSD Conc	MSD Rec #	RPD #	RPD Limit	Recovery Limit
Perchlorate	0.200	0.942	ug/L	1.14	100	1.17	114	2.41	30	75 - 125
Perchlorate Isotope Ratio	0	3.08		3.19		3.09		3.03		-
Perchlorate-101	0.200	0.974	ug/L	1.14	84.3	1.21	116	5.44	30	75 - 125
Perchlorate-O(18)	0	0.515	ug/L	0.490		.502		2.49		-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 13-NOV-12

GEL Job No (SDG): 2013-286

GEL Sample ID: 1202777944

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	13-NOV-12 14:37	per1113012a
	Perchlorate Isotope Ratio						1	13-NOV-12 14:37	per1113012a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	13-NOV-12 14:37	per1113012a
	Perchlorate-O(18)			0.496	ug/L		1	13-NOV-12 14:37	per1113012a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 13-NOV-12

GEL Job No (SDG): 2013-286

GEL Sample ID: 1202777945

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.202	ug/L		1	13-NOV-12 14:45	per1113013a
	Perchlorate Isotope Ratio			2.92			1	13-NOV-12 14:45	per1113013a
14797-73-0	Perchlorate-101	.05	.2	0.220	ug/L		1	13-NOV-12 14:45	per1113013a
	Perchlorate-O(18)			0.486	ug/L		1	13-NOV-12 14:45	per1113013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2013-286

GEL Sample ID: 1202777953

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.198	ug/L	J	1	13-NOV-12 14:53	per1113014a
	Perchlorate Isotope Ratio			3.06			1	13-NOV-12 14:53	per1113014a
14797-73-0	Perchlorate-101	.05	.2	0.206	ug/L		1	13-NOV-12 14:53	per1113014a
	Perchlorate-O(18)			0.489	ug/L		1	13-NOV-12 14:53	per1113014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24224MS

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-286

GEL Sample ID: 1202777946

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	1.14	ug/L		1	13-NOV-12 15:25	per1113018a
	Perchlorate Isotope Ratio			3.19			1	13-NOV-12 15:25	per1113018a
14797-73-0	Perchlorate-101	.05	.2	1.14	ug/L		1	13-NOV-12 15:25	per1113018a
	Perchlorate-O(18)			0.490	ug/L		1	13-NOV-12 15:25	per1113018a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24224MSD

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-286

GEL Sample ID: 1202777947

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	1.17	ug/L		1	13-NOV-12 15:33	per1113019a
	Perchlorate Isotope Ratio			3.09			1	13-NOV-12 15:33	per1113019a
14797-73-0	Perchlorate-101	.05	.2	1.21	ug/L		1	13-NOV-12 15:33	per1113019a
	Perchlorate-O(18)			0.502	ug/L		1	13-NOV-12 15:33	per1113019a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-286

Sample Analysis

Sample ID	Client ID
314849002	CASA-13-24221
314849004	CASA-13-24222
1202777116	Method Blank (MB) **ICP**
1202777117	Laboratory Control Sample (LCS)
1202777120	314849002(CASA-13-24221L) Serial Dilution (SD)
1202777118	314849002(CASA-13-24221D) Sample Duplicate (DUP)
1202777119	314849002(CASA-13-24221S) Matrix Spike (MS)
1202777127	Method Blank (MB) **ICP-MS**
1202777128	Laboratory Control Sample (LCS)
1202777131	314849002(CASA-13-24221L) Serial Dilution (SD)
1202777129	314849002(CASA-13-24221D) Sample Duplicate (DUP)
1202777130	314849002(CASA-13-24221S) Matrix Spike (MS)
1202787644	Method Blank (MB) **CVAA**
1202787645	Laboratory Control Sample (LCS)
1202787648	315159002(CAMO-13-24266L) Serial Dilution (SD)
1202787646	315159002(CAMO-13-24266D) Sample Duplicate (DUP)
1202787647	315159002(CAMO-13-24266S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1262051, 1262054, 1266545 and 1267632
Prep Batch :	1262047, 1262053 and 1266544
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 7
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B

Prep Method : SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 314849002 (CASA-13-24221)-ICP and ICP-MS and 315159002 (CAMO-13-24266)-CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and

Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 12/05/12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-286 GEL Work Order: 314849

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 12/05/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-286 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314849002 **BASIS:** As Received **DATE COLLECTED** 07-NOV-12

CLIENT ID: CASA-13-24221 **LEVEL:** Low **DATE RECEIVED** 09-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/29/12 10:13	112912W1-6	1266545

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-286 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314849002 **BASIS:** As Received **DATE COLLECTED** 07-NOV-12

CLIENT ID: CASA-13-24221 **LEVEL:** Low **DATE RECEIVED** 09-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/17/12 16:40	111712-1	1262051
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/20/12 01:18	121119-3	1262054
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/20/12 15:09	121120-4	1262054
7440-39-3	Barium	23	ug/L		1	5	5	1	P	HSC	11/17/12 16:40	111712-1	1262051
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 16:40	111712-1	1262051
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	11/17/12 16:40	111712-1	1262051
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/20/12 15:09	121120-4	1262054
7440-70-2	Calcium	18100	ug/L		50	200	200	1	P	HSC	11/17/12 16:40	111712-1	1262051
7440-47-3	Chromium	49.6	ug/L		2	10	10	1	MS	BAJ	11/20/12 01:18	121119-3	1262054
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 16:40	111712-1	1262051
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/19/12 10:12	111912-2	1262051
7439-89-6	Iron	57.5	ug/L	J	30	100	100	1	P	HSC	11/17/12 16:40	111712-1	1262051
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/20/12 15:09	121120-4	1262054
7439-95-4	Magnesium	4070	ug/L		110	300	300	1	P	HSC	11/17/12 16:40	111712-1	1262051
7439-96-5	Manganese	2.53	ug/L	J	2	10	10	1	P	HSC	11/17/12 16:40	111712-1	1262051
7439-98-7	Molybdenum	1.31	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/20/12 01:18	121119-3	1262054
7440-02-0	Nickel	5.21	ug/L		0.5	2	2	1	MS	BAJ	11/20/12 01:18	121119-3	1262054
7440-09-7	Potassium	1570	ug/L		50	150	150	1	P	HSC	11/17/12 16:40	111712-1	1262051
7782-49-2	Selenium	2.07	ug/L	J	1.5	5	5	1	MS	BAJ	11/20/12 15:09	121120-4	1262054
7631-86-9	Silica	79600	ug/L		53	213	213	1	P	HSC	11/17/12 16:40	111712-1	1262051
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/20/12 01:18	121119-3	1262054
7440-23-5	Sodium	11400	ug/L		100	300	300	1	P	HSC	11/17/12 16:40	111712-1	1262051
7440-24-6	Strontium	69.9	ug/L		1	5	5	1	P	HSC	11/17/12 16:40	111712-1	1262051
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/20/12 01:18	121119-3	1262054
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/19/12 10:12	111912-2	1262051
7440-61-1	Uranium	0.123	ug/L	J	0.067	0.2	0.2	1	MS	BAJ	11/20/12 01:18	121119-3	1262054
7440-62-2	Vanadium	7.04	ug/L		1	5	5	1	P	HSC	11/17/12 16:40	111712-1	1262051
7440-66-6	Zinc	3.89	ug/L	J	3.3	10	10	1	P	HSC	11/17/12 16:40	111712-1	1262051

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-286 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314849002 **BASIS:** As Received **DATE COLLECTED** 07-NOV-12

CLIENT ID: CASA-13-24221 **LEVEL:** Low **DATE RECEIVED** 09-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	62.1	mg/L		0.453	1.24	1.24	1		JJ2	12/03/12 11:12		1267632

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1262051	1262047	SW846 3005A	50	mL	50	mL	11/16/12	AXG2
1262054	1262053	SW846 3005A	50	mL	50	mL	11/16/12	AXG2
1266545	1266544	EPA 245.1/245.2 Prep	20	mL	20	mL	11/28/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-286 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314849004 **BASIS:** As Received **DATE COLLECTED** 07-NOV-12

CLIENT ID: CASA-13-24222 **LEVEL:** Low **DATE RECEIVED** 09-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/29/12 10:15	112912W1-6	1266545

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-286 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314849004 **BASIS:** As Received **DATE COLLECTED** 07-NOV-12

CLIENT ID: CASA-13-24222 **LEVEL:** Low **DATE RECEIVED** 09-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/17/12 16:52	111712-1	1262051
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/20/12 01:44	121119-3	1262054
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/20/12 16:17	121120-5	1262054
7440-39-3	Barium	18.6	ug/L		1	5	5	1	P	HSC	11/17/12 16:52	111712-1	1262051
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 16:52	111712-1	1262051
7440-42-8	Boron	37.2	ug/L	J	15	50	50	1	P	HSC	11/17/12 16:52	111712-1	1262051
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/20/12 16:17	121120-5	1262054
7440-70-2	Calcium	17100	ug/L		50	200	200	1	P	HSC	11/17/12 16:52	111712-1	1262051
7440-47-3	Chromium	3.45	ug/L	J	2	10	10	1	MS	BAJ	11/20/12 01:44	121119-3	1262054
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 16:52	111712-1	1262051
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/19/12 10:44	111912-2	1262051
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/17/12 16:52	111712-1	1262051
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/20/12 16:17	121120-5	1262054
7439-95-4	Magnesium	4920	ug/L		110	300	300	1	P	HSC	11/17/12 16:52	111712-1	1262051
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/17/12 16:52	111712-1	1262051
7439-98-7	Molybdenum	1.54	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/20/12 01:44	121119-3	1262054
7440-02-0	Nickel	0.745	ug/L	J	0.5	2	2	1	MS	BAJ	11/20/12 01:44	121119-3	1262054
7440-09-7	Potassium	1660	ug/L		50	150	150	1	P	HSC	11/17/12 16:52	111712-1	1262051
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/20/12 16:17	121120-5	1262054
7631-86-9	Silica	72900	ug/L		53	213	213	1	P	HSC	11/17/12 16:52	111712-1	1262051
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/20/12 01:44	121119-3	1262054
7440-23-5	Sodium	17200	ug/L		100	300	300	1	P	HSC	11/17/12 16:52	111712-1	1262051
7440-24-6	Strontium	107	ug/L		1	5	5	1	P	HSC	11/17/12 16:52	111712-1	1262051
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/20/12 01:44	121119-3	1262054
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/19/12 10:44	111912-2	1262051
7440-61-1	Uranium	1.11	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/20/12 01:44	121119-3	1262054
7440-62-2	Vanadium	7.95	ug/L		1	5	5	1	P	HSC	11/17/12 16:52	111712-1	1262051
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	11/17/12 16:52	111712-1	1262051

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-286 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314849004 **BASIS:** As Received **DATE COLLECTED** 07-NOV-12

CLIENT ID: CASA-13-24222 **LEVEL:** Low **DATE RECEIVED** 09-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	63	mg/L		0.453	1.24	1.24	1		JJ2	12/03/12 11:12		1267632

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1262051	1262047	SW846 3005A	50	mL	50	mL	11/16/12	AXG2
1262054	1262053	SW846 3005A	50	mL	50	mL	11/16/12	AXG2
1266545	1266544	EPA 245.1/245.2 Prep	20	mL	20	mL	11/28/12	AXS5

***Analytical Methods:**

MS	**SW846 3005/6020 DOE-AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−286

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202777116								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Calcium	50	ug/L	+/−200	U	P	50	200
	Boron	15	ug/L	+/−50	U	P	15	50
	Iron	30	ug/L	+/−100	U	P	30	100
	Manganese	2	ug/L	+/−10	U	P	2	10
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Strontium	1	ug/L	+/−5	U	P	1	5
	Sodium	100	ug/L	+/−300	U	P	100	300
	Silica	53	ug/L	+/−213	U	P	53	213
	Potassium	130	ug/L	+/−150	J	P	50	150
	Magnesium	110	ug/L	+/−300	U	P	110	300
1202777127								
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202787644								
	Mercury	0.067	ug/L	+/−0.2	U	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−286 **Client ID** CASA−13−24221S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314849002 **Spike ID:** 1202777119

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5090		68	U	5000	101		P
Barium	ug/L	75−125	532		23		500	102		P
Beryllium	ug/L	75−125	521		1	U	500	104		P
Boron	ug/L	75−125	534		15	U	500	104		P
Calcium	ug/L	75−125	23200		18100		5000	101		P
Cobalt	ug/L	75−125	504		1	U	500	101		P
Copper	ug/L	75−125	529		3	U	500	105		P
Iron	ug/L	75−125	5220		57.5	J	5000	103		P
Magnesium	ug/L	75−125	9290		4070		5000	104		P
Manganese	ug/L	75−125	514		2.53	J	500	102		P
Potassium	ug/L	75−125	6650		1570		5000	102		P
Silica	ug/L		93000		79600		10700	125	N/A	P
Sodium	ug/L	75−125	16800		11400		5000	108		P
Strontium	ug/L	75−125	579		69.9		500	102		P
Tin	ug/L	75−125	501		2.5	U	500	100		P
Vanadium	ug/L	75−125	528		7.04		500	104		P
Zinc	ug/L	75−125	509		3.89	J	500	101		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−286 **Client ID** CASA−13−24221S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314849002 **Spike ID:** 1202777130

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Arsenic	ug/L	75−125	79.2		1.7	U	80	97.6		MS
Cadmium	ug/L	75−125	10.4		0.11	U	10	104		MS
Chromium	ug/L	75−125	99.6		49.6		50	99.9		MS
Lead	ug/L	75−125	41.2		0.5	U	40	103		MS
Molybdenum	ug/L	75−125	57		1.31		50	111		MS
Nickel	ug/L	75−125	57.7		5.21		50	105		MS
Selenium	ug/L	75−125	22.4		2.07	J	20	102		MS
Silver	ug/L	75−125	55.3		0.2	U	50	111		MS
Thallium	ug/L	75−125	102		0.45	U	100	102		MS
Uranium	ug/L	75−125	56.7		0.123	J	50	113		MS
Antimony	ug/L	75−125	211		1	U	200	105		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−286 **Client ID** CAMO−13−24266S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315159002 **Spike ID:** 1202787647

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.22		0.067	U	2	109		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−286 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CASA−13−24221D

Matrix: LIQUID **Level:** Low

Sample ID: 314849002 **Duplicate ID:** 1202777118 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−5	23		22.8		.721		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	16.5	J	200		P
Calcium	ug/L	+/−20%	18100		18900		3.98		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L		3	U	3	U			P
Iron	ug/L	+/−100	57.5	J	62.4	J	8.15		P
Magnesium	ug/L	+/−20%	4070		4250		4.35		P
Manganese	ug/L	+/−10	2.53	J	2.54	J	.62		P
Potassium	ug/L	+/−20%	1570		1670		6.15		P
Silica	ug/L	+/−20%	79600		81700		2.6		P
Sodium	ug/L	+/−20%	11400		11800		3.56		P
Strontium	ug/L	+/−20%	69.9		71.8		2.71		P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L	+/−5	7.04		7.32		3.82		P
Zinc	ug/L		3.89	J	3.3	U	200		P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−286 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CASA−13−24221D

Matrix: LIQUID **Level:** Low

Sample ID: 314849002 **Duplicate ID:** 1202777129 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	49.6		48.6		2.15		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.31		1.26		3.35		MS
Nickel	ug/L	+/−2	5.21		5.19		.5		MS
Selenium	ug/L	+/−5	2.07	J	2.23	J	7.43		MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.123	J	0.115	J	6.72		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−286 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24266D

Matrix: LIQUID **Level:** Low

Sample ID: 315159002 **Duplicate ID:** 1202787646 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−286

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202777117								
	Aluminum	ug/L	5000	5090		102	80−120	P
	Barium	ug/L	500	505		101	80−120	P
	Beryllium	ug/L	500	510		102	80−120	P
	Boron	ug/L	500	507		101	80−120	P
	Calcium	ug/L	5000	5110		102	80−120	P
	Cobalt	ug/L	500	504		101	80−120	P
	Copper	ug/L	500	508		102	80−120	P
	Iron	ug/L	5000	5080		102	80−120	P
	Magnesium	ug/L	5000	5190		104	80−120	P
	Manganese	ug/L	500	512		102	80−120	P
	Potassium	ug/L	5000	5210		104	80−120	P
	Silica	ug/L	10700	10800		101	80−120	P
	Sodium	ug/L	5000	5360		107	80−120	P
	Strontium	ug/L	500	504		101	80−120	P
	Tin	ug/L	500	499		99.7	80−120	P
	Vanadium	ug/L	500	514		103	80−120	P
	Zinc	ug/L	500	501		100	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−286

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202777128								
	Arsenic	ug/L	50	47.7		95.3	80−120	MS
	Cadmium	ug/L	50	47.4		94.7	80−120	MS
	Antimony	ug/L	50	50.2		100	80−120	MS
	Chromium	ug/L	50	48.9		97.9	80−120	MS
	Lead	ug/L	50	48.1		96.1	80−120	MS
	Molybdenum	ug/L	50	49.7		99.4	80−120	MS
	Nickel	ug/L	50	51.1		102	80−120	MS
	Selenium	ug/L	50	49.9		99.7	80−120	MS
	Silver	ug/L	50	51.6		103	80−120	MS
	Thallium	ug/L	50	48.6		97.2	80−120	MS
	Uranium	ug/L	50	50.9		102	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−286

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202787645								
	Mercury	ug/L	2	2.21		111	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−286 **Client ID** CASA−13−24221L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314849002 **Serial Dilution ID:** 1202777120

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	23		23.1	J	.595			P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	18100		17400		3.8		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	57.5	J	150	U	100			P
Magnesium	4070		4170		2.49			P
Manganese	2.53	J	10	U	100			P
Potassium	1570		1850		17.8			P
Silica	79600		79300		.394		10	P
Sodium	11400		11500		.394		10	P
Strontium	69.9		71.9		2.85		10	P
Tin	2.5	U	12.5	U				P
Vanadium	7.04		7.51	J	6.65			P
Zinc	3.89	J	16.5	U	100			P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−286 **Client ID** CASA−13−24221L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314849002 **Serial Dilution ID:** 1202777131

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	49.6		50.1		.844			MS
Lead	.5	U	2.5	U				MS
Molybdenum	1.31		1.58	J	20.7			MS
Nickel	5.21		5.14	J	1.36			MS
Selenium	2.07	J	7.5	U	100			MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.123	J	.335	U	100			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−286 **Client ID** CAMO−13−24266L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315159002 **Serial Dilution ID:** 1202787648

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-286

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1261921 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
314849001	CASA-13-24213
314849003	CASA-13-24214
1202777397	Method Blank (MB)
1202777399	314750001(CAMO-13-24325) Sample Duplicate (DUP)
1202777401	314750001(CAMO-13-24325) Post Spike (PS)
1202777402	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314750001 (CAMO-13-24325).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following sample was re-analyzed to verify the result: 314849003 (CASA-13-24214).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages

electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Specific Conductivity**

Analytical Batch: 1265843 and 1266189 **Method:** EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
314849002	CASA-13-24221
314849004	CASA-13-24222
1202785831	314637002(CAMO-13-24280) Sample Duplicate (DUP)
1202785832	314749002(CAMO-13-24264) Sample Duplicate (DUP)
1202785833	Laboratory Control Sample (LCS)
1202786720	314987004(CAMO-13-24270) Sample Duplicate (DUP)
1202786721	315159002(CAMO-13-24266) Sample Duplicate (DUP)
1202786722	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314637002 (CAMO-13-24280), 314749002 (CAMO-13-24264)- Batch 1265843, 314987004 (CAMO-13-24270) and 315159002 (CAMO-13-24266)- Batch 1266189.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1262400 **Method:** EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
314849002	CASA-13-24221
314849004	CASA-13-24222
1202777998	314848001(WST05-12-23562) Sample Duplicate (DUP)
1202777999	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314848001 (WST05-12-23562).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following samples from this sample group were received by the lab outside of the method specified holding time: 314849002 (CASA-13-24221) and 314849004 (CASA-13-24222).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1141335 314849002 (CASA-13-24221) and 314849004 (CASA-13-24222).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1262061	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
314849002	CASA-13-24221
314849004	CASA-13-24222
1202777150	Method Blank (MB)
1202777151	314848001(WST05-12-23562) Sample Duplicate (DUP)
1202777152	314848001(WST05-12-23562) Post Spike (PS)
1202777153	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314848001 (WST05-12-23562).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202777152 (WST05-12-23562).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1145134 1202777152 (WST05-12-23562).

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202777151 (WST05-12-23562), 1202777152 (WST05-12-23562), 314849002 (CASA-13-24221) and 314849004 (CASA-13-24222).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1261640	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1261639	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
314849002	CASA-13-24221
314849004	CASA-13-24222
1202776122	Method Blank (MB)
1202776123	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202776124	314591002(CAMO-13-24256) Matrix Spike (MS)
1202776125	314591002(CAMO-13-24256) Matrix Spike Duplicate (MSD)
1202776126	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference and/or sample matrix non-homogeneity: 1202776124 (CAMO-13-24256).

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The Relative Percent Difference (RPD) between the MS and MSD falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202776125 (CAMO-13-24256).

Duplicate Relative Percent Difference (RPD) Statement
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202776123 (CAMO-13-24256).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1139508 1202776124 (CAMO-13-24256) and 1202776125 (CAMO-13-24256).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1261638	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1261637	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
314849001	CASA-13-24213
314849003	CASA-13-24214
1202776117	Method Blank (MB)
1202776118	314591001(CAMO-13-24239) Sample Duplicate (DUP)
1202776119	314591001(CAMO-13-24239) Matrix Spike (MS)
1202776120	314591001(CAMO-13-24239) Matrix Spike Duplicate (MSD)
1202776121	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591001 (CAMO-13-24239).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits. Since both the spike duplicate recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported. 1202776119 (CAMO-13-24239).

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202776118 (CAMO-13-24239).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1139938 1202776119 (CAMO-13-24239).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1262537	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
314849002	CASA-13-24221
314849004	CASA-13-24222
1202778267	Method Blank (MB)
1202778269	314848001(WST05-12-23562) Sample Duplicate (DUP)
1202778272	314848001(WST05-12-23562) Post Spike (PS)
1202778274	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314848001 (WST05-12-23562).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202778269 (WST05-12-23562).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following sample in this sample group was diluted due to high concentration: 314849002 (CASA-13-24221).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1261643	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1261641	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
314849002	CASA-13-24221
314849004	CASA-13-24222
1202776127	Method Blank (MB)
1202776128	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202776130	314591002(CAMO-13-24256) Matrix Spike (MS)
1202776132	314591002(CAMO-13-24256) Matrix Spike Duplicate (MSD)
1202776134	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following samples were re-analyzed due to CCV failure: 1202776132 (CAMO-13-24256) and 314849002 (CASA-13-24221).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Solids, Total Dissolved**		
Analytical Batch:	1262397	**Method:**	EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
314849002	CASA-13-24221
314849004	CASA-13-24222
1202777982	Method Blank (MB)
1202777984	Laboratory Control Sample (LCS)
1202778389	314987004(CAMO-13-24270) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314987004 (CAMO-13-24270).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Alkalinity**

Analytical Batch: 1264393 **Method:** EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
314849002	CASA-13-24221
314849004	CASA-13-24222
1202782624	Laboratory Control Sample (LCS)
1202782627	314848002(WST05-12-23563) Sample Duplicate (DUP)
1202782628	314848002(WST05-12-23563) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314848002 (WST05-12-23563).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____05Dec12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-286 GEL Work Order: 314849

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 5, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-286

Client Sample ID:	CASA-13-24213	Project:	ESHL00210
Sample ID:	314849001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	07-NOV-12 12:44		
Receive Date:	09-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.506	0.330	1.00	mg/L	1	TSM	11/10/12	1937	1261921	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.035	0.100	mg/L	1	KLP1	11/14/12	1059	1261638	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/13/12	1700	1261637

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 5, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-286

Client Sample ID:	CASA-13-24221	Project:	ESHL00210
Sample ID:	314849002	Client ID:	ARSL001
Matrix:	W		
Collect Date:	07-NOV-12 14:44		
Receive Date:	09-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		180	1.00	1.00	umhos/cm	1	TXT1	11/26/12	1157	1265843	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 11.7C	H	8.26	0.010	0.100	SU	1	LYG1	11/12/12	0917	1262400	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	J	0.0975	0.067	0.200	mg/L	1	MAR1	11/29/12	0323	1262061	3
Chloride		6.26	0.067	0.200	mg/L	1					
Fluoride		0.406	0.033	0.100	mg/L	1					
Sulfate		12.3	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	J	0.0329	0.017	0.050	mg/L	1	KLP1	11/13/12	1318	1261640	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		5.35	0.085	0.250	mg/L	5	KLP1	11/13/12	1209	1262537	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.052	0.017	0.050	mg/L	1	KLP1	11/14/12	1329	1261643	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		161	3.40	14.3	mg/L		LYG1	11/12/12	0808	1262397	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		41.8	0.725	1.00	mg/L		LXA1	11/19/12	1632	1264393	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/12/12	1500	1261639
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/13/12	1700	1261641

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 5, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-286
Project:	LANL-WQH Water Samples		

Client Sample ID:	CASA-13-24221	Project:	ESHL00210
Sample ID:	314849002	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 5, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-286

Client Sample ID:	CASA-13-24214	Project:	ESHL00210
Sample ID:	314849003	Client ID:	ARSL001
Matrix:	W		
Collect Date:	07-NOV-12 14:36		
Receive Date:	09-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	U	ND	0.330	1.00	mg/L	1	TSM	11/12/12	1347	1261921	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.035	0.100	mg/L	1	KLP1	11/14/12	1100	1261638	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/13/12	1700	1261637

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 5, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-286

Client Sample ID:	CASA-13-24222	Project:	ESHL00210
Sample ID:	314849004	Client ID:	ARSL001
Matrix:	W		
Collect Date:	07-NOV-12 14:36		
Receive Date:	09-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		190	1.00	1.00	umhos/cm	1	LXA1	11/27/12	1523	1266189	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 11.9C	H	8.83	0.010	0.100	SU	1	LYG1	11/12/12	0920	1262400	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	J	0.074	0.067	0.200	mg/L	1	MAR1	11/29/12	0354	1262061	3
Chloride		3.87	0.067	0.200	mg/L	1					
Fluoride		0.347	0.033	0.100	mg/L	1					
Sulfate		4.59	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	J	0.0298	0.017	0.050	mg/L	1	KLP1	11/13/12	1322	1261640	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		1.08	0.017	0.050	mg/L	1	KLP1	11/13/12	1210	1262537	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	J	0.0243	0.017	0.050	mg/L	1	KLP1	11/14/12	1334	1261643	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		139	3.40	14.3	mg/L		LYG1	11/12/12	0808	1262397	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		82.6	0.725	1.00	mg/L		LXA1	11/19/12	1635	1264393	8
Carbonate alkalinity (CaCO3)		6.44	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/12/12	1500	1261639
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/13/12	1700	1261641

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 5, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-286
Project:	LANL-WQH Water Samples		

Client Sample ID:	CASA-13-24222	Project:	ESHL00210
Sample ID:	314849004	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: December 5, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **314849**

Parmname	NOM		Sample	Qual	QC	Units	RPD%		REC%	Range	Anlst	Date Time
Carbon Analysis												
Batch 1261921												
QC1202777399 314750001 DUP												
Total Organic Carbon Average			5.42		5.38	mg/L	0.611			(0%-20%)	TSM	11/10/12 18:35
QC1202777402 LCS												
Total Organic Carbon Average	10.0				9.74	mg/L			97.4	(85%-115%)		11/10/12 16:46
QC1202777397 MB												
Total Organic Carbon Average				U	ND	mg/L						11/10/12 16:37
QC1202777401 314750001 PS												
Total Organic Carbon Average	10.0		5.42		15.6	mg/L			101	(65%-120%)		11/10/12 18:55
Conductivity Analysis												
Batch 1265843												
QC1202785831 314637002 DUP												
Conductivity			130		129	umhos/cm	1.01			(0%-10%)	TXT1	11/26/12 11:45
QC1202785832 314749002 DUP												
Conductivity			175		177	umhos/cm	0.795			(0%-10%)		11/26/12 11:54
QC1202785833 LCS												
Conductivity	1410				1420	umhos/cm			100	(95%-105%)		11/26/12 11:39
Batch 1266189												
QC1202786720 314987004 DUP												
Conductivity			188		189	umhos/cm	0.212			(0%-10%)	LXA1	11/27/12 15:25
QC1202786721 315159002 DUP												
Conductivity			187		187	umhos/cm	0.00			(0%-10%)		11/27/12 15:33
QC1202786722 LCS												
Conductivity	1410				1430	umhos/cm			101	(95%-105%)		11/27/12 15:23
Electrode Analysis												
Batch 1262400												
QC1202777998 314848001 DUP												
pH		H	8.06	H	8.07	SU	0.124			(0%-10%)	LYG1	11/12/12 09:14
QC1202777999 LCS												
pH	7.00				7.04	SU			101	(99%-101%)		11/12/12 09:10
Ion Chromatography												
Batch 1262061												
QC1202777151 314848001 DUP												
Bromide		J	0.0855	J	0.0858	mg/L	0.350	^		(+/-0.200)	MAR1	11/29/12 01:49
Chloride			8.72		8.72	mg/L	0.031			(0%-20%)		
Fluoride			0.334		0.332	mg/L	0.481	^		(+/-0.100)		
Sulfate			13.2		13.2	mg/L	0.245			(0%-20%)		
QC1202777153 LCS												
Bromide	2.50				2.69	mg/L			107	(90%-110%)		11/29/12 00:46
Chloride	10.0				9.63	mg/L			96.3	(90%-110%)		
Fluoride	5.00				5.04	mg/L			101	(90%-110%)		
Sulfate	20.0				19.7	mg/L			98.6	(90%-110%)		

QC Summary

Workorder: 314849

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1262061											
QC1202777150 MB											
Bromide				U	ND	mg/L				MAR1	11/29/12 00:15
Chloride				U	ND	mg/L					
Fluoride				U	ND	mg/L					
Sulfate				U	ND	mg/L					
QC1202777152 314848001 PS											
Bromide	2.50	J	0.0855		2.65	mg/L		103	(90%-110%)		11/29/12 02:20
Chloride	10.0		8.72		20.0	mg/L		113*	(90%-110%)		
Fluoride	5.00		0.334		5.41	mg/L		101	(90%-110%)		
Sulfate	20.0		13.2		34.9	mg/L		109	(90%-110%)		
Nutrient Analysis											
Batch 1261638											
QC1202776118 314591001 DUP											
Nitrogen, Total Kjeldahl			0.163	J	0.0865	mg/L	61.3 ^		(+/-0.100)	KLP1	11/14/12 10:44
QC1202776121 LCS											
Nitrogen, Total Kjeldahl	1.00				1.00	mg/L		100	(90%-110%)		11/14/12 10:42
QC1202776117 MB											
Nitrogen, Total Kjeldahl				U	ND	mg/L					11/14/12 10:42
QC1202776119 314591001 MS											
Nitrogen, Total Kjeldahl	1.00		0.163		1.06	mg/L		89.7*	(90%-110%)		11/14/12 10:45
QC1202776120 314591001 MSD											
Nitrogen, Total Kjeldahl	1.00		0.163		1.07	mg/L	0.939	90.7	(0%-20%)		11/14/12 10:46
Batch 1261640											
QC1202776123 314591002 DUP											
Nitrogen, Ammonia			0.0587	J	0.0276	mg/L	72.1 ^		(+/-0.050)	KLP1	11/13/12 12:46
QC1202776126 LCS											
Nitrogen, Ammonia	1.00				1.06	mg/L		106	(90%-110%)		11/13/12 12:45
QC1202776122 MB											
Nitrogen, Ammonia				U	ND	mg/L					11/13/12 12:44
QC1202776124 314591002 MS											
Nitrogen, Ammonia	1.00		0.0587		1.20	mg/L		114*	(90%-110%)		11/13/12 12:47
QC1202776125 314591002 MSD											
Nitrogen, Ammonia	1.00		0.0587		1.01	mg/L	17.2*	95.1	(0%-15%)		11/13/12 12:48
Batch 1261643											
QC1202776128 314591002 DUP											
Phosphorus, Total as P			0.0976		0.0915	mg/L	6.45 ^		(+/-0.050)	KLP1	11/14/12 13:01
QC1202776134 LCS											
Phosphorus, Total as P	1.00				1.08	mg/L		108	(76%-120%)		11/14/12 12:55
QC1202776127 MB											
Phosphorus, Total as P				U	ND	mg/L					11/14/12 12:54
QC1202776130 314591002 MS											
Phosphorus, Total as P	1.00		0.0976		1.17	mg/L		107	(62%-139%)		11/14/12 13:02
QC1202776132 314591002 MSD											
Phosphorus, Total as P	1.00		0.0976		0.986	mg/L	17.1	88.8	(0%-20%)		11/14/12 13:22
Batch 1262537											
QC1202778269 314848001 DUP											

QC Summary

Workorder: 314849

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis											
Batch 1262537											
Nitrogen, Nitrate/Nitrite		U	ND	U	ND	mg/L	N/A			KLP1	11/13/12 12:05
QC1202778274 LCS											
Nitrogen, Nitrate/Nitrite	1.00				1.07	mg/L		107	(90%-110%)		11/13/12 11:58
QC1202778267 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					11/13/12 11:57
QC1202778272 314848001 PS											
Nitrogen, Nitrate/Nitrite	1.00	U	ND		0.990	mg/L		99	(90%-110%)		11/13/12 12:06
Solids Analysis											
Batch 1262397											
QC1202778389 314987004 DUP											
Total Dissolved Solids			126		124	mg/L	1.14		(0%-10%)	LYG1	11/12/12 08:08
QC1202777984 LCS											
Total Dissolved Solids	300				289	mg/L		96.2	(95%-105%)		11/12/12 08:08
QC1202777982 MB											
Total Dissolved Solids				U	ND	mg/L					11/12/12 08:08
Titration Analysis											
Batch 1264393											
QC1202782627 314848002 DUP											
Alkalinity, Total as CaCO3			208		211	mg/L	1.28		(0%-20%)	LXA1	11/19/12 16:19
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A				
QC1202782624 LCS											
Alkalinity, Total as CaCO3	50.0				52.6	mg/L		105	(90%-110%)		11/19/12 12:02
QC1202782628 314848002 MS											
Alkalinity, Total as CaCO3	50.0		208		263	mg/L		N/A	(80%-120%)		11/19/12 16:26

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E Organics--Concentration of the target analyte exceeds the instrument calibration range
- F Estimated Value
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded

QC Summary

Workorder: **314849**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
13-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1261640	See below.		

Potentially affected work order(s)(SDG): **314591(2013-267),314637(2013-271),314639(2013-270),314696,314749(2013-276),314750(2013-277),314773,314848(2013-285),314849(2013-286),314945,314987(2013-297)**

Application Issues:

Failed Recovery for MS/PS

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS: QC 1202776124MS 2. Failed RPD for MS/MSD: QC 1202776125MSD	1. The spike recovery falls outside of the established acceptance limits due to matrix interference and/or sample matrix non-homogeneity. 2. The Relative Percent Difference (RPD) between the MS and MSD falls outside of the established acceptance limits because of the heterogeneous matrix of the sample.

Originator's Name:

Kristen Parson 13-NOV-12

Data Validator/Group Leader:

Julia Hamilton 13-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
14-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1261638	See below.		

Potentially affected work order(s)(SDG): **314591(2013-267),314637(2013-271),314639(2013-270),314749(2013-276),314750(2013-277),314773,314848(2013-285),314849(2013-286),314945,314987(2013-297)**

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS: QC 1202776119MS	1. The spike recovery falls outside of the established acceptance limits. Since both the spike duplicate recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported.

Originator's Name:
Kristen Parson 14-NOV-12

Data Validator/Group Leader:
Julia Hamilton 14-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
16-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1262400	See below.		

Potentially affected work order(s)(SDG): 314848(2013-285),314849(2013-286),314987(2013-297)

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 314848 001,002 314849 002,004 314987 004,010	1. Samples were received out of holding.

Originator's Name:

Lisa Gregory 19-NOV-12

Data Validator/Group Leader:

Julia Hamilton 05-DEC-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
30-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
IC	EPA 300.0	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1262061	See Below		

Potentially affected work order(s)(SDG): 314848(2013-285),314849(2013-286),314987(2013-297)

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS/PS: QC 1202777152PS	1. The MS/PS mixture contains seven anions of interest. Of those, all requested anions except chloride met normal acceptance criteria for recovery (90 - 110%). This failure is attributed to the matrix of the sample because the successful recovery of the other compounds indicate that the laboratory process was in control. This variance is judged to have no negative impact on the data. The deviation is noted in the Case Narrative and DER, and the data has been reported.

Originator's Name:

Mary Sherwood 30-NOV-12

Data Validator/Group Leader:

Virginia Wininger 03-DEC-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-286
Work Order 314849

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1262092

Sample ID	Client ID
314849001	CASA-13-24213
314849003	CASA-13-24214
1202777245	Method Blank (MB)
1202777246	314849001(CASA-13-24213) Sample Duplicate (DUP)
1202777247	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202777245 (MB) and 1202777247 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314849001 (CASA-13-24213). The QC was from ARSL work order 314849.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1262093

Sample ID	Client ID
314849001	CASA-13-24213
314849003	CASA-13-24214
1202777248	Method Blank (MB)
1202777249	314849001(CASA-13-24213) Sample Duplicate (DUP)
1202777250	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202777248 (MB) and 1202777250 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314849001 (CASA-13-24213). The QC was from ARSL work order 314849.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1262094

Sample ID	Client ID
314849001	CASA-13-24213
314849003	CASA-13-24214
1202777251	Method Blank (MB)
1202777252	314849001(CASA-13-24213) Sample Duplicate (DUP)
1202777253	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202777251 (MB) and 1202777253 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314849001 (CASA-13-24213). The QC was from ARSL work order 314849.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 314849003 (CASA-13-24214) was recounted due to a peak shift. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population. Sample 1202777251 (MB) did not meet the client's yield requirement. However, there are 400 tracer counts, GEL's standard tracer yield requirements are met, and the client's detection limits are met.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1262434

Sample ID	Client ID
314849001	CASA-13-24213
314849003	CASA-13-24214
1202778038	Method Blank (MB)
1202778039	314849001(CASA-13-24213) Sample Duplicate (DUP)
1202778040	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in June 2012 and July 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314849001 (CASA-13-24213). The QC was from ARSL work order 314849.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank 1202778038 (MB) result is greater than 1.65 times the CSU but less than the MDC for K-40.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank 1202778038 (MB) result is greater than the decision level but less than the MDC for K-40.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1263026

Sample ID	Client ID
314849001	CASA-13-24213
314849003	CASA-13-24214
1202779527	Method Blank (MB)
1202779528	314987003(CAMO-13-24253) Sample Duplicate (DUP)
1202779529	314987003(CAMO-13-24253) Matrix Spike (MS)
1202779530	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202779527 (MB) and 1202779530 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314987003 (CAMO-13-24253). The QC was from ARSL work order 314987.

QC Information
All of the QC samples met the required acceptance limits.

CSU

The blank 1202779527 (MB) result is greater than 1.65 times the CSU but less than the MDC.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202779529 (CAMO-13-24253), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1263054

Sample ID	Client ID
314849001	CASA-13-24213
314849003	CASA-13-24214
1202779586	Method Blank (MB)
1202779587	314849003(CASA-13-24214) Sample Duplicate (DUP)
1202779588	314849003(CASA-13-24214) Matrix Spike (MS)
1202779589	314849003(CASA-13-24214) Matrix Spike Duplicate (MSD)
1202779590	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in September 2011. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202779586 (MB) and 1202779590 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314849003 (CASA-13-24214). The QC was from ARSL work order 314849.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced

SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike and matrix spike duplicate, 1202779588 (CASA-13-24214) and 1202779589 (CASA-13-24214), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-286 GEL Work Order: 314849

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Heather M. McCarty **Name:** **Heather McCarty**

Date: **30 NOV 2012** **Title:** **Analyst II**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 30, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CASA-13-24213
Sample ID: 314849001
Matrix: W
Collect Date: 07-NOV-12
Receive Date: 09-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.0062	+/-0.00677	0.0254	+/-0.00678	0.050	pCi/L		JXH2	11/26/12	1259	1262092	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.00	+/-0.0038	0.0276	+/-0.0038	0.050	pCi/L		JXH2	11/26/12	1259	1262093	2
Plutonium-239/240	U	-0.00467	+/-0.00504	0.0456	+/-0.00504	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.0741	+/-0.0167	0.0669	+/-0.0175	1.00	pCi/L		JXH2	11/26/12	1259	1262094	3
Uranium-235/236	U	0.00	+/-0.00476	0.042	+/-0.00476	1.00	pCi/L						
Uranium-238	U	0.034	+/-0.0114	0.0455	+/-0.0117	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-0.677	+/-1.40	5.02	+/-1.40	8.00	pCi/L		KXG3	11/13/12	1125	1262434	4
Cobalt-60	U	2.33	+/-1.29	5.62	+/-1.29	8.00	pCi/L						
Neptunium-237	U	-5.83	+/-2.78	8.94	+/-2.78	10.0	pCi/L						
Potassium-40	U	-8.92	+/-17.2	63.5	+/-17.2	10.0	pCi/L						
Sodium-22	U	-1.44	+/-0.927	3.12	+/-0.927	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	-0.0196	+/-0.115	0.442	+/-0.115	0.500	pCi/L		VXC2	11/26/12	1537	1263026	5
WSP-GrossA/B "As Received"													
Beta	U	0.317	+/-0.738	2.68	+/-0.739	3.00	pCi/L		MYS1	11/26/12	1956	1263054	6
Alpha	U	0.307	+/-0.743	2.87	+/-0.743	3.00	pCi/L		MYS1	11/27/12	1955	1263054	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1262092	96.8	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1262093	74.6	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1262094	70.0	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1263026	92.1	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 30, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CASA-13-24213
Sample ID: 314849001

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 30, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CASA-13-24214
Sample ID: 314849003
Matrix: W
Collect Date: 07-NOV-12
Receive Date: 09-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	-0.00757	+/-0.00719	0.0254	+/-0.00719	0.050	pCi/L		JXH2	11/26/12	1259	1262092	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	-0.00337	+/-0.0053	0.0232	+/-0.0053	0.050	pCi/L		JXH2	11/26/12	1259	1262093	2
Plutonium-239/240	U	0.00669	+/-0.0073	0.0383	+/-0.00731	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.824	+/-0.0513	0.0702	+/-0.075	1.00	pCi/L		JXH2	11/28/12	1517	1262094	3
Uranium-235/236	U	0.015	+/-0.00917	0.0439	+/-0.00922	1.00	pCi/L						
Uranium-238		0.318	+/-0.033	0.0477	+/-0.0391	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-1.62	+/-1.35	4.71	+/-1.35	8.00	pCi/L		KXG3	11/13/12	1125	1262434	4
Cobalt-60	U	-0.326	+/-1.53	5.52	+/-1.53	8.00	pCi/L						
Neptunium-237	U	0.692	+/-2.52	9.14	+/-2.52	10.0	pCi/L						
Potassium-40	U	-23.7	+/-15.8	47.1	+/-15.8	10.0	pCi/L						
Sodium-22	U	1.54	+/-1.11	4.80	+/-1.11	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	-0.0515	+/-0.123	0.463	+/-0.123	0.500	pCi/L		VXC2	11/26/12	1537	1263026	5
WSP-GrossA/B "As Received"													
Beta	U	2.13	+/-0.785	2.36	+/-0.805	3.00	pCi/L		MYS1	11/26/12	1956	1263054	6
Alpha	U	2.00	+/-0.977	2.96	+/-0.992	3.00	pCi/L		MYS1	11/27/12	1955	1263054	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1262092	86.4	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1262093	86.1	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1262094	76.4	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1263026	93.5	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 30, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CASA-13-24214
Sample ID: 314849003

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 30, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **314849**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1262092										
QC1202777246 314849001 DUP										
Americium-241	U	0.0062	U	-0.0113	pCi/L	0.652		(0-1)	JXH2	11/26/1212:59
	Uncert:	+/-0.00677		+/-0.00664						
	TPU:	+/-0.00678		+/-0.00664						
**Americium-243 Tracer	2.60	2.52		2.29	pCi/L		88.1	(50%-105%)		
	Uncert:	+/-0.0774		+/-0.0811						
	TPU:	+/-0.133		+/-0.138						
QC1202777247 LCS										
Americium-241	1.41			1.42	pCi/L		101	(80%-120%)	JXH2	11/26/1212:59
	Uncert:			+/-0.0524						
	TPU:			+/-0.0794						
**Americium-243 Tracer	2.08			2.06	pCi/L		99.1	(50%-105%)		
	Uncert:			+/-0.0627						
	TPU:			+/-0.108						
QC1202777245 MB										
Americium-241			U	-0.014	pCi/L				JXH2	11/26/1212:59
	Uncert:			+/-0.00584						
	TPU:			+/-0.00584						
**Americium-243 Tracer	2.08			2.05	pCi/L		98.2	(50%-105%)		
	Uncert:			+/-0.0596						
	TPU:			+/-0.104						
Batch 1262093										
QC1202777249 314849001 DUP										
Plutonium-238	U	0.00	U	0.00112	pCi/L	0.0595		(0-1)	JXH2	11/26/1212:59
	Uncert:	+/-0.0038		+/-0.00558						
	TPU:	+/-0.0038		+/-0.00558						
Plutonium-239/240	U	-0.00467	U	-0.000863	pCi/L	0.174		(0-1)		
	Uncert:	+/-0.00504		+/-0.00592						
	TPU:	+/-0.00504		+/-0.00592						
**Plutonium-242 Tracer	2.43	1.81		2.14	pCi/L		88.1	(50%-105%)		
	Uncert:	+/-0.0856		+/-0.0796						
	TPU:	+/-0.140		+/-0.132						
QC1202777250 LCS										
Plutonium-238			U	0.0092	pCi/L			(80%-120%)	JXH2	11/26/1212:59
	Uncert:			+/-0.00545						
	TPU:			+/-0.00546						
Plutonium-239/240	2.03			2.15	pCi/L		106	(80%-120%)		
	Uncert:			+/-0.0704						
	TPU:			+/-0.119						
**Plutonium-242 Tracer	1.94			1.45	pCi/L		74.4	(50%-105%)		
	Uncert:			+/-0.0672						
	TPU:			+/-0.110						
QC1202777248 MB										

QC Summary

Workorder: 314849

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1262093										
Plutonium-238			U	-0.0085	pCi/L				JXH2	11/26/1212:59
	Uncert:			+/-0.00584						
	TPU:			+/-0.00584						
Plutonium-239/240			U	0.00445	pCi/L					
	Uncert:			+/-0.00458						
	TPU:			+/-0.00458						
**Plutonium-242 Tracer	1.94			1.82	pCi/L		93.6	(50%-105%)		
	Uncert:			+/-0.0633						
	TPU:			+/-0.105						
Batch 1262094										
QC1202777252 314849001 DUP										
Uranium-234		0.0741		0.061	pCi/L	0.190		(0-1)	JXH2	11/27/1208:51
	Uncert:	+/-0.0167		+/-0.0164						
	TPU:	+/-0.0175		+/-0.017						
Uranium-235/236	U	0.00	U	0.0026	pCi/L	0.112		(0-1)		
	Uncert:	+/-0.00476		+/-0.00688						
	TPU:	+/-0.00476		+/-0.00688						
Uranium-238	U	0.034		0.040	pCi/L	0.135		(0-1)		
	Uncert:	+/-0.0114		+/-0.0101						
	TPU:	+/-0.0117		+/-0.0104						
**Uranium-232 Tracer	2.73	1.91		2.22	pCi/L		81.2	(50%-105%)		
	Uncert:	+/-0.0922		+/-0.0765						
	TPU:	+/-0.202		+/-0.188						
QC1202777253 LCS										
Uranium-234				2.56	pCi/L				JXH2	11/27/1208:51
	Uncert:			+/-0.0756						
	TPU:			+/-0.183						
Uranium-235/236				0.0983	pCi/L					
	Uncert:			+/-0.0173						
	TPU:			+/-0.0184						
Uranium-238	2.70			2.65	pCi/L		98.1	(80%-120%)		
	Uncert:			+/-0.0769						
	TPU:			+/-0.188						
**Uranium-232 Tracer	2.19			1.26	pCi/L		57.4	(50%-105%)		
	Uncert:			+/-0.0702						
	TPU:			+/-0.158						
QC1202777251 MB										
Uranium-234			U	-0.0341	pCi/L				JXH2	11/26/1212:59
	Uncert:			+/-0.0136						
	TPU:			+/-0.0136						
Uranium-235/236			U	-0.00635	pCi/L					
	Uncert:			+/-0.00997						
	TPU:			+/-0.00998						
Uranium-238			U	-0.00215	pCi/L					
	Uncert:			+/-0.00749						
	TPU:			+/-0.0075						
**Uranium-232 Tracer	2.19			1.03	pCi/L		47.4 *	(50%-105%)		
	Uncert:			+/-0.0933						

QC Summary

Workorder: 314849

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1262094										
	TPU:			+/-0.180						
Rad Gamma Spec										
Batch 1262434										
QC1202778039 314849001 DUP										
Cesium-137	U	-0.677	U	-0.0582	pCi/L	0.102		(0-1)	KXG3	11/13/1213:45
	Uncert:	+/-1.40		+/-1.64						
	TPU:	+/-1.40		+/-1.64						
Cobalt-60	U	2.33	U	1.12	pCi/L	0.205		(0-1)		
	Uncert:	+/-1.29		+/-1.67						
	TPU:	+/-1.29		+/-1.67						
Neptunium-237	U	-5.83	U	0.248	pCi/L	0.468		(0-1)		
	Uncert:	+/-2.78		+/-3.72						
	TPU:	+/-2.78		+/-3.72						
Potassium-40	U	-8.92	U	12.4	pCi/L	0.285		(0-1)		
	Uncert:	+/-17.2		+/-20.1						
	TPU:	+/-17.2		+/-20.1						
Sodium-22	U	-1.44	U	-2.59	pCi/L	0.235		(0-1)		
	Uncert:	+/-0.927		+/-1.52						
	TPU:	+/-0.927		+/-1.52						
QC1202778040 LCS										
Americium-241	2780			3040	pCi/L		109	(80%-120%)	KXG3	11/13/1212:13
	Uncert:			+/-261						
	TPU:			+/-261						
Cesium-137	6090			6210	pCi/L		102	(80%-120%)		
	Uncert:			+/-271						
	TPU:			+/-271						
Cobalt-60	5650			5740	pCi/L		101	(80%-120%)		
	Uncert:			+/-243						
	TPU:			+/-243						
Neptunium-237			U	4.78	pCi/L					
	Uncert:			+/-25.6						
	TPU:			+/-25.6						
Potassium-40			U	33.5	pCi/L					
	Uncert:			+/-50.9						
	TPU:			+/-50.9						
Sodium-22			U	10.4	pCi/L					
	Uncert:			+/-7.67						
	TPU:			+/-7.67						
QC1202778038 MB										
Cesium-137			U	1.66	pCi/L				KXG3	11/13/1212:00
	Uncert:			+/-1.79						
	TPU:			+/-1.79						
Cobalt-60			U	0.766	pCi/L					
	Uncert:			+/-1.23						
	TPU:			+/-1.23						
Neptunium-237			U	-1.98	pCi/L					
	Uncert:			+/-2.68						
	TPU:			+/-2.68						

QC Summary

Workorder: 314849

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1262434										
Potassium-40			U	32.9	pCi/L					
Uncert:				+/-16.8						
TPU:				+/-16.8						
Sodium-22			U	-1.57	pCi/L					
Uncert:				+/-1.38						
TPU:				+/-1.38						
Rad Gas Flow										
Batch 1263026										
QC1202779528 314987003 DUP										
Strontium-90	U	0.0275	U	-0.0248	pCi/L	0.104		(0-1)	VXC2	11/26/1215:37
Uncert:		+/-0.123		+/-0.130						
TPU:		+/-0.123		+/-0.130						
**Strontium Carrier	7.17	7.00		7.10	mg		99.1	(50%-105%)		
QC1202779530 LCS										
Strontium-90	24.8			24.6	pCi/L		99	(80%-120%)	VXC2	11/26/1215:38
Uncert:				+/-0.498						
TPU:				+/-2.02						
**Strontium Carrier	7.17			6.40	mg		89.3	(50%-105%)		
QC1202779527 MB										
Strontium-90			U	0.162	pCi/L				VXC2	11/26/1215:37
Uncert:				+/-0.0895						
TPU:				+/-0.0904						
**Strontium Carrier	7.17			6.70	mg		93.5	(50%-105%)		
QC1202779529 314987003 MS										
Strontium-90	124 U	0.0275		122	pCi/L		98.1	(75%-125%)	VXC2	11/26/1215:38
Uncert:		+/-0.123		+/-2.49						
TPU:		+/-0.123		+/-10.2						
**Strontium Carrier	7.17	7.00		6.40	mg		89.3	(50%-105%)		
Batch 1263054										
QC1202779587 314849003 DUP										
Alpha	U	2.00	U	2.13	pCi/L	0.0316		(0-1)	MYS1	11/27/1221:14
Uncert:		+/-0.977		+/-1.00						
TPU:		+/-0.992		+/-1.02						
Beta	U	2.13	U	0.444	pCi/L	0.563		(0-1)		11/26/1219:58
Uncert:		+/-0.785		+/-0.686						
TPU:		+/-0.805		+/-0.688						
QC1202779590 LCS										
Alpha	12.0			12.1	pCi/L		101	(80%-120%)	MYS1	11/27/1220:02
Uncert:				+/-0.661						
TPU:				+/-1.27						
Beta	49.6			49.0	pCi/L		98.8	(80%-120%)		11/26/1219:56
Uncert:				+/-0.892						
TPU:				+/-4.18						
QC1202779586 MB										
Alpha			U	-0.0618	pCi/L				MYS1	11/27/1221:14
Uncert:				+/-0.0846						
TPU:				+/-0.0846						
Beta			U	0.0566	pCi/L					11/26/1219:56

QC Summary

Workorder: 314849

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1263054										
	Uncert:			+/-0.101						
	TPU:			+/-0.101						
QC1202779588 314849003 MS										
Alpha	481	2.00	U	416	pCi/L		86.3	(75%-125%)	MYS1	11/27/1220:19
	Uncert:	+/-0.977		+/-22.5						
	TPU:	+/-0.992		+/-42.7						
Beta	1990	2.13	U	1990	pCi/L		100	(75%-125%)		11/26/1219:56
	Uncert:	+/-0.785		+/-36.5						
	TPU:	+/-0.805		+/-169						
QC1202779589 314849003 MSD										
Alpha	481	2.00	U	496	pCi/L	0.402	103	(0-1)	MYS1	11/27/1220:02
	Uncert:	+/-0.977		+/-26.2						
	TPU:	+/-0.992		+/-57.4						
Beta	1990	2.13	U	2100	pCi/L	0.153	106	(0-1)		11/26/1219:56
	Uncert:	+/-0.785		+/-38.0						
	TPU:	+/-0.805		+/-187						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative

QC Summary

Workorder: 314849

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

~~Cape Fear Analytical~~
3306 ~~Kitty Hawk Road, Suite 120~~
Wilmington, ~~NC 28405~~
AR SL

Chain of Custody/Analysis Request

COC/Lab Request #: ~~20457896~~ 2013-282

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

- 24 Hour - ☐ Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	~~WSP 8290 DF~~	LLH3
CAMO-13-24253	Nov 8 2012	10:58	W		1
~~CAMO-13-24227~~	~~Nov 8 2012~~	~~10:58~~	~~W~~		
CAMO-13-24228	Nov 8 2012	10:58	W		1

Special Instructions:

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 11/14/12 ~~11/9/12~~ 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24228

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/08/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1058	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-62	↓	FIELD PREP:	UF	OK
LOCATION TYPE:		↓	FIELD QC TYPE:	FD	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	~~2~~ 1	ICE DF 11/6/12	Y	NA
↓	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	↓	↓
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	~~3~~ 1	ICE DF 11/6/12	↓	↓
↓	WSP-8290-D/F	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-8321A-NMED HEXP	1 LITER AMBER GLASS	~~3~~ 1	ICE DF 11/6/12	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-HEXMOD	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

Analyses continued on next page

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24228

WORK ORDER:

See CAMO-13-24253

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) W. Shan

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/08/12 1735	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	11/08/12 1735
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24253

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/08/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1058	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-62	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	~~3~~ 2	ICE DF 11/6/12	Y	NA
↓	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	↓	↓
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	~~3~~ 2	ICE DF 11/6/12	↓	↓
↓	WSP-8290-D/F	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-8321A-NMED HEXP	1 LITER AMBER GLASS	~~3~~ 2	ICE DF 11/6/12	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-HEXMOD	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

Analyses continued on next page

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID:	4030	**EVENT NAME:**	Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD
SAMPLE ID:	CAMO-13-24253	**WORK ORDER:**	NA

SAMPLE COMMENTS: Sampled within 50' of running diesel generator

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 5.41 mg/L Oxidation-Reduction Potential 57.9 MV pH 8.77 SU

Specific Conductance 188 uS/cm Temperature 19.22 deg C Turbidity 0.55 NTU

COLLECTED BY (PRINT) D. Woody

RELINQUISHED BY **(Printed Name)** D Woody **(Signature)** David Woody	**Date/Time** 11/08/12 1735	**RECEIVED BY** **(Printed Name)** S. Sherwood **(Signature)** Sheri Sherwood	**Date/Time** 11/08/12 1735
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-282

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
ARS1-12-02307	Generic:Low_Level_Tritium	1	1			

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
ARS1-12-02307	Generic:Low_Level_Tritium	ARS1-B12-02721	ARS1-B12-02721	1	1				1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
Generic:Low_Level_Tritium	RAD							
LCS	ARS1-B12-02721-01	LCS	0	0	1	0		
Generic:Low_Level_Tritium	RAD	CAMO-13-24228	ARS1-B12-02721-20	FD	1	0	0	0
Generic:Low_Level_Tritium	RAD	CAMO-13-24253	ARS1-B12-02721-19	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	LCSD	ARS1-B12-02721-02	LCSD	0	0	1	0
Generic:Low_Level_Tritium	RAD	MB	ARS1-B12-02721-03	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

No.

Any samples affected by the presence of contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

No.

Data Validation Report for:

Chain Of Custody No. 2013-282

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1	1						

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-62	2013-282	CAMO-13-24228	FD	INIT	RAD	Generic:Low_Level_Tritium	Tritium	U	U	R5	N

Reason Code	Description
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24228	R-62	FD	Generic:Low_Level_Tritium	0	1
CAMO-13-24253	R-62	REG	Generic:Low_Level_Tritium	0	1

Data Validation Report for:

Chain Of Custody No. 2013-282

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
2.12	pCi/L	2.12	pCi/L	2.46	0.83	W	11/8/2012		ARS1-B12-02721	VAL	Y

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Request Number: 2013-282

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-282

Original COC

~~Cape Fear Analytical~~
~~3306 Kitty Hawk Road, Suite 120~~
~~Wilmington NC 28405~~
AR SL

Chain of Custody/Analysis Request

COC/Lab Request #: ~~2013298~~ 2013-282

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	~~WSP 8260 DF~~	LLH3
CAMO-13-24253	Nov 8 2012	10:58	W		1
~~CAMO-13-24207~~	~~Nov 8 2012~~	~~10:58~~	~~W~~		
CAMO-13-24228	Nov 8 2012	10:58	W		1

Special Instructions:

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: ~~11/9/12~~ 11/14/12 3:00	Received by:	11/15/12 1030
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-282

Case Narrative

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

December 14, 2012

LANL
Keith Greene
PO Box 1663 MS M992
Los Alamos, NM 87545

Request Number: **2013-282**
LANL Sample ID: **CAMO-13-24253; CAMO-13-24228.**

Dear Mr. Greene;

On November 15, 2012, ARS International received two (2) water samples to be analyzed for Low Level Tritium.

The samples underwent enrichment and were counted using the appropriate counting equipment and QA/QC for this type of analysis. Results of the analysis and QA/QC are attached in the data package.

The client and QA/QC samples were counted with a count time sufficient to meet quality control parameters for counting equipment and were within acceptance criteria and statistical sound detection limits.

If you have any questions please do not hesitate to call at 225.381.2991 or email LANL@amrad.com.

Sincerely,

Laboratory Management
ARS International

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767

1 (800) 401-4277 • Fax (225) 381-2996

COVER PAGE

PROJECT SAMPLE IDENTIFICATION
CROSS-REFERENCE
TO ARS SAMPLE LABORATORY IDs
Subcontract (LANL Agreement Number) 63641-001-10

Request Number	LANL PROJECT SAMPLE ID NUMBER	American Radiation Services SAMPLE ID NUMBER(S)
2013-282	CAMO-13-24253	ARS1-12-02307-001
2013-282	CAMO-13-24228	ARS1-12-02307-002

ANALYTICAL METHODS
Tritium analyses were performed using **ARS-040 Tritium Assay in Water Samples Using Electrolytic Enrichment.**

ANALYTICAL RESULTS
The result data that are flagged with "U" indicate that the activity is below the MDC.

American Radiation Services Project Manager/Laboratory Director's Comments:
"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

"I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the LANL specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."

James D. Fu	Laboratory Management, ARS International	12-14-12
Signature	**Title**	**Date**

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02307	**Request or PO Number:**	2013-282
Client Sample ID:	CAMO-13-24253	**ARS Sample ID:**	ARS1-12-02307-001
Sample Collection Date:	11/08/12	**Date Received:**	11/15/12
Sample Matrix:	Aqueous	**Report Date:**	12/14/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	5.878	1.245	2.593	1.252		pCi/L	ARS-040	12/08/12 00:16	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group: ARS1-12-02307
Client Sample ID: CAMO-13-24228
Sample Collection Date: 11/08/12
Sample Matrix: Aqueous

Request or PO Number: 2013-282
ARS Sample ID: ARS1-12-02307-002
Date Received: 11/15/12
Report Date: 12/14/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	2.120	0.830	2.460	1.188	U	pCi/L	ARS-040	12/08/12 04:27	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

ARS INTERNATIONAL
2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

QC Results Report

Sample Delivery Group: ARS1-12-02307
Date Received: 11/15/2012

Laboratory Control Sample Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Percent Recovery (%)	LCS Acceptance Range
ARS1-B12-02721	LCS	H3	25.875	4.032	2.269	25.703		pCi/L	ARS-040	12/4/12 18:56	RJU	101	80%-120%

Blank Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician
ARS1-B12-02721	MBL	H3	-0.085	0.625	2.135	NA	U	pCi/L	ARS-040	12/4/12 18:56	RJU

Sample RER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	RER	RER AcceptanceRange
ARS1-B12-02721	LCSD	H3	25.875	4.032	24.604	3.836		pCi/L	ARS-040	12/4/12 18:56	RJU	0.16	< 1

Sample DER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	DER	DER AcceptanceRange
ARS1-B12-02721	LCSD	H3	25.875	4.032	24.604	3.836		pCi/L	ARS-040	12/4/12 18:56	RJU	0.46	< 3

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of ARS International.

LELAP Certificate# 01949 NELAP Certificate # E87558

QC Evaluation

EPA Method: ARS-040
Batch ID: ARS1-B12-02721
SDG's: ARS1-12-02261;2262;2263;2264;2305;2306;2307;2309

LCS	25.8750	**CSU (2s)**	7.9020
LCSD	24.6040	**CSU-D (2s)**	7.5190

DER = $\frac{\text{abs(LSC-LSCD)}}{\text{sqr((2s CSU/2)^2)+((2s CSU-D/2)^2)}}$ = **< 3**

at 1 sigma

DER $\frac{1.271}{5.453828}$ = 0.233047 **< 3**

% RPD= $\frac{\text{ABS(LCS - LSCD)}}{\text{(LCS+LCSD)/2}}$ * 100 = **< 25%**

%RPD $\frac{1.271}{25.2395}$ *100 = 5.035757 **< 25%**

The *RPD* shall be less than 25% or other client-applied criteria

RER= $\frac{\text{abs((LCS-LCSD))}}{\text{(CSU)+(CSD)}}$ = **<1** ***<--LANL Requirement***

at 2 sigma

RER = $\frac{1.271}{15.4210}$ 0.082420077 **<1**

Blank Information

	Act	CSU(2s)	MDA	Act>MDA
AM-241				
U-234				
U-235				
U-238				
Pu-238				
Pu-239/240				
Th-228				
Th-230				
Th-232				
H3	-0.085	1.225	2.135	
Ra-226				
Ra-228				
Total U				
Pb-210				
Po-209				
Sr-90				
TC-99				
NI-63				

*MDA should be below RDL
*Blank activity must be below MDA
*Blank activity must be < 1.65*CSU (DOE only)

ACT = -0.085
CSU = 1.225
Is ACT<1.65*CSU? **YES**

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

13 of 22

Analysis Batch ID **ARS1-B12-02721**

				Method	**ARS-040**	**Analysis**	**LSC-A-022**		**Matrix**	**AQ**
				Description	**Low Level Tritium by Electrolytic Enrichment**					
ABatch Sample ID	**Type**	**Blind Iso1**	**Blind Iso2**	**Blind Iso3**	**SDG**	**FR**	**Run**	**Client ID**	**Isotope Group**	**Lab Deadline**
ARS1-B12-02721-01	LCS	B-14793								
ARS1-B12-02721-02	LCSD	B-14794								
ARS1-B12-02721-03	MBL									
ARS1-B12-02721-04	TRG				**ARS1-12-02261**	001	1	CAMO-13-24279	STD	11/29/12
ARS1-B12-02721-05	TRG				**ARS1-12-02262**	001	1	CAMO-13-24241	STD	12/06/12
ARS1-B12-02721-06	TRG				**ARS1-12-02262**	002	1	CAMO-13-24242	STD	12/06/12
ARS1-B12-02721-07	TRG				**ARS1-12-02262**	003	1	CAMO-13-24225	STD	12/06/12
ARS1-B12-02721-08	TRG				**ARS1-12-02262**	004	1	CAMO-13-24247	STD	12/06/12
ARS1-B12-02721-09	TRG				**ARS1-12-02262**	005	1	CAMO-13-24248	STD	12/06/12
ARS1-B12-02721-10	TRG				**ARS1-12-02263**	001	1	CAMO-13-24276	STD	12/06/12
ARS1-B12-02721-11	TRG				**ARS1-12-02264**	001	1	CASA-13-24209	STD	12/06/12
ARS1-B12-02721-12	TRG				**ARS1-12-02264**	002	1	CASA-13-24213	STD	12/06/12
ARS1-B12-02721-13	TRG				**ARS1-12-02264**	003	1	CASA-13-24214	STD	12/06/12
ARS1-B12-02721-14	TRG				**ARS1-12-02305**	001	1	CASA-13-24210	STD	12/12/12
ARS1-B12-02721-15	TRG				**ARS1-12-02306**	001	1	CAMO-13-24245	STD	12/12/12
ARS1-B12-02721-16	TRG				**ARS1-12-02306**	002	1	CAMO-13-24246	STD	12/12/12
ARS1-B12-02721-17	TRG				**ARS1-12-02306**	003	1	CAMO-13-24249	STD	12/12/12
ARS1-B12-02721-18	TRG				**ARS1-12-02306**	004	1	CAMO-13-24250	STD	12/12/12
ARS1-B12-02721-19	TRG				**ARS1-12-02307**	001	1	CAMO-13-24253	STD	12/12/12
ARS1-B12-02721-20	TRG				**ARS1-12-02307**	002	1	CAMO-13-24228	STD	12/12/12
ARS1-B12-02721-21	TRG				**ARS1-12-02309**	001	1	CASA-13-24211	STD	12/12/12

127700
12-02261-001-1
WRAD

127702
12-02262-001-1
WRAD

127704
12-02262-002-1
WRAD

127706
12-02262-003-1
WRAD

127708
12-02262-004-1
WRAD

127710
12-02262-005-1
WRAD

127712
12-02263-001-1
WRAD

127714
12-02264-001-1
WRAD

127716
12-02264-002-1
WRAD

127718
12-02264-003-1
WRAD

127720
12-02305-001-1
WRAD

127722
12-02306-001-1
WRAD

127724
12-02306-002-1
WRAD

127726
12-02306-003-1
WRAD

127728
12-02306-004-1
WRAD

127730
12-02307-001-1
WRAD

127732
12-02307-002-1
WRAD

127734
12-02309-001-1
WRAD

American Radiation Services
Baton Rouge Laboratory

LCS Report
Analytical Batch: ARS1-B12-02721

14
82

BlindID	ABatch	ABatchSampleID	BlindGroup	StdID	Isotope	ExpectedAddition	ExpectedValue	EmptyWt	GrossWt	NetWt	UserID	ModDate	ExpectedValue_CT	MidPointCountDate	KnownValue
B-14793	ARS1-B12-02721	ARS1-B12-02721-01	B-H3	S-0279	H-3	5	2.552560129	13.098	18.151	5.053	AMRAD\BSTEFFENS	11/13/2012			
B-14794	ARS1-B12-02721	ARS1-B12-02721-02	B-H3	S-0279	H-3	5	2.552560129	13.14	18.192	5.052	AMRAD\BSTEFFENS	11/13/2012			

ID_31001_040	ABatch	AnalysisCode	ABatchSampleID	ClientID	IC_ID	S01_1_EnrichCellNo	S01_2_TareCell	S01_3_TareResv	S02_GrossWtResv	S03_1_WtNa2O2	C_GrossSampleAdded
444	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-01			4	327.7	200.9	701.14	2.07	500.24
445	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-02			33	336.25	215.3	718.8	2.08	503.5
446	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-03			74	328.56	197.95	701.97	2.06	504.02
447	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-04	CAMO-13-24279		61	335.51	213.55	714.87	2	501.32
448	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-05	CAMO-13-24241		64	331.04	209.03	714.77	2.01	505.74
449	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-06	CAMO-13-24242		68	334.63	204.08	706.25	2.02	502.17
450	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-07	CAMO-13-24225		29	335.72	206.2	707.31	2.06	501.11
451	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-08	CAMO-13-24247		55	331.14	208.66	711.99	2.02	503.33
452	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-09	CAMO-13-24248		84	336.66	197.55	700.94	2.05	503.39
453	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-10	CAMO-13-24276		89	340.12	203.22	707.98	2.08	504.76
454	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-11	CASA-13-24209		97	332.94	202.132	708.3	2	506.168
455	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-12	CASA-13-24213		3	332.17	214.84	717.62	2.03	502.78
456	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-13	CASA-13-24214		16	329.44	217.7	718.25	2.09	500.55
457	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-14	CASA-13-24210		26	337.76	213.12	716.43	2	503.31
458	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-15	CAMO-13-24245		44	331.35	214.173	718.93	2.08	504.757
459	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-16	CAMO-13-24246		50	329.91	216.33	717.493	2.07	501.163
460	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-17	CAMO-13-24249		31	334.66	204.09	709.85	2.08	505.76
461	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-18	CAMO-13-24250		8	332.1	204.54	705.56	2	501.02
462	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-19	CAMO-13-24253		87	334.14	207.46	710.88	2.01	503.42
463	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-20	CAMO-13-24228		94	337.21	197.78	700.71	2.05	502.93
464	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-21	CASA-13-24211		99	336.65	206.9	709.24	2.06	502.34

12-4-12

S04_1_ElectroISD	S04_2_StartAmp	S04_3_StartBathC	S05_1_ElectroIED	S05_2_EndBathC	S05_3_EndCellWt	C_GrossSmplRec	C_EnrichmentF	S06_TareWt	S07_GrossWt	C_RecoveredWa
11/16/2012 15:00:00	5	1.8	11/30/2012 14:58:00	2	545.34	16.74	29.88291517	117.45	130.16	12.71
11/16/2012 15:00:00	5	1.8	11/30/2012 15:00:00	2	567.84	16.29	30.90853284	117.71	129.56	11.85
11/16/2012 15:00:00	5	1.8	11/29/2012 07:51:00	1.8	543.45	16.94	29.75324675	101.5	114.12	12.62
11/16/2012 15:00:00	5	1.8	11/29/2012 07:53:00	1.8	565.75	16.69	30.03714799	108.55	121.28	12.73
11/16/2012 15:00:00	5	1.8	11/30/2012 15:01:00	2	555.66	15.59	32.44002566	104.53	115.28	10.75
11/16/2012 15:00:00	5	1.8	12/03/2012 12:24:00	1.9	553.86	15.15	33.14653465	102.66	112.87	10.21
11/16/2012 15:00:00	5	1.8	11/29/2012 13:10:00	2	558.94	17.02	29.44242068	116.99	128.81	11.82
11/16/2012 15:00:00	5	1.8	11/30/2012 15:03:00	2	555.09	15.29	32.91890124	110.03	121.82	11.79
11/16/2012 15:00:00	5	1.8	11/30/2012 15:05:00	2	549.5	15.29	32.92282538	109.95	120.14	10.19
11/16/2012 15:00:00	5	1.8	11/30/2012 15:06:00	2	560.19	16.85	29.95608309	96.23	110.02	13.79
11/16/2012 15:00:00	5	1.8	11/30/2012 15:07:00	2	552.49	17.418	29.06005282	107.55	120.29	12.74
11/16/2012 15:00:00	5	1.8	11/29/2012 13:08:00	2	563.52	16.51	30.45305875	117.92	129.06	11.14
11/16/2012 15:00:00	5	1.8	12/04/2012 07:37:00	2.1	564.03	16.89	29.63587922	105.46	120.29	14.83
11/16/2012 15:00:00	5	1.8	12/04/2012 07:39:00	2.1	565.2	14.32	35.14734637	101.94	114.75	12.81
11/16/2012 15:00:00	5	1.8	12/04/2012 07:42:00	2.1	563.27	17.747	28.44182115	116.81	128.38	11.57
11/16/2012 15:00:00	5	1.8	12/04/2012 07:45:00	2.1	563.14	16.9	29.65461538	109.51	121.45	11.94
11/16/2012 15:00:00	5	1.8	12/04/2012 11:41:00	2.1	555.31	16.56	30.5410628	111.9	124.2	12.3
11/16/2012 15:00:00	5	1.8	11/29/2012 07:56:00	1.8	553.44	16.8	29.82261905	105.48	117.84	12.36
11/16/2012 15:00:00	5	1.8	11/29/2012 07:58:00	1.8	558.66	17.06	29.5087925	112	125.02	13.02
11/16/2012 15:00:00	5	1.8	11/29/2012 13:05:00	1.9	551.09	16.1	31.2378882	115.1	127.71	12.61
11/16/2012 15:00:00	5	1.8	11/29/2012 13:03:00	1.9	560.98	17.43	28.82042456	104.78	117.5	12.72

12-4-12

S08_TearWtLSCVial	S09_VialPlusSmpl	C_NetSample	S10_1_WtVislSmplDrWatFill	C_NetDeadWaterAdded	C_TareWtBFCocktail	S10_2_GrossWtVSC	C_NetWtCocktailAdded	UserID	ModDate
6.44	16.44	10	0	0	16.44	27.34	10.9	AMRAD\RUSEY	12/03/2012 12:16:52
6.44	16.45	10.01	0	0	16.45	27.43	10.98	AMRAD\RUSEY	12/03/2012 12:18:50
6.51	16.53	10.02	0	0	16.53	27.02	10.49	AMRAD\RUSEY	11/29/2012 14:42:42
6.53	16.54	10.01	0	0	16.54	26.83	10.29	AMRAD\RUSEY	11/29/2012 14:44:17
6.45	16.5	10.05	0	0	16.5	26.92	10.42	AMRAD\RUSEY	12/03/2012 12:20:31
6.53	16.54	10.01	0	0	16.54	26.86	10.32	AMRAD\RUSEY	12/03/2012 14:37:15
6.38	16.42	10.04	0	0	16.42	27.17	10.75	AMRAD\RUSEY	11/29/2012 15:39:24
6.59	16.64	10.05	0	0	16.64	26.96	10.32	AMRAD\RUSEY	12/03/2012 12:23:43
6.47	16.53	10.06	0	0	16.53	26.85	10.32	AMRAD\RUSEY	12/03/2012 14:39:07
6.54	16.54	10	0	0	16.54	26.89	10.35	AMRAD\RUSEY	12/03/2012 14:41:26
6.68	16.69	10.01	0	0	16.69	26.99	10.3	AMRAD\RUSEY	12/03/2012 14:43:02
6.52	16.56	10.04	0	0	16.56	26.84	10.28	AMRAD\RUSEY	11/29/2012 15:42:09
6.64	16.69	10.05	0	0	16.69	26.89	10.2	AMRAD\RUSEY	12/04/2012 10:57:08
6.38	16.39	10.01	0	0	16.39	26.6	10.21	AMRAD\RUSEY	12/04/2012 10:59:05
6.61	16.64	10.03	0	0	16.64	26.99	10.35	AMRAD\RUSEY	12/04/2012 11:01:07
6.49	16.54	10.05	0	0	16.54	26.84	10.3	AMRAD\RUSEY	12/04/2012 11:02:49
6.46	16.53	10.07	0	0	16.53	26.79	10.26	AMRAD\RUSEY	12/04/2012 13:55:27
6.5	16.58	10.08	0	0	16.58	26.89	10.31	AMRAD\RUSEY	11/29/2012 14:45:59
6.56	16.58	10.02	0	0	16.58	26.94	10.36	AMRAD\RUSEY	11/29/2012 14:47:45
6.46	16.49	10.03	0	0	16.49	26.79	10.3	AMRAD\RUSEY	11/29/2012 15:43:57
6.57	16.59	10.02	0	0	16.59	26.89	10.3	AMRAD\RUSEY	11/29/2012 15:45:48

12-4-12

AMRAD
AMERICAN RADIATION SERVICES, LLC

LSC Instrument Data Transfer Report

\\Packard3170\Results\H3 Low Level\Low Level H3_3\

Batch Sample ID	Non-BKG Samples Transferred	Samples Eligible To Save	
ARS1-B12-02721	21	21	LSC 1

LIMS Batch Sample ID	LSC P#	LSC PID	LSC S#	LSC SMPL_ID	LSC Count Date	LSC CPMA	LSC tSIE	LSC EFF	LSC Count Dur	Analysis Batch	LIMS SDG	LIMS Run
BKG	10		1	BACKGROUND	12/04/12 14:45	1.11	395.29	25.3300	240.00	ARS1-B12-02721		
ARS1-B12-02721-01	10		2	B12-02721-01	12/04/12 18:56	4.84	378.07	24.5900	240.00	ARS1-B12-02721		
ARS1-B12-02721-02	10		3	B12-02721-02	12/04/12 23:07	4.79	377.91	24.5800	240.00	ARS1-B12-02721		
ARS1-B12-02721-03	10		4	B12-02721-03	12/05/12 03:18	1.09	407.72	25.9200	240.00	ARS1-B12-02721		
ARS1-B12-02721-04	10		5	B12-02721-04	12/05/12 07:29	1.08	378.13	24.5900	240.00	ARS1-B12-02721	ARS1-12-02261	1
ARS1-B12-02721-05	10		6	B12-02721-05	12/05/12 11:40	1.28	395.32	25.3300	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-06	2		1	B12-02721-06	12/06/12 16:58	3.80	401.27	25.6100	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-07	2		2	B12-02721-07	12/06/12 21:09	1.32	410.59	26.0600	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-08	2		3	B12-02721-08	12/07/12 01:20	1.47	395.87	25.3500	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-09	2		4	B12-02721-09	12/07/12 05:31	1.35	351.17	23.5500	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-10	2		5	B12-02721-10	12/07/12 09:42	1.06	286.28	20.1600	240.00	ARS1-B12-02721	ARS1-12-02263	1
ARS1-B12-02721-11	2		6	B12-02721-11	12/07/12 13:53	1.82	354.31	23.6700	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-12	10		13	B12-02721-12	12/05/12 15:52	1.03	220.99	15.6400	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-13	10		14	B12-02721-13	12/05/12 20:03	1.28	402.67	25.6800	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-14	10		15	B12-02721-14	12/06/12 00:14	1.00	286.72	20.1900	240.00	ARS1-B12-02721	ARS1-12-02305	1
ARS1-B12-02721-15	10		16	B12-02721-15	12/06/12 04:24	1.16	290.87	20.4700	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-16	10		17	B12-02721-16	12/06/12 08:35	1.17	258.02	18.2400	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-17	10		18	B12-02721-17	12/06/12 12:46	3.55	251.93	17.8300	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-18	10		1	B12-02721-18	12/07/12 18:04	1.08	258.29	18.2500	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-19	10		2	B12-02721-19	12/07/12 22:15	1.85	308.77	21.6900	240.00	ARS1-B12-02721	ARS1-12-02307	1
ARS1-B12-02721-20	10		3	B12-02721-20	12/08/12 02:26	1.39	304.39	21.3900	240.00	ARS1-B12-02721	ARS1-12-02307	1
ARS1-B12-02721-21	10		4	B12-02721-21	12/08/12 06:37	1.07	280.53	19.7700	240.00	ARS1-B12-02721	ARS1-12-02309	1

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Total_Bkg_Count_Duration_min	DF	Sample_Activity_Conc	Standard_Counting_Uncertainty	CU_1	CSU_1	CU_1_96	CSU_1_96	MDC	DLC	ActivityReportUnits
LSC-A-022	ARS1-B12-02721-01	240.000	0.98654	25.875	1.091	1.091	4.032	2.139	7.902	2.269	1.095	pCi
LSC-A-022	ARS1-B12-02721-02	240.000	0.98638	24.604	1.047	1.047	3.836	2.052	7.519	2.186	1.055	pCi
LSC-A-022	ARS1-B12-02721-03	240.000	0.99908	-0.085	0.625	0.625	0.625	1.225	1.225	2.135	1.031	pCi
LSC-A-022	ARS1-B12-02721-04	240.000	0.99478	-0.213	0.655	0.655	0.655	1.283	1.285	2.247	1.085	pCi
LSC-A-022	ARS1-B12-02721-05	240.000	0.99462	1.037	0.608	0.608	0.628	1.192	1.230	1.997	0.964	pCi
LSC-A-022	ARS1-B12-02721-06	240.000	0.99447	15.912	0.845	0.845	2.532	1.656	4.963	1.933	0.933	pCi
LSC-A-022	ARS1-B12-02721-07	240.000	0.99432	1.394	0.661	0.661	0.694	1.296	1.359	2.153	1.039	pCi
LSC-A-022	ARS1-B12-02721-08	240.000	0.99524	2.149	0.620	0.620	0.699	1.215	1.369	1.959	0.946	pCi
LSC-A-022	ARS1-B12-02721-09	240.000	0.99524	1.567	0.650	0.650	0.691	1.274	1.355	2.102	1.015	pCi
LSC-A-022	ARS1-B12-02721-10	240.000	0.99508	-0.376	0.795	0.795	0.797	1.559	1.563	2.738	1.322	pCi
LSC-A-022	ARS1-B12-02721-11	240.000	0.99508	5.262	0.817	0.817	1.136	1.601	2.227	2.422	1.169	pCi
LSC-A-022	ARS1-B12-02721-12	240.000	0.99570	-0.793	0.998	0.998	1.005	1.956	1.970	3.460	1.670	pCi
LSC-A-022	ARS1-B12-02721-13	240.000	0.99554	1.108	0.657	0.657	0.678	1.288	1.329	2.159	1.042	pCi
LSC-A-022	ARS1-B12-02721-14	240.000	0.99646	-0.723	0.658	0.658	0.667	1.290	1.307	2.296	1.109	pCi
LSC-A-022	ARS1-B12-02721-15	240.000	0.99631	0.469	0.844	0.844	0.847	1.655	1.661	2.843	1.372	pCi
LSC-A-022	ARS1-B12-02721-16	240.000	0.99631	0.613	0.905	0.905	0.910	1.775	1.784	3.040	1.468	pCi
LSC-A-022	ARS1-B12-02721-17	240.000	0.99585	22.455	1.280	1.280	3.603	2.510	7.063	3.008	1.452	pCi
LSC-A-022	ARS1-B12-02721-18	240.000	0.99570	-0.287	0.882	0.882	0.883	1.729	1.731	3.027	1.461	pCi
LSC-A-022	ARS1-B12-02721-19	240.000	0.99539	5.878	0.879	0.879	1.245	1.723	2.440	2.593	1.252	pCi
LSC-A-022	ARS1-B12-02721-20	240.000	0.99539	2.120	0.766	0.766	0.830	1.502	1.626	2.460	1.188	pCi
LSC-A-022	ARS1-B12-02721-21	240.000	0.99631	-0.311	0.846	0.846	0.847	1.658	1.661	2.906	1.403	pCi

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Initial_Mass_sample_g	Mass_Na2O2_added_g	Final_mass_electrolyzed_sample_NaOH_g	Mass_equivalent_NaOH_g	Final_Mass_Electrolyzed_sample_g	VolumeFactor_X	Enrichment_Factor_Y
LSC-A-022	ARS1-B12-02721-01	500.240	2.070	16.740	2.124	14.616	0.029	26.782
LSC-A-022	ARS1-B12-02721-02	503.500	2.080	16.290	2.134	14.156	0.028	27.791
LSC-A-022	ARS1-B12-02721-03	504.020	2.060	16.940	2.114	14.826	0.029	26.608
LSC-A-022	ARS1-B12-02721-04	501.320	2.000	16.690	2.052	14.638	0.029	26.799
LSC-A-022	ARS1-B12-02721-05	505.740	2.010	15.590	2.062	13.528	0.027	29.154
LSC-A-022	ARS1-B12-02721-06	502.170	2.020	15.150	2.073	13.077	0.026	29.914
LSC-A-022	ARS1-B12-02721-07	501.110	2.060	17.020	2.114	14.906	0.030	26.324
LSC-A-022	ARS1-B12-02721-08	503.330	2.020	15.290	2.073	13.217	0.026	29.675
LSC-A-022	ARS1-B12-02721-09	503.390	2.050	15.290	2.103	13.187	0.026	29.745
LSC-A-022	ARS1-B12-02721-10	504.760	2.080	16.850	2.134	14.716	0.029	26.838
LSC-A-022	ARS1-B12-02721-11	506.168	2.000	17.418	2.052	15.366	0.030	25.815
LSC-A-022	ARS1-B12-02721-12	502.780	2.030	16.510	2.083	14.427	0.029	27.251
LSC-A-022	ARS1-B12-02721-13	500.550	2.090	16.890	2.144	14.746	0.029	26.571
LSC-A-022	ARS1-B12-02721-14	503.310	2.000	14.320	2.052	12.268	0.024	31.878
LSC-A-022	ARS1-B12-02721-15	504.757	2.080	17.747	2.134	15.613	0.031	25.354
LSC-A-022	ARS1-B12-02721-16	501.163	2.070	16.900	2.124	14.776	0.029	26.550
LSC-A-022	ARS1-B12-02721-17	505.760	2.080	16.560	2.134	14.426	0.029	27.409
LSC-A-022	ARS1-B12-02721-18	501.020	2.000	16.800	2.052	14.748	0.029	26.591
LSC-A-022	ARS1-B12-02721-19	503.420	2.010	17.060	2.062	14.998	0.030	26.286
LSC-A-022	ARS1-B12-02721-20	502.930	2.050	16.100	2.103	13.997	0.028	28.064
LSC-A-022	ARS1-B12-02721-21	502.340	2.060	17.430	2.114	15.316	0.030	25.707

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Average_Sample_CPM	Bkg_CPM	tSIE	Detector_Eff_decimal	Aliquot	AliqUnits	Activity_reference_date	Start_Date_of_Count	Sample_Count_Duration_min
LSC-A-022	ARS1-B12-02721-01	4.839	1.107	378.070	0.246	0.01000	L	9/7/2012	12/4/2012	240.000
LSC-A-022	ARS1-B12-02721-02	4.791	1.107	377.910	0.246	0.01001	L	9/7/2012	12/4/2012	240.000
LSC-A-022	ARS1-B12-02721-03	1.094	1.107	407.720	0.259	0.01002	L	11/29/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-04	1.076	1.107	378.130	0.246	0.01001	L	11/1/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-05	1.277	1.107	395.320	0.253	0.01005	L	10/31/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-06	3.801	1.107	401.270	0.256	0.01001	L	10/31/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-07	1.319	1.107	410.590	0.261	0.01004	L	10/31/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-08	1.466	1.107	395.870	0.254	0.01005	L	11/6/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-09	1.351	1.107	351.170	0.236	0.01006	L	11/6/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-10	1.062	1.107	286.280	0.202	0.01000	L	11/5/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-11	1.818	1.107	354.310	0.237	0.01001	L	11/5/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-12	1.032	1.107	220.990	0.156	0.01004	L	11/7/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-13	1.275	1.107	402.670	0.257	0.01005	L	11/7/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-14	1.004	1.107	286.720	0.202	0.01001	L	11/13/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-15	1.161	1.107	290.870	0.205	0.01003	L	11/12/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-16	1.173	1.107	258.020	0.182	0.01005	L	11/12/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-17	3.550	1.107	251.930	0.178	0.01007	L	11/9/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-18	1.076	1.107	258.290	0.183	0.01008	L	11/9/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-19	1.849	1.107	308.770	0.217	0.01002	L	11/8/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-20	1.389	1.107	304.390	0.214	0.01003	L	11/8/2012	12/8/2012	240.000
LSC-A-022	ARS1-B12-02721-21	1.072	1.107	280.530	0.198	0.01002	L	11/14/2012	12/8/2012	240.000

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	AliquotReportUnits	UserID	ModDate
LSC-A-022	ARS1-B12-02721-01	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-02	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-03	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-04	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-05	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-06	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-07	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-08	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-09	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-10	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-11	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-12	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-13	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-14	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-15	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-16	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-17	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-18	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-19	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-20	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-21	L	AMRAD\RUSEY	12/10/2012

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\20121204_1437.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

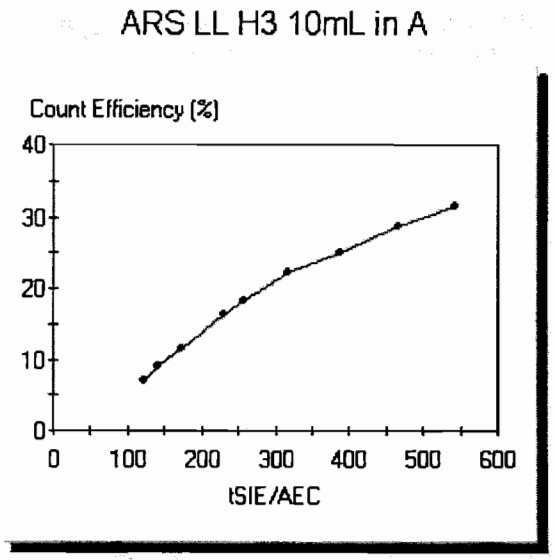
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
10	1	BACKGROUND	1.107	4.37	395.29	25.33	240.00	12/4/2012	2:45:58 PM	
10	2	B12-02721-01	4.839	19.68	378.07	24.59	240.00	12/4/2012	6:56:59 PM	
10	3	B12-02721-02	4.791	19.49	377.91	24.58	240.00	12/4/2012	11:07:59 PM	
10	4	B12-02721-03	1.094	4.22	407.72	25.92	240.00	12/5/2012	3:18:59 AM	
10	5	B12-02721-04	1.076	4.37	378.13	24.59	240.00	12/5/2012	7:29:54 AM	
10	6	B12-02721-05	1.277	5.04	395.32	25.33	240.00	12/5/2012	11:40:51 AM	
Missing vial 7.										
Missing vial 8.										
Missing vial 9.										
Missing vial 10.										
Missing vial 11.										
Missing vial 12.										
10	13	B12-02721-12	1.032	6.60	220.99	15.64	240.00	12/5/2012	3:52:07 PM	
10	14	B12-02721-13	1.275	4.96	402.67	25.68	240.00	12/5/2012	8:03:04 PM	
10	15	B12-02721-14	1.004	4.97	286.72	20.19	240.00	12/6/2012	12:14:02 AM	
10	16	B12-02721-15	1.161	5.67	290.87	20.47	240.00	12/6/2012	4:24:59 AM	
10	17	B12-02721-16	1.173	6.43	258.02	18.24	240.00	12/6/2012	8:35:55 AM	
10	18	B12-02721-17	3.550	19.91	251.93	17.83	240.00	12/6/2012	12:46:52 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\20121206_1649.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

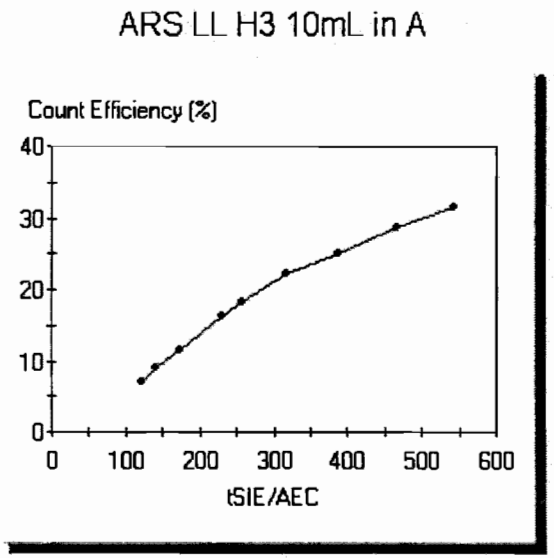
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	B12-02721-06	3.801	14.84	401.27	25.61	240.00	12/6/2012	4:58:25 PM	
2	2	B12-02721-07	1.319	5.06	410.59	26.06	240.00	12/6/2012	9:09:28 PM	
2	3	B12-02721-08	1.466	5.78	395.87	25.35	240.00	12/7/2012	1:20:23 AM	
2	4	B12-02721-09	1.351	5.73	351.17	23.55	240.00	12/7/2012	5:31:20 AM	
2	5	B12-02721-10	1.062	5.27	286.28	20.16	240.00	12/7/2012	9:42:17 AM	
2	6	B12-02721-11	1.818	7.68	354.31	23.67	240.00	12/7/2012	1:53:14 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\20121207_1755.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

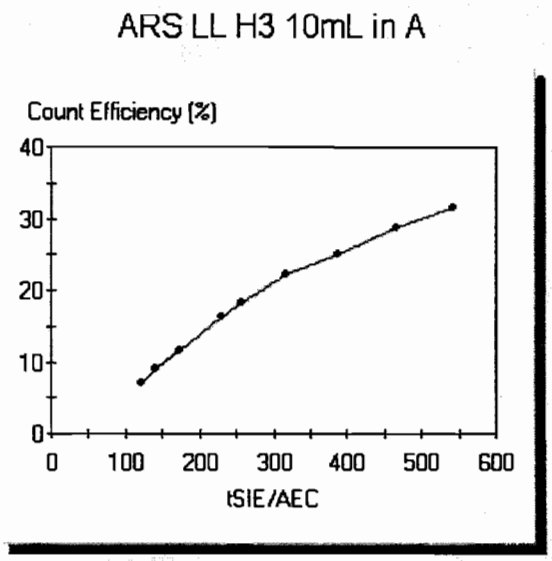
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
10	1	B12-02721-18	1.076	5.89	258.29	18.25	240.00	12/7/2012	6:04:50 PM	
10	2	B12-02721-19	1.849	8.53	308.77	21.69	240.00	12/7/2012	10:15:50 PM	
10	3	B12-02721-20	1.389	6.50	304.39	21.39	240.00	12/8/2012	2:26:47 AM	
10	4	B12-02721-21	1.072	5.42	280.53	19.77	240.00	12/8/2012	6:37:44 AM	

ARS Batch Number: ARS1-B12 - 02721

Enter these Values for LCS			Report Name	Field Name on the Report
	Current ACT	5.6490	Standards Report	ACT at Date Above (dpm/g)
	NetWt	5.0530	LCS Report	NetWt
	Aliquot	0.5002	Tritium Enrichment Data	Gross Sample Added/1000

Enter these Values for LCSD			Report Name	Field Name on the Report
	Current ACT	5.6490	Standards Report	ACT at Date Above (dpm/g)
	NetWt	5.0520	LCS Report	NetWt
	Aliquot	0.5035	Tritium Enrichment Data	Gross Sample Added/1000

Expected Value Calculations

ARS Batch Number: ARS1-B11 - 02721

LCS	**CALCULATED EXPECTED VALUE**	=	25.703			
			Range	20.563	-	30.844
LCSD	**CALCULATED EXPECTED VALUE**	=	25.532			
			Range	20.425	-	30.638

Exit

AMRAD AMERICAN RADIATION SERVICES, LLC

Standards Activity as of: 12/03/12 12:16

Active	Std ID	Isotope	PSCLT	Verification Date	Exp Date	Status	Ref Date	Ref ACT (dpm)	ACT at Date Above (dpm/g)	Halflife (days)	Parent ID	Expended Date	Comments
A	**S-0279**	H-3	**SL**	09/10/12	09/10/13	OK	09/07/12	5.7255E+00	**5.6493**	4.500E+03	**S-0237**		H3 LCS standard. Dilution performed as stated above by B Steffens. -B

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
11-21-12	0702	SNC-16	QA	QA	[illegible]
11-21-12	1136	Background	B12 02616	1417	[illegible]
↓	↓	B12-02616-01	↓	↓	[illegible]
↓	↓	B12-02616-02	↓	↓	[illegible]
↓	↓	B12-02616-03	↓	↓	[illegible]
↓	↓	B12-02616-04	↓	↓	[illegible]
↓	↓	B12-02616-05	↓	↓	[illegible]
↓	↓	B12-02616-06	↓	↓	[illegible]
↓	↓	B12-02616-07	↓	↓	[illegible]
↓	↓	B12-02616-08	↓	↓	[illegible]
↓	↓	B12-02616-09	↓	↓	[illegible]
↓	↓	B12-02616-10	↓	↓	[illegible]
11-21-12	1200	SNC-16	QA	QA	[illegible]
12-4-12	0732	SNC-16	QA	QA	[illegible]
12-4-12	1434	Background	B12-02721	1437	[illegible]
↓	↓	B12-02721-01	↓	↓	[illegible]
↓	↓	B12-02721-02	↓	↓	[illegible]
↓	↓	B12-02721-03	↓	↓	[illegible]
↓	↓	B12-02721-04	↓	↓	[illegible]
↓	↓	B12-02721-05	↓	↓	[illegible]

Reviewed By: [illegible] Date: 12-10-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-4-12	1434	B12-02721-06	B12-02721	1437	[illegible]
↓	↓	B12-02721-07	↓	↓	[illegible]
↓	↓	B12-02721-08	↓	↓	[illegible]
↓	↓	B12-02721-09	↓	↓	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
↓	↓	B12-02721-12	↓	↓	[illegible]
↓	↓	B12-02721-13	↓	↓	[illegible]
↓	↓	B12-02721-14	↓	↓	[illegible]
↓	↓	B12-02721-15	↓	↓	[illegible]
↓	↓	B12-02721-16	↓	↓	[illegible]
↓	↓	B12-02721-17	↓	↓	[illegible]
↓	↓	B12-02721-18	↓	↓	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]
12-4-12	1437	SNC-16	QA	QA	[illegible]
* 12-5-12	1604	B12-02721-06	B12-02721	1649	[illegible]
↓	↓	B12-02721-07	↓	↓	[illegible]
↓	↓	B12-02721-08	↓	↓	[illegible]

* Will count before SNC. 12-5-12

Reviewed By: [illegible] Date: 12-10-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-5-12	1654	B12-02721-09	B12-02721	1649	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
12-7-12	1026	B12-02721-18	B12-02721	1755	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]

12-10-12

Reviewed By: SDR Date: 12-10-12
Initials

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

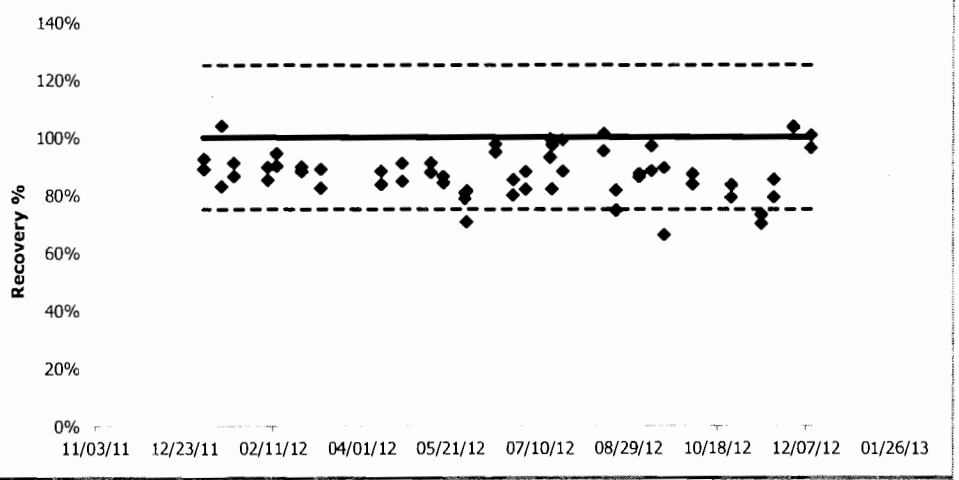
Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Control Charts

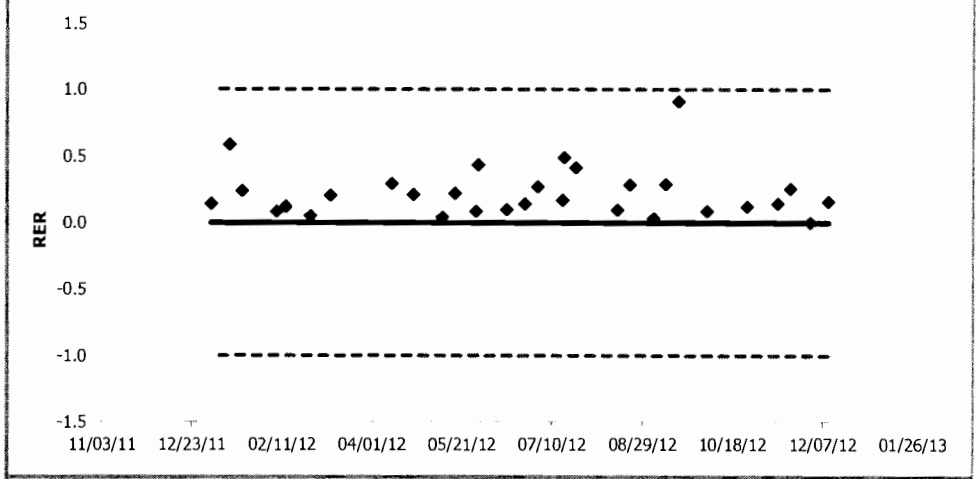
QC Chart

LLH-3 LCS



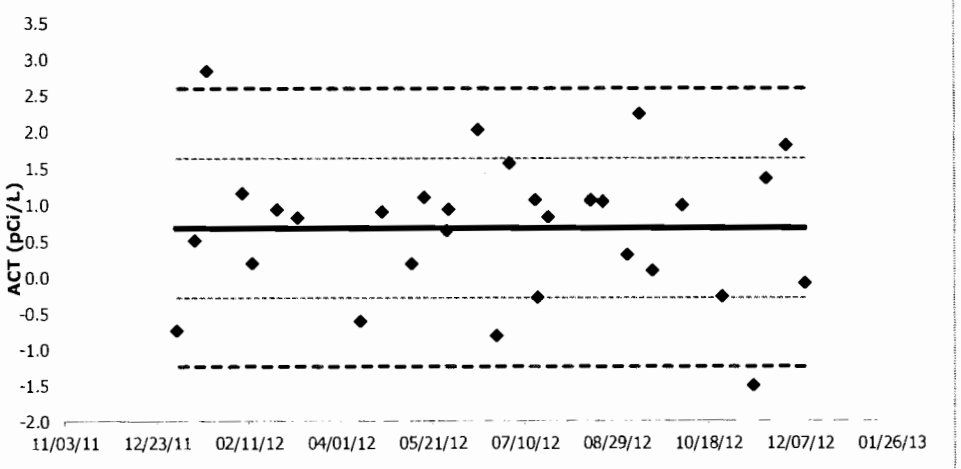
Average	STDEV	n	UCL	LCL
0.8778	0.0828	30	1.2500	0.7500

LLH-3 RER



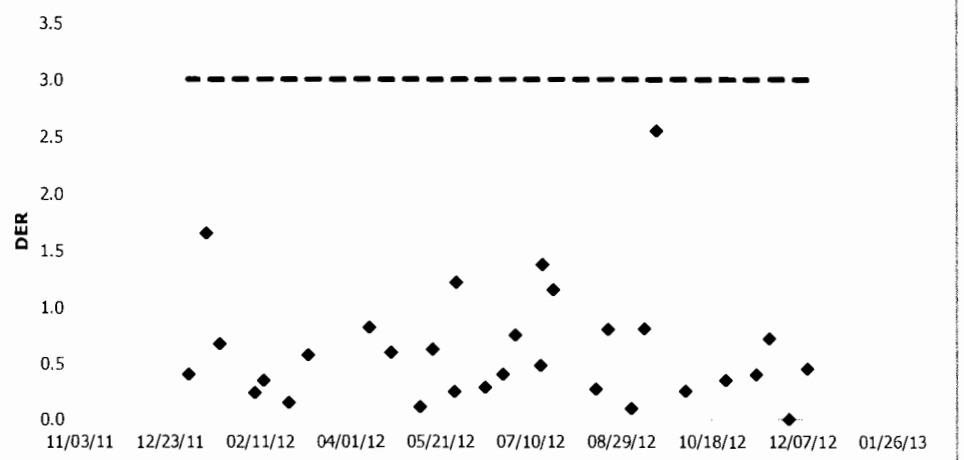
		n	UCL	LCL
		30	1.0000	-1.0000

LLH-3 Blank



Average	STDEV	n	UCL	LCL
0.6761	0.9576	30	2.5912	-1.2390

LLH-3 DER



		n	UCL	
		30	3.0000	

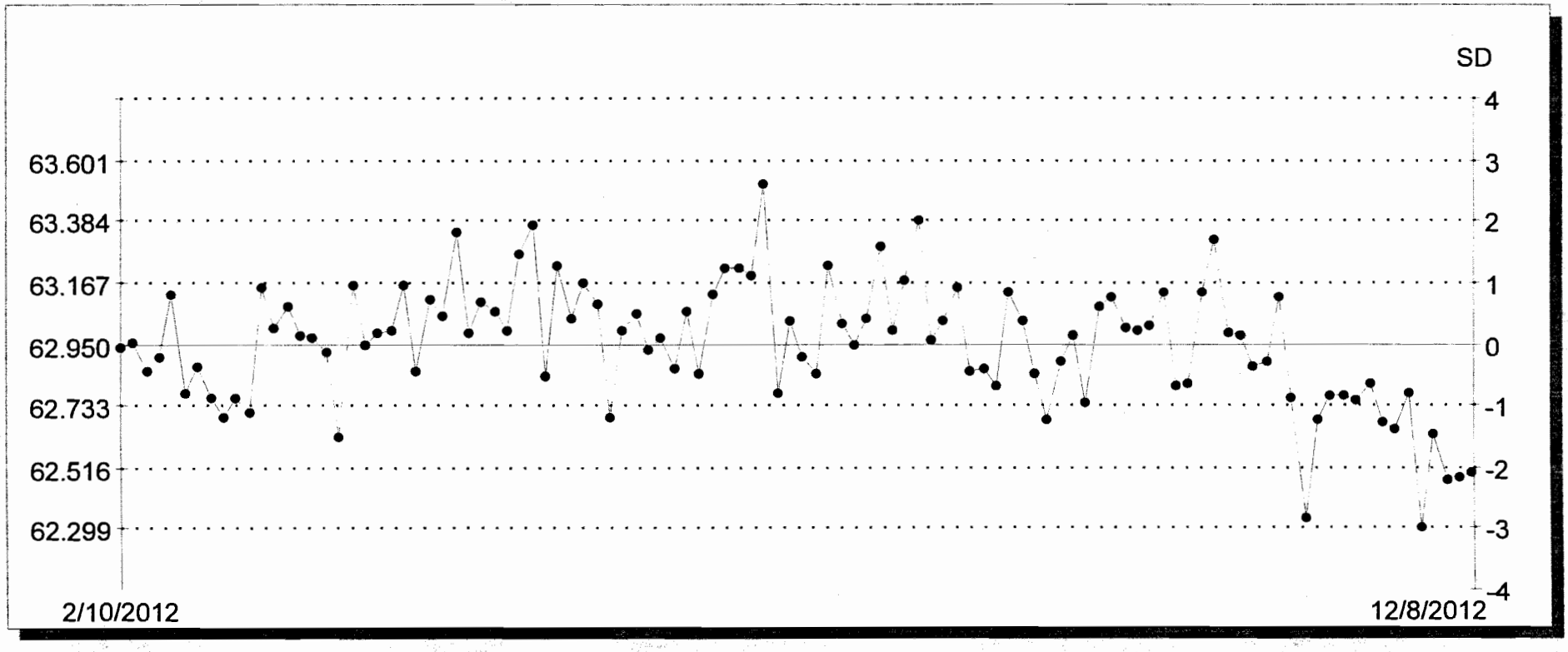
3H Efficiency
Total # pts : 5553
Valid # pts : 106
Mean : 62.95
SD : 0.22

Date	Value	Valid Pt
Feb 10, 2012	62.94	X
Feb 15, 2012	62.96	X
Feb 16, 2012	62.86	X
Feb 17, 2012	62.90	X
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X

Jun 30, 2012	62.97	X
Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X
Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 22, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X

Nov 13, 2012	62.76	X
Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X
Nov 18, 2012	62.68	X
Nov 19, 2012	62.65	X
Nov 21, 2012	62.78	X
Nov 22, 2012	62.30	X
Nov 23, 2012	62.63	X
Nov 23, 2012	62.47	X
Dec 04, 2012	62.48	X
Dec 08, 2012	62.49	X

3H Efficiency
Total # pts : 5553
Valid # pts : 106
Mean : 62.95
SD : 0.22



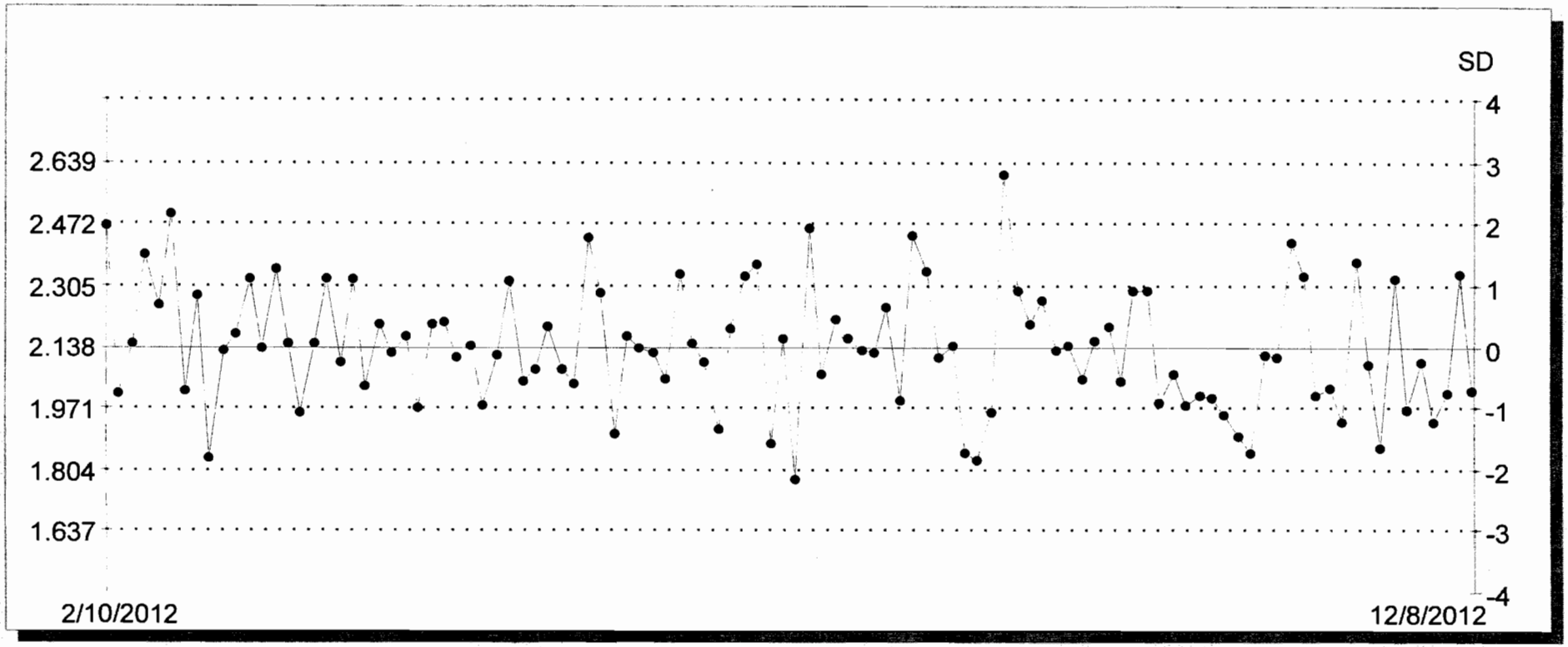
3H Background
Total # pts : 5479
Valid # pts : 106
Mean : 2.14
SD : 0.17

Date	Value	Valid Pt
Feb 10, 2012	2.47	X
Feb 15, 2012	2.01	X
Feb 16, 2012	2.15	X
Feb 17, 2012	2.39	X
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X

Jun 30, 2012	2.12	X
Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X
Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 22, 2012	2.19	X
Jul 26, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 09, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X

Nov 13, 2012	1.93	X
Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X
Nov 18, 2012	1.86	X
Nov 19, 2012	2.32	X
Nov 19, 2012	1.96	X
Nov 20, 2012	2.09	X
Nov 21, 2012	1.93	X
Nov 23, 2012	2.01	X
Dec 04, 2012	2.34	X
Dec 08, 2012	2.02	X

3H Background
Total # pts : 5479
Valid # pts : 106
Mean : 2.14
SD : 0.17



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium- Screening by Low Level Liquid Scintillation Counting

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Samples

Procedures: **ARS-060** **ARS-040** *Section 14.1 Tritium Screen in Clean Water without Distillation*

ARS File ID Numbers: ARS1-12-02305; 2306; 2307; 2309
ARS Batch ID: ARS1-B12-02720

	Sample ID:	COUNT TIME	CPMA	Background CPMA	Eff Nucl In A	Aliquot (grams)	ACTIVITY	units	MDA	Sample Must be analyzed as LSC-A-001
1	B12-02720-04	120	1.982	1.188	27.31	10.00	130.962	pCi/L	97.38927	YES, analyze by LSC-A-001.
2	B12-02720-05	120	1.362	1.188	27.33	10.02	28.621	pCi/L	97.12375	NO
3	B12-02720-06	120	1.378	1.188	27.43	10.00	31.201	pCi/L	96.96321	NO
4	B12-02720-07	120	1.343	1.188	27.22	10.03	25.573	pCi/L	97.41902	NO
5	B12-02720-08	120	1.422	1.188	27.31	10.01	38.557	pCi/L	97.29198	NO
6	B12-02720-09	120	1.600	1.188	27.58	10.04	67.022	pCi/L	96.05165	NO
7	B12-02720-10	120	1.724	1.188	27.09	10.04	88.771	pCi/L	97.78902	NO
8	B12-02720-11	120	1.450	1.188	27.2	10.01	43.346	pCi/L	97.68544	NO
9							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
10							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
11							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
12							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
13							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
14							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
15							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
16							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
17							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
18							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
19							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
20							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
21							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
22							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
23							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!

Per VIM, run all samples by LSC-A-022
SAA
11-19-12

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

ARS INTERNATIONAL

Analysis Batch ID **ARS1-B12-02720**

Method **ARS-054** **Analysis** **LSC-A-021** **Matrix** **AQ**

Description **Low Level Tritium Screening**

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02720-01	LCS									
ARS1-B12-02720-02	LCSD									
ARS1-B12-02720-03	MBL									
ARS1-B12-02720-04	TRG				**ARS1-12-02305**	001	1	CASA-13-24210	STD	12/12/12
ARS1-B12-02720-05	TRG				**ARS1-12-02306**	001	1	CAMO-13-24245	STD	12/12/12
ARS1-B12-02720-06	TRG				**ARS1-12-02306**	002	1	CAMO-13-24246	STD	12/12/12
ARS1-B12-02720-07	TRG				**ARS1-12-02306**	003	1	CAMO-13-24249	STD	12/12/12
ARS1-B12-02720-08	TRG				**ARS1-12-02306**	004	1	CAMO-13-24250	STD	12/12/12
ARS1-B12-02720-09	TRG				**ARS1-12-02307**	001	1	CAMO-13-24253	STD	12/12/12
ARS1-B12-02720-10	TRG				**ARS1-12-02307**	002	1	CAMO-13-24228	STD	12/12/12
ARS1-B12-02720-11	TRG				**ARS1-12-02309**	001	1	CASA-13-24211	STD	12/12/12

126796
12-02305-001-1
WRAD

126797
12-02306-001-1
WRAD

126798
12-02306-002-1
WRAD

126799
12-02306-003-1
WRAD

126800
12-02306-004-1
WRAD

126801
12-02307-001-1
WRAD

126804
12-02307-002-1
WRAD

126805
12-02309-001-1
WRAD

ARS-054

52 of 82

ID_31001_054	ABatch	ABatchSampleID	ClientID	Aliquot1	AliquotUnits1	IC_ID1	Aliquot2	AliquotUnits2	IC_ID2	UserID	ModDate
11995	ARS1-B12-02720	ARS1-B12-02720-01		1	g					AMRAD\RUSEY	11/16/2012 13:10:45
11996	ARS1-B12-02720	ARS1-B12-02720-02		1	g					AMRAD\RUSEY	11/16/2012 13:10:45
11997	ARS1-B12-02720	ARS1-B12-02720-03		1	g					AMRAD\RUSEY	11/16/2012 13:10:45
11998	ARS1-B12-02720	ARS1-B12-02720-04	CASA-13-24210	10	g	126796				AMRAD\RUSEY	11/16/2012 13:10:45
11999	ARS1-B12-02720	ARS1-B12-02720-05	CAMO-13-24245	10.02	g	126797				AMRAD\RUSEY	11/16/2012 13:10:45
12000	ARS1-B12-02720	ARS1-B12-02720-06	CAMO-13-24246	10	g	126798				AMRAD\RUSEY	11/16/2012 13:10:45
12001	ARS1-B12-02720	ARS1-B12-02720-07	CAMO-13-24249	10.03	g	126799				AMRAD\RUSEY	11/16/2012 13:10:45
12002	ARS1-B12-02720	ARS1-B12-02720-08	CAMO-13-24250	10.01	g	126800				AMRAD\RUSEY	11/16/2012 13:10:45
12003	ARS1-B12-02720	ARS1-B12-02720-09	CAMO-13-24253	10.04	g	126801				AMRAD\RUSEY	11/16/2012 13:10:46
12004	ARS1-B12-02720	ARS1-B12-02720-10	CAMO-13-24228	10.04	g	126804				AMRAD\RUSEY	11/16/2012 13:10:46
12005	ARS1-B12-02720	ARS1-B12-02720-11	CASA-13-24211	10.01	g	126805				AMRAD\RUSEY	11/16/2012 13:10:46

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121117_0729
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121117_0729\20121117_0729.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121117_0729\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121117_0729\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

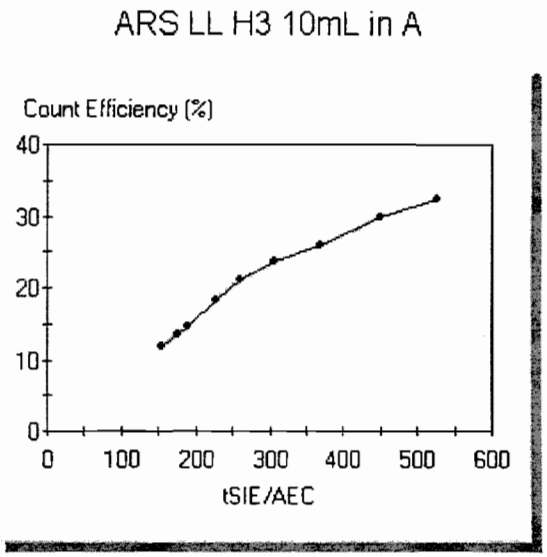
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/18/2011
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
526.29	32.47
450.16	29.90
370.15	25.92
306.68	23.60
260.68	20.99
228.69	18.21
189.46	14.53
177.14	13.64
155.73	11.73

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	BACKGROUND	1.188	4.61	365.54	25.76	120.00	11/17/2012	7:38:00 AM	
2	2	B12-02720-04	1.982	7.26	398.11	27.31	120.00	11/17/2012	9:47:57 AM	
2	3	B12-02720-05	1.362	4.98	398.46	27.33	120.00	11/17/2012	11:57:51 AM	
2	4	B12-02720-06	1.378	5.02	400.41	27.43	120.00	11/17/2012	2:07:44 PM	
2	5	B12-02720-07	1.343	4.93	396.35	27.22	120.00	11/17/2012	4:17:39 PM	
2	6	B12-02720-08	1.422	5.21	398.01	27.31	120.00	11/17/2012	6:27:33 PM	
2	7	B12-02720-09	1.600	5.80	403.48	27.58	120.00	11/17/2012	8:37:29 PM	
2	8	B12-02720-10	1.724	6.36	393.65	27.09	120.00	11/17/2012	10:47:23 PM	
2	9	B12-02720-11	1.450	5.33	395.94	27.20	120.00	11/18/2012	12:57:20 AM	

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
11-14-12	0807	B12-0076-06	B12-0066	0512	[illegible]
↓	↓	B12-0076-09	↓	↓	[illegible]
↓	↓	B12-0076-10	↓	↓	[illegible]
↓	↓	B12-0076-11	↓	↓	[illegible]
↓	↓	B12-0076-12	↓	↓	[illegible]
↓	↓	B12-0076-13	↓	↓	[illegible]
11-14-12	[illegible]	Sec 16	[illegible]4	0[illegible]4	[illegible]
11-15-12	1311	Background	[illegible]	0100	[illegible]
↓	↓	B12-0066-01	↓	↓	[illegible]
↓	↓	B12-0066-02	↓	↓	[illegible]
↓	↓	B12-0066-03	↓	↓	[illegible]
↓	↓	B12-0066-04	↓	↓	[illegible]
↓	↓	B12-0066-05	↓	↓	[illegible]
↓	↓	B12-0066-06	↓	↓	[illegible]
↓	↓	B12-0066-07	↓	↓	[illegible]
↓	↓	B12-0066-08	↓	↓	[illegible]
↓	↓	B12-0066-09	↓	↓	[illegible]
↓	↓	B12-0066-10	↓	↓	[illegible]
11-16-12	0801	B12-0076-[illegible]	B12-0066	2306	[illegible]
11-16-12	1317	Background	B12-0072	0189	[illegible]

Reviewed By: SCh Date: 12-14-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
[illegible]	[illegible]	[illegible] 01	[illegible]	[illegible]	[illegible]
|	|	[illegible]	|	|	[illegible]
|		[illegible]	|	|	[illegible]
|		[illegible]	|	|	[illegible]
|		[illegible]	|	|	[illegible]
|		[illegible]	|	|	[illegible]
|		[illegible]	|	|	[illegible]
|		[illegible]	|	|	[illegible]
[illegible]	[illegible]	[illegible]	GH	GH	[illegible]

[illegible] 11-15-12

Reviewed By: SOh Date: 12-14-12
Initials

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

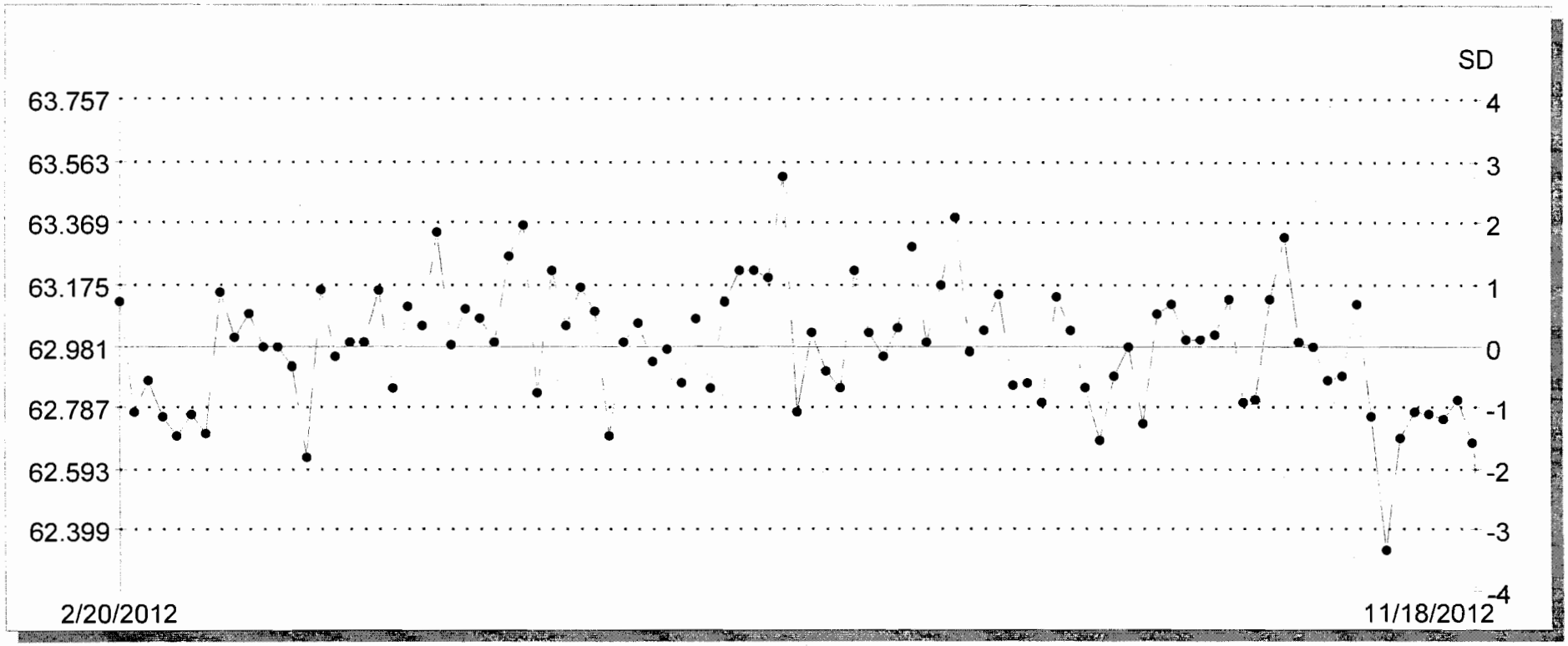
Control Charts

3H Efficiency
Total # pts : 5546
Valid # pts : 95
Mean : 62.98
SD : 0.19

Date	Value	Valid Pt
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X
Jun 30, 2012	62.97	X
Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X

Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 22, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X
Nov 12, 2012	62.77	X
Nov 13, 2012	62.76	X
Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X

3H Efficiency
Total # pts : 5546
Valid # pts : 95
Mean : 62.98
SD : 0.19

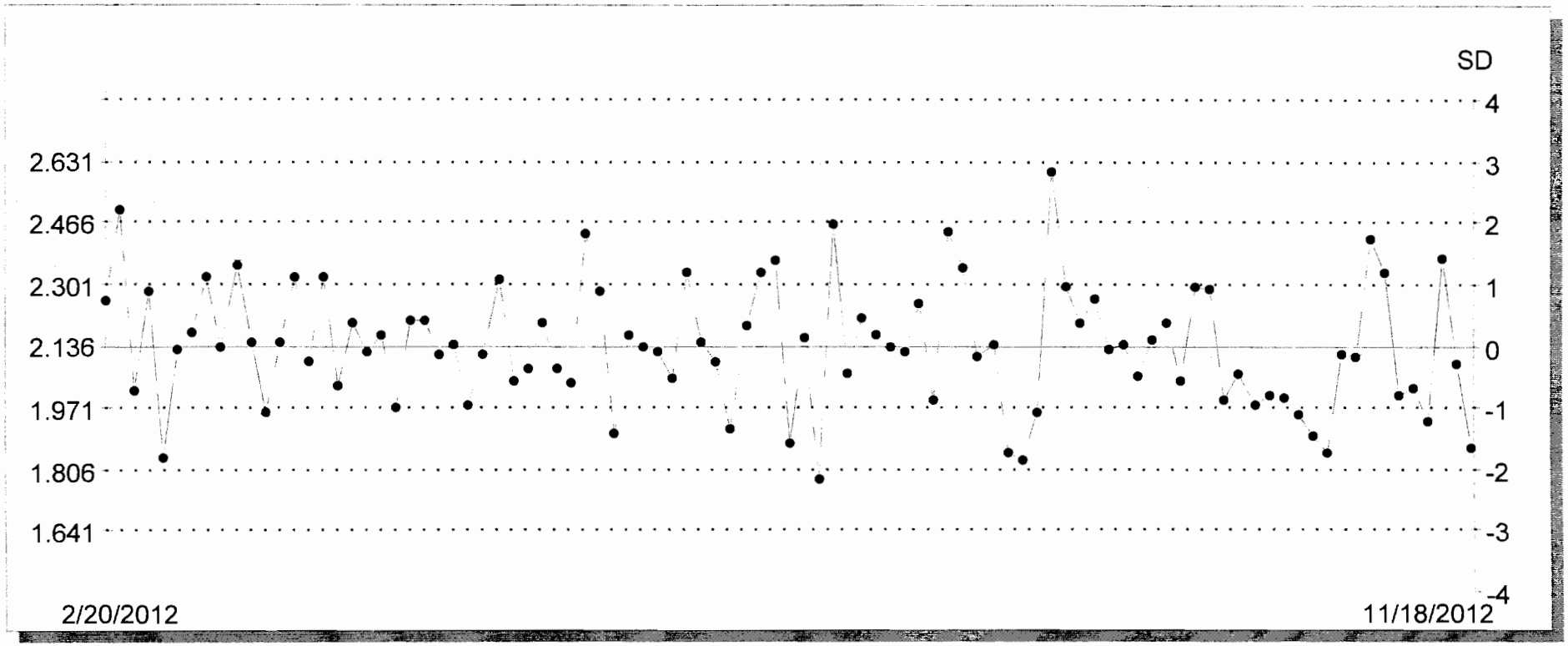


3H Background
Total # pts : 5472
Valid # pts : 95
Mean : 2.14
SD : 0.16

Date	Value	Valid Pt
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X
Jun 30, 2012	2.12	X
Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X

Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 22, 2012	2.19	X
Jul 26, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 03, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X
Nov 12, 2012	2.02	X
Nov 13, 2012	1.93	X
Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X

3H Background
Total # pts : 5472
Valid # pts : 95
Mean : 2.14
SD : 0.16



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Liquid Scintillation Counting

Calibration Information

ARS INTERNATIONAL

QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS

ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE 9/10/2012 20:16 *date counted*
STANDARD REFERENCE # S-0279

Principal Radionuclide		Half Life, Years		Half Life, Days
H-3	*ENTER -->*		*OR -->*	4.4998E+03
		1.232E+01		4.4998E+03

Radionuclide H-3 Dilution Reference Date 9/7/2012 10:40

Dilution Activity	2.58	pCi per gram ===> dpm/g	5.73
Verif. Date Decay Corrected	2.58	pCi per gram ===> dpm/g	5.72

Minimum of 3 Required

Trial ID	Sample Counts	Count Time (min)	Detector	Efficiency	Bkg. (cpm)	Net Weight	Decay Corrected Activity Result (dpm/g)	Decay Corrected Activity Result (pCi/g)
S-0279-V1	15.91	1	LSC	0.3302	6.49	5.019	5.68	2.56
S-0279-V2	16.21	1	LSC	0.3291	6.49	5.018	5.89	2.65
S-0279-V3	15.76	1	LSC	0.3290	6.49	5.018	5.62	2.53
S-0279-V4	15.62	1	LSC	0.3293	6.49	5.008	5.54	2.49
S-0279-V5	15.76	1	LSC	0.3280	6.49	5.018	5.63	2.54

	Average	5.67	2.55
	Two Sigma Uncertainty	0.26	0.12
10% Max *PASS*	Standard Deviation percent of known concentration	2.30%	2.30%
	Target Activity	5.72	2.58
5% Max *PASS*	% Diff	-0.91%	-0.91%

Verification Expiration Date: ##############

Prepared & Counted By [signature] Date: 9/10/2012 20:16

Verified & Approved By [signature] Date: 9-11-12 0817

QC Approval [signature] Date: 9-11-12 0817

S-0279		
H-3	Verified	*9/10/12*
SL	**Expires**	**9/10/13**
Manufactuer	**NIST SRM 4927F**	
Sol Matrix	H2O	
Ref No	NIST SRM 4927F	
Tech	Unknown	
Parent ID	S-0237	

ARS INTERNATIONAL

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

H-3 Standard Verification

Verifier's Name: Brian Steffens **Date:** 9/7/2012

Pipettor ID: FJ40469

Pipettor ID: Auto-pipettor

Pipettor ID: na

Standard ID: S-0279

Standard ID: N/A

Standards brought up to ~5g with distilled dead water.
Standards made in glass vials.

15mL of Ultima Gold added to standard

	Weight of Standard
S-0279-V1	5.019 **g**
S-0279-V2	5.018 **g**
S-0279-V3	5.018 **g**
S-0279-V4	5.008 **g**
S-0279-V5	5.018 **g**

Balance ID: H1331122173560P

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931
Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\20120910_0931.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\H-3 Normal 3.lsa

Count Conditions-

Nuclide: H-3 Normal
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: UG STD H-3
Count Time (min): 120.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

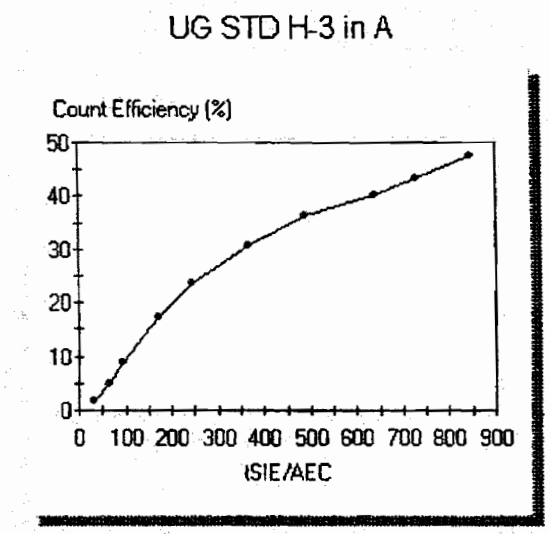
Half Life

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 06/27/2012
Date Modified:
UG STD H-3 in A

tSIE/AEC	Count Efficiency (%)
846.90	47.58
730.85	43.21
639.47	40.08
487.78	36.36
365.41	30.73
244.81	23.69
169.28	17.31
95.01	8.79
64.60	4.97
34.32	.64

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
54	1	BACKGROUND	6.49	19.81	409.74	32.77	120.00	9/10/2012	9:36:46 AM	
54	2	S-0279-V1	15.91	48.18	415.20	33.02	120.00	9/10/2012	11:44:40 AM	
54	3	S-0279-V2	16.21	49.25	412.72	32.91	120.00	9/10/2012	1:52:36 PM	
54	4	S-0279-V3	15.76	47.89	412.56	32.90	120.00	9/10/2012	4:00:32 PM	
54	5	S-0279-V4	15.62	47.44	413.22	32.93	120.00	9/10/2012	6:08:27 PM	
54	6	S-0279-V5	15.76	48.04	410.40	32.80	120.00	9/10/2012	8:16:20 PM	

STD ID: S-0279

ARS INTERNATIONAL

Add/Edit *Secondary Stds*

Planning

Planning Comments	Create a H3 LCS standard.
Target dpm/g (on dil. date)	5.5
Target Final volume mL	2000
Appx mass g of Parent Sol'n	3.606433954
Appx vol ml of Parent Sol'n	3.612937241
Expected Addition for Analysis g	5

Standards Preparation / Dilution

Secondary Solution #	S-0279
Dilution Date (New Ref Date)	09/07/2012 10:40
Ampoule, Empty (g)	
Ampoule /Solution Gross (g)	
Net Wt Removed (g)	
Transfer Container, empty (g)	13.144
Container Plus Solution (g)	16.89
Net Wt Transferred (g)	3.746
DPM Xferred on 09/07/2012 10:40	11425.69101
Diluent/matrix	DI H2O
Diluent Density Cont, empty (g)	
Test Mass of 5 ml of Diluent (g)	
Diluent Density Test - (g/mL)	
Dilution Empty Container Mass (g)	473.93
Dilution Full Cont g (if measured)	2469.52
Dilution Final Volume ml (if measured)	2000
Final Dilution Density (g/mL)	0.997795
Final Dilution Measured Mass g	1995.59
Comments	H3 LCS standard. Dilution performed as stated above by B Steffens. -BJS 9/7/12
Final Dilution dpm/g	5.725470166
Final Dil New Ref Date/Time	09/07/2012 10:40

Parent Standard Data

Parent Solution Reference #	NIST SRM 4927F			
Parent Solution #	S-0237			
Parent Principal Radionuclide	H-3	Half Life (Days)	4499.8000000	
Parent Reference Date	03/22/2010 10:10			
Parent Certified Act	3503.682716	Certl Act/Vol Units	dpm	g
Parent Cert Act Uncert 1 Sigma	0.0036			
Parent Sp. Gravity G/Ml	0.9982			
Parent Supplier	NIST SRM 4927F			
Parent Date Recvd	01/02/00			
Parent Received By	Unknown			
Parent Cert Exp Date				
Parent Matrix	H2O			
Certified dpm/g At Ref Date	3503.682716			
Certified dpm/g on 09/07/2012 10:40	3030.10438			
Parent Comments	Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Steffens. -BJS 3/22/10			
Parent Tech	Unknown			
Is_Primary	FALSE			
Is_LCS	TRUE			
Is_Tracer	FALSE			
Is_Calib	FALSE			

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Folder Duplicate

Report Compilation Checklist

ARS SDG: 12-02307 **Client Name:** LANL **Sample Matrix:** AQ

LEVEL 1 COMPONENTS	1st Reviewer	
1) Cover Page Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
2) Technical Review Checklist(s) Complete and Accurate?	~~Yes~~ No N/A	
3) Case Narrative Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
4) Form 1s Present for all Samples and Tests?	~~Yes~~ No N/A	
5) Client Specific Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 2 COMPONENTS	1st Reviewer	
6) Batch Quality Control Report is Present and Accurate?	~~Yes~~ No N/A	
7) DQO Report is Present and Accurate?	~~Yes~~ No N/A	
8) Client Specific Batch QC Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 3 COMPONENTS	1st Reviewer	
9) Efficiencies are Present?	~~Yes~~ No N/A	
10) Calibrations are Present?	~~Yes~~ No N/A	
11) Backgrounds are Present?	~~Yes~~ No N/A	
12) Spectrum Analysis is Present?	~~Yes~~ No N/A	
13) Spectral Plots are Present?	~~Yes~~ No N/A	
14) Plateaus are Present?	~~Yes~~ No N/A	
15) Control Charts are Present?	~~Yes~~ No N/A	
16) Other:	Yes No ~~N/A~~	

LEVEL 4 COMPONENTS	1st Reviewer	
17) Preparation Raw Data Present, Signed and Complete?	~~Yes~~ No N/A	
18) Instrument Raw Data Present and Complete?	~~Yes~~ No N/A	
19) Calibration Certificates Present?	~~Yes~~ No N/A	
20) Copies of Log Book Pages Present?	~~Yes~~ No N/A	
21) Sample Receiving Documentation Present?	~~Yes~~ No N/A	
22) LIMS Reports Present?	~~Yes~~ No N/A	
23) Applicable Correspondence Present?	~~Yes~~ No N/A	
24) Other:	Yes No ~~N/A~~	

SDh 12-14-12
Report Generator Signature **Date**

James D Pu 12-14-12
Management Review Signature **Date**

LSC
Technical Review Checklist

ARS SDG ARS1-12-02307

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-B12-02720 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-021 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) Sample Prep Anomaly? ☐ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Chemist Signature 11-16-12 Date N/A Verifier Review Signature Date

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature 12-14-12 Date

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) NCR # (If initiated): _____

Analyst Signature 11-15-12 Date N/A Technicial Reviewer Signature Date

Batch A: ARS1-B12-02720

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes No ~~N/A~~	Yes No (N/A)
2) RDL Criteria are Met?	Yes No ~~N/A~~	Yes No (N/A)
3) Method Blank Criterion Met?	Yes No ~~N/A~~	Yes No (N/A)
4) LCS/LCD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
[signature]	12-14-12	[signature]	12-14-12

GENERAL COMMENTS

LSC
Technical Review Checklist

ARS SDG ARS1-12-02307

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-B12-02721 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-022 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) **Sample Prep Anomaly?** ☑ **No** ☐ **Yes** (See Tech Notes) **NCR #** (If initiated): _____

Chemist Signature 12-4-12 Date Verifier Review Signature 12-4-12 Date

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature 12-14-12 Date

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) **Test/Sample Specific Parameters** (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) **Analysis Anomaly?** ☑ **No** ☐ **Yes** (See Comments) **NCR #** (If initiated): _____

Analyst Signature 12-10-12 Date Technicial Reviewer Signature 12-10-12 Date

ARS INTERNATIONAL

Batch A: ARS1-B12-02721

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes ~~No~~ N/A	Yes (No) N/A
2) RDL Criteria are Met?	~~Yes~~ No N/A	(Yes) No N/A
3) Method Blank Criterion Met?	~~Yes~~ No N/A	(Yes) No N/A
4) LCS/LCD Criteria Met?	~~Yes~~ No N/A	(Yes) No N/A
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	~~Yes~~ No N/A	(Yes) No N/A
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
SDL	12-14-12	James D. Pu	12-14-12

GENERAL COMMENTS

SDG Report - Samples and Containers

78

SDG Specific Data

SDG	ARS1-12-02307	TAT Days	28	Project Type	Environmental
Sample Count	2 Rpt Level 4	Date Received	11/15/2012	COC Number	2013-282
Client	Los Alamos National Laboratory	Client Deadline	12/15/2012	PO Number	63641-001-10
Client Code	114	Internal Deadline	12/14/2012	Job Number	
Profile Number	PN-00094	Lab Deadline	12/12/2012	Job Location	
Comments					

Samples and Containers (➔) Checked In Thus Far

FR	ClientID	Matrix	SampleStartDate	SampleEndDate	Disp	Hold	Arch	Storage	X	Units	Y	Units	Z	Units	Comments
001	CAMO-13-24253	AQ	11/08/12 10:58 AM	11/08/12 10:58 AM	H	90	5	E3							
➔	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126703	1	1000.00				90	24		N	N/A				
002	CAMO-13-24228	AQ	11/08/12 10:58 AM	11/08/12 10:58 AM	H	90	5	E3							
➔	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126704	1	1000.00				90	24		N	N/A				

SDG Report - Analysis Assignments

Temp SDG	ARS1-12-02307	Sample Count	2
Client	Los Alamos National Laboratory	Analysis Count	2-4

Samples Count Totals per Analysis

Analysis Code	Analysis Description	Samples Count
LSC-A-021	Low Level Tritium Screen in (Aqueous)	2
LSC-A-022	Low Level Tritium by Enrichment Process in (Aqueous [AQ])	2

Analyses Assigned Per Fraction

Fraction	Analysis Code	X = Assigned
001	LSC-A-021	X
001	LSC-A-022	X
002	LSC-A-021	X
002	LSC-A-022	X

DQO Report for SDG
ARS1-12-02307

Analysis Code	Group	Isotope	Activity Units	Aliquot Units	ProcedureNo	RDL	LCS_LL	LCS_UL	MS_LL	MS_UL	RadY_LL	RadY_UL	GravY_LL	GravY_LL	RER	RPD	DiltionReq	RoughPrepReq	BlankCorrectionMDA	BlankCorrectionAll	CountTimeReq	AliquotRequired
LSC-A-021	STD	H-3	pCi	L	ARS-054	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		
LSC-A-022	STD	Enriched H-3	pCi	L	ARS-040	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		

ARS FILE TRACKING SHEET

SDG: ARS1-12-02307

Task	Date / Time	Initials
Date & Time Samples Received	11/15/12 10:30	cad
ICOC Initiated / Storage Location: E3	11/15/12 12:18	cad
Technical Checks Performed	See Batch	
Report Written / EDD Generated: 12-14-12/946 SDL (Date/Time, Initials)	12-14-12/942	SDL
Quality Assurance Checks Performed on Report	12-14-12 950	JDI
Management Check Performed on Report		
Preliminary Report Sent		
Report E-mailed		
Report Faxed		
Report Reviewed		
Report Mailed		
Invoice Completed Invoice #:		
Report Imaged		

SPECIAL REQUIREMENTS

Requirement	Yes	No
3 Hour Rush		✓
24 Hour Rush		✓
48 Hour Rush		✓
3 Day TAT		✓
5 Day TAT		✓

NOTES:

ARS-062
08/08/2012

COMPANY NAME: LANL

SDG: ARSI-12-02307

SHIPPING CONTAINER

- Good Condition ☑ Yes ☐ No
- Radioactive ☐ Yes ☑ No
- UN2910 ☐ Yes ☑ No
- Sec. Seals ☑ Yes ☐ No
  - Seals Intact ☑ Yes ☐ No ☐ N/A
- Air Bill ☐ Yes ☑ No

COC PRESENT WITH SAMPLES

- COC ☑ Yes ☐ No

SAMPLE CONTAINER(S)

- Good Condition ☑ Yes ☐ No
- Sec. Seals ☑ Yes ☐ No
  - Seal Intact ☑ Yes ☐ No ☐ N/A
- Marked Radioactive ☐ Yes ☑ No
- # Samples Rcv 9 8
- Matrix [AF , AQ , BI , FE , LT , SI , SO , UR , VG]

External and Internal Surveys

Exposure Rate Meter:	M3 242861	Serial No.:	PR 264264	Calibration Due Date:	4-18-13
Count Rate Meter:	M2 154859	Serial No.:	PR 184559	Calibration Due Date:	4-18-13

Background Exposure Rate (µR/hr)	24	Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd)	28	µR/hr
Background Count Rate (cpm)	80	Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd)	80	cpm
		Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd)	80	cpm

Sample Label/Comments/Notes	pH Orig (pH ≤ 2 is Acceptable)	pH Final	Mark if Preserve	Acid Lot #	Weight(g) / Volume(mL)	µR/hr (Acceptance Limits <500 µR/hr)	cpm (Acceptance Limits <100 cpm/cm²)
CASH-13-24210			☐		1000mL	24	80
			☐				
CAMO-13-24245			☐		1000 mL	24	80
-24246			☐		↓	24	80
-24249			☐			24	90
-24250			☐		↓	24	80
			☐				
* CAMO-13-24253			☐		1000mL	24	90
-24228			☐		↓	24	90
			☐				
WST54-13-24790			☐		2410g	26	90
			☐				
CASA-13-24211			☐		1000mL	24	80
			☐				
			☐				
			☐				
			☐				
			☐				
			☐				

Surveyors' Name: [signature]

Date/Time Surveyed: 11/15/12 1030

* these samples only in this SDG

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-276

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CAMO-13-24247	Nov 6 2012	12:40	W			1			1	1	
CAMO-13-24264	Nov 6 2012	12:40	W	1	1		1	1			
CAMO-13-24265	Nov 6 2012	11:07	W	1	1		1	1			
CAMO-13-24248	Nov 6 2012	11:07	W			1			1	1	

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
Sherwood	S. Sherwood	11/7/12 3pm		
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24264 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/6/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1240	MEDIA:	UA	
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-45 S1		FIELD PREP:	F	ok
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P1A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-CL04	250 ML POLY	1	ICE	Y	N/A
	WSP-GENINORG	1 LITER POLY	1	ICE		
	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS: See CAMO-13-24247

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) D Woody

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/06/12 1340	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	11/06/12 1340
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24247

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/6/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1240	MEDIA:	UA	
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-45 S1		FIELD PREP:	UF	ok
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P1A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	N/A
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: well sampled ~40' away from a running Diesel generator

LOCATION COMMENTS: N/A

FIELD PARAMETERS:

Dissolved Oxygen 7.22 mg/L Oxidation-Reduction Potential 97.1 MV pH 7.84 SU

Specific Conductance 173 uS/cm Temperature 20.71 deg C Turbidity 0.37 NTU

COLLECTED BY (PRINT) R. Waddy

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/06/12 1340	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	11/06/12 1340
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24248

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/6/2012	FIELD MATRIX:	WG	QK
TIME COLLECTED (HH:MM):		1107	MEDIA:	UA	
PRS ID:		QK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-45 S2		FIELD PREP:	UF	QK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P2A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: well sampled ~40' away from running diesel generator

LOCATION COMMENTS: N/A

FIELD PARAMETERS:

Dissolved Oxygen 6.69 mg/L Oxidation-Reduction Potential 86.8 MV pH 8.10 SU

Specific Conductance 164 uS/cm Temperature 20.82 deg C Turbidity 0.40 NTU

COLLECTED BY (PRINT) D. Woody

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) D Woody	11/06/12 1340	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	11/06/12 1340
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24265

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/6/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1107	MEDIA:	UA	
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-45 S2		FIELD PREP:	F	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P2A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NT	WSP-CL04	250 ML POLY	1	ICE	Y	NT
	WSP-GENINORG	1 LITER POLY	1	ICE		
	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS: See CAMO-13-24248

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) D Woody

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/06/12 1340	(Printed Name) S Sherwood (Signature) Shari Sherwood	11/06/12 1348
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-276

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
314749	EPA:120.1	2				
314749	EPA:150.1	2				
314749	EPA:160.1	2				
314749	EPA:245.2	2				
314749	EPA:300.0	2				
314749	EPA:310.1	2				
314749	EPA:350.1	2				
314749	EPA:351.2	2				
314749	EPA:353.2	2				
314749	EPA:365.4	2				
314749	EPA:900	2				
314749	EPA:901.1	2				
314749	EPA:905.0	2				
314749	HASL-300:AM-241	2				
314749	HASL-300:ISOPU	2				
314749	HASL-300:ISOU	2				
314749	SM:A2340B	2				
314749	SW-846:6010B	2				
314749	SW-846:6020	2				
314749	SW-846:6850	2				
314749	SW-846:9060	2				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
314749	EPA:120.1	1265843	1265843	2							
314749	EPA:150.1	1261978	1261978	2							
314749	EPA:160.1	1261975	1261975	2					1		
314749	EPA:245.2	1264600	1264596	2					1	2	
314749	EPA:300.0	1261648	1261648	2					1		
314749	EPA:310.1	1264393	1264393	2					1	1	
314749	EPA:350.1	1261640	1261639	2					1	1	1
314749	EPA:351.2	1261638	1261637	2					1	1	1
314749	EPA:353.2	1261993	1261993	2					1		
314749	EPA:365.4	1261643	1261641	2					1	1	1
314749	EPA:900	1263054	1263054	2					1	1	1
314749	EPA:901.1	1262434	1262434	2					1		
314749	EPA:905.0	1263026	1263026	2					1	1	
314749	HASL-300:AM-241	1262092	1262092	2					1		
314749	HASL-300:ISOPU	1262093	1262093	2					1		
314749	HASL-300:ISOU	1262094	1262094	2					1		
314749	SM:A2340B	1267632	1267632	2							
314749	SW-846:6010B	1262051	1262047	2					1	1	
314749	SW-846:6020	1262054	1262053	2					1	1	
314749	SW-846:6850	1262376	1262373	2					1	1	1
314749	SW-846:9060	1261921	1261921	2					1		

2. Distribution Of Analytes In EDD.

Data Validation Report for:

Chain Of Custody No. 2013-276

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				2			
		1				1			
		1				1			
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1							
		1				1			

Data Validation Report for: Chain Of Custody No. 2013-276

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24264	1202785832	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24264	314749002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24265	314749003	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24280	1202785831	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202785833	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24264	1202776955	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24264	314749002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24265	314749003	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202776957	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24264	1202776941	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24264	314749002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24265	314749003	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202776944	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202776940	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783063	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783067	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783064	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783068	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24264	314749002	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24265	314749003	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202783069	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202783062	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24264	1202776151	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24264	314749002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24265	314749003	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202776153	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202776150	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24264	314749002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24265	314749003	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202782624	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202782623	MB	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	WST05-12-23563	1202782627	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	WST05-12-23563	1202782628	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776123	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776124	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776125	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24264	314749002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24265	314749003	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202776126	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202776122	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776118	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776119	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776120	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24247	314749001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24248	314749004	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202776121	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202776117	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24264	1202776984	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24264	314749002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24265	314749003	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202776989	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202776982	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776128	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776130	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776132	MSD	0	0	1	0

EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24264	314749002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24265	314749003	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202776134	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202776127	MB	1	0	0	0
EPA:900	RAD	CAMO-13-24247	314749001	REG	2	0	0	0
EPA:900	RAD	CAMO-13-24248	314749004	REG	2	0	0	0
EPA:900	RAD	CASA-13-24214	1202779587	DUP	2	0	0	0
EPA:900	RAD	CASA-13-24214	1202779588	MS	0	0	2	0
EPA:900	RAD	CASA-13-24214	1202779589	MSD	0	0	2	0
EPA:900	RAD	LCS	1202779590	LCS	0	0	2	0
EPA:900	RAD	MB	1202779586	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24247	314749001	REG	5	0	0	0
EPA:901.1	RAD	CAMO-13-24248	314749004	REG	5	0	0	0
EPA:901.1	RAD	CASA-13-24213	1202778039	DUP	6	0	0	0
EPA:901.1	RAD	LCS	1202778040	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202778038	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24247	314749001	REG	1	0	0	0
EPA:905.0	RAD	CAMO-13-24248	314749004	REG	1	0	0	0
EPA:905.0	RAD	CAMO-13-24253	1202779528	DUP	1	0	0	0
EPA:905.0	RAD	CAMO-13-24253	1202779529	MS	0	0	1	0
EPA:905.0	RAD	LCS	1202779530	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202779527	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24247	314749001	REG	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24248	314749004	REG	1	0	0	0
HASL-300:AM-241	RAD	CASA-13-24213	1202777246	DUP	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202777247	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202777245	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24247	314749001	REG	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24248	314749004	REG	2	0	0	0
HASL-300:ISOPU	RAD	CASA-13-24213	1202777249	DUP	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202777250	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202777248	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24247	314749001	REG	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24248	314749004	REG	3	0	0	0
HASL-300:ISOU	RAD	CASA-13-24213	1202777252	DUP	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202777253	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202777251	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24264	314749002	REG	1	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24265	314749003	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24264	314749002	REG	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24265	314749003	REG	17	0	0	0
SW-846:6010B	INORGANIC	CASA-13-24221	1202777118	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CASA-13-24221	1202777119	MS	0	0	17	0
SW-846:6010B	INORGANIC	LCS	1202777117	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202777116	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24264	314749002	REG	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24265	314749003	REG	11	0	0	0
SW-846:6020	INORGANIC	CASA-13-24221	1202777129	DUP	11	0	0	0
SW-846:6020	INORGANIC	CASA-13-24221	1202777130	MS	0	0	11	0
SW-846:6020	INORGANIC	LCS	1202777128	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202777127	MB	11	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24264	314749002	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24265	314749003	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24224	1202777946	MS	0	0	1	0

SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24224	1202777947	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202777945	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202777944	MB	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24247	314749001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24248	314749004	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24325	1202777399	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202777402	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202777397	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202777116	METHOD BLANK	SW-846:6010B	W	Potassium	130	J	ug/L	150

Any samples affected by the presence of contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CAMO-13-24256	1202776124	1202776125	EPA:350.1	Ammonia as Nitrogen	1261639	11/13/2012	W	114	95.1	110	90
CAMO-13-24239	1202776119	1202776120	EPA:351.2	Total Kjeldahl Nitrogen	1261637	11/14/2012	W	89.7	90.7	110	90
CASA-13-24214	1202779588	1202779589	EPA:900	Gross alpha	1263054	11/27/2012	W	86.3	103	125	75

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

Rejection Limit	RPD	RPD Limit
10	17.2	15
10	0.939	20
10	17.6	11.5

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-45 S1	2013-276	CAMO-13-24247	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-45 S1	2013-276	CAMO-13-24247	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-45 S1	2013-276	CAMO-13-24247	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-45 S1	2013-276	CAMO-13-24247	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-45 S1	2013-276	CAMO-13-24247	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-45 S1	2013-276	CAMO-13-24247	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-45 S1	2013-276	CAMO-13-24247	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-45 S1	2013-276	CAMO-13-24247	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-45 S1	2013-276	CAMO-13-24247	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-45 S1	2013-276	CAMO-13-24247	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-45 S1	2013-276	CAMO-13-24247	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-45 S1	2013-276	CAMO-13-24247	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-45 S2	2013-276	CAMO-13-24248	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-45 S2	2013-276	CAMO-13-24248	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-45 S2	2013-276	CAMO-13-24248	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-45 S2	2013-276	CAMO-13-24248	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-45 S2	2013-276	CAMO-13-24248	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-45 S2	2013-276	CAMO-13-24248	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-45 S2	2013-276	CAMO-13-24248	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-45 S2	2013-276	CAMO-13-24248	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-45 S2	2013-276	CAMO-13-24248	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-45 S2	2013-276	CAMO-13-24248	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-45 S2	2013-276	CAMO-13-24248	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-45 S2	2013-276	CAMO-13-24248	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N

Reason Code	Description
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24247	R-45 S1	REG	EPA:351.2	0	1
CAMO-13-24247	R-45 S1	REG	EPA:900	0	2
CAMO-13-24247	R-45 S1	REG	EPA:901.1	0	5
CAMO-13-24247	R-45 S1	REG	EPA:905.0	0	1
CAMO-13-24247	R-45 S1	REG	HASL-300:AM-241	0	1
CAMO-13-24247	R-45 S1	REG	HASL-300:ISOPU	0	2

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
0.000766	pCi/L	0.000766	pCi/L	0.0261	0.00766	W	11/6/2012		1262092	VAL	Y
-0.912	pCi/L	-0.912	pCi/L	5.99	1.7	W	11/6/2012		1262434	VAL	Y
-1.56	pCi/L	-1.56	pCi/L	5.75	1.66	W	11/6/2012		1262434	VAL	Y
0.806	pCi/L	0.806	pCi/L	2.78	0.75	W	11/6/2012		1263054	VAL	Y
1.68	pCi/L	1.68	pCi/L	2.02	0.674	W	11/6/2012		1263054	VAL	Y
-5.88	pCi/L	-5.88	pCi/L	11.7	3.63	W	11/6/2012		1262434	VAL	Y
-0.00169	pCi/L	-0.00169	pCi/L	0.0278	0.0059	W	11/6/2012		1262093	VAL	Y
0.00301	pCi/L	0.00301	pCi/L	0.0459	0.00487	W	11/6/2012		1262093	VAL	Y
0.685	pCi/L	0.685	pCi/L	85.3	22.8	W	11/6/2012		1262434	VAL	Y
-1.71	pCi/L	-1.71	pCi/L	5.62	1.64	W	11/6/2012		1262434	VAL	Y
-0.0292	pCi/L	-0.0292	pCi/L	0.403	0.102	W	11/6/2012		1263026	VAL	Y
0.0319	pCi/L	0.0319	pCi/L	0.0388	0.0121	W	11/6/2012		1262094	VAL	Y
0.0146	pCi/L	0.0146	pCi/L	0.0256	0.00714	W	11/6/2012		1262092	VAL	Y
0.935	pCi/L	0.935	pCi/L	6.04	1.61	W	11/6/2012		1262434	VAL	Y
2.74	pCi/L	2.74	pCi/L	7.07	1.66	W	11/6/2012		1262434	VAL	Y
-0.049	pCi/L	-0.049	pCi/L	2.95	0.702	W	11/6/2012		1263054	VAL	Y
2.36	pCi/L	2.36	pCi/L	2.51	0.847	W	11/6/2012		1263054	VAL	Y
0.48	pCi/L	0.48	pCi/L	11.3	3.21	W	11/6/2012		1262434	VAL	Y
-0.01	pCi/L	-0.01	pCi/L	0.0237	0.00555	W	11/6/2012		1262093	VAL	Y
0.00314	pCi/L	0.00314	pCi/L	0.0392	0.00528	W	11/6/2012		1262093	VAL	Y
32.8	pCi/L	32.8	pCi/L	77	18.4	W	11/6/2012		1262434	VAL	Y
-1.26	pCi/L	-1.26	pCi/L	5.52	1.54	W	11/6/2012		1262434	VAL	Y
0.229	pCi/L	0.229	pCi/L	0.464	0.14	W	11/6/2012		1263026	VAL	Y
0.0194	pCi/L	0.0194	pCi/L	0.04	0.0112	W	11/6/2012		1262094	VAL	Y

CAMO-13-24247	R-45 S1	REG	HASL-300:ISOU	0	3
CAMO-13-24247	R-45 S1	REG	SW-846:9060	0	1
CAMO-13-24248	R-45 S2	REG	EPA:351.2	0	1
CAMO-13-24248	R-45 S2	REG	EPA:900	0	2
CAMO-13-24248	R-45 S2	REG	EPA:901.1	0	5
CAMO-13-24248	R-45 S2	REG	EPA:905.0	0	1
CAMO-13-24248	R-45 S2	REG	HASL-300:AM-241	0	1
CAMO-13-24248	R-45 S2	REG	HASL-300:ISOPU	0	2
CAMO-13-24248	R-45 S2	REG	HASL-300:ISOU	0	3
CAMO-13-24248	R-45 S2	REG	SW-846:9060	0	1
CAMO-13-24264	R-45 S1	REG	EPA:120.1	0	1
CAMO-13-24264	R-45 S1	REG	EPA:150.1	0	1
CAMO-13-24264	R-45 S1	REG	EPA:160.1	0	1
CAMO-13-24264	R-45 S1	REG	EPA:245.2	0	1
CAMO-13-24264	R-45 S1	REG	EPA:300.0	0	4
CAMO-13-24264	R-45 S1	REG	EPA:310.1	0	2
CAMO-13-24264	R-45 S1	REG	EPA:350.1	0	1
CAMO-13-24264	R-45 S1	REG	EPA:353.2	0	1
CAMO-13-24264	R-45 S1	REG	EPA:365.4	0	1
CAMO-13-24264	R-45 S1	REG	SM:A2340B	0	1
CAMO-13-24264	R-45 S1	REG	SW-846:6010B	0	17
CAMO-13-24264	R-45 S1	REG	SW-846:6020	0	11
CAMO-13-24264	R-45 S1	REG	SW-846:6850	0	1
CAMO-13-24265	R-45 S2	REG	EPA:120.1	0	1
CAMO-13-24265	R-45 S2	REG	EPA:150.1	0	1
CAMO-13-24265	R-45 S2	REG	EPA:160.1	0	1
CAMO-13-24265	R-45 S2	REG	EPA:245.2	0	1
CAMO-13-24265	R-45 S2	REG	EPA:300.0	0	4
CAMO-13-24265	R-45 S2	REG	EPA:310.1	0	2
CAMO-13-24265	R-45 S2	REG	EPA:350.1	0	1
CAMO-13-24265	R-45 S2	REG	EPA:353.2	0	1
CAMO-13-24265	R-45 S2	REG	EPA:365.4	0	1
CAMO-13-24265	R-45 S2	REG	SM:A2340B	0	1
CAMO-13-24265	R-45 S2	REG	SW-846:6010B	0	17
CAMO-13-24265	R-45 S2	REG	SW-846:6020	0	11
CAMO-13-24265	R-45 S2	REG	SW-846:6850	0	1

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

November 30, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 314749
SDG: 2013-276

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 08, 2012, and analyzed for General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

for

Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-276
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 314749
SDG: 2013-276

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....10

Perchlorates by LCMSMS Analysis.....12

Case Narrative.....13

Sample Data Summary.....19

Quality Control Summary.....22

Quality Control Data.....25

Metals Analysis.....31

Case Narrative.....32

Sample Data Summary.....38

Quality Control Summary.....44

General Chem Analysis.....58

Case Narrative.....59

Sample Data Summary.....87

Quality Control Summary.....95

Miscellaneous.....100

Radiological Analysis.....104

Sample Data Summary.....116

Quality Control Data.....121

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 314749
SDG # : 2013-276

November 30, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 08, 2012 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. The containers for Gross A/B were preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). The containers for radiochemistry analysis was received with temperature of 19c. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
314749001	CAMO-13-24247
314749002	CAMO-13-24264
314749003	CAMO-13-24265
314749004	CAMO-13-24248

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

for

Valerie Davis
Project Manager

List of current GEL Certifications as of 30 November 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

314749

COC/Lab Request #: 2013-276

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011
Project Number :
Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-CL04	WSP-GENINORG	~~WSP-GrossA/B~~	~~WSP-Met+B+SN+SR+U~~	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAMO-13-24247	Nov 6 2012	12:40	W						1	1
CAMO-13-24264	Nov 6 2012	12:40	W	1	1		1	1		
CAMO-13-24265	Nov 6 2012	11:07	W	1	1		1	1		
CAMO-13-24248	Nov 6 2012	11:07	W			1			1	1

Special Instructions:

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
Shem Sherwood	S. Sherwood	11/7/12 3pm	P. Wert	11-8-12 11:05
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/AR/COC/Work Order: 2013-276**
Received By: Patricia Dent	**Date Received:November 8, 2012**

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0CPM**
Classified Radioactive II or III by RSO?		X	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		X	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **3,19**
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524646**
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			X	Sample ID's, containers affected and observed pH: **CAMO-13-24247,CAMO-13-24248 for Gross A/B** If Preservation added, Lot# **L03022**
6	VOA vials free of headspace (defined as < 6mm bubble)?		X		Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?	X			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			X	**CLIENTS**
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.	X			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9832 5068 3C 5062 9832 5079 3C 5462 9832 5080 19C**

Comments (Use Continuation Form if needed):

PM (PMA) review Initials PT Date 11/09/12 Page 1 of 1

Subject: Sample Receipt Issue from 11/08/12
From: Pat Dent <Pat.Dent@gel.com>
Date: 11/8/2012 5:21 PM
To: "Keith R. Greene" <kgreene@lanl.gov>, "team.davis" <team.davis@gel.com>, LANL@amrad.com

Good Afternoon all, containers received for Gross A/B was preserved prior to analysis.

Thanks!
Pat Dent

--
Patricia Dent
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Rd.
Charleston, S.C. 29407
Main: 843-556-8171 Ext 4264
Fax: 843-766-1178
Email: pad@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 07NOV12
ACTWGT: 50.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

3

FedEx Express

J111311060801 25

1 of 3

TRK# 0201 5462 9832 5068

MASTER

THU - 08 NOV A1
PRIORITY OVERNIGHT

XX CHSA

NPDES

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

580C1/6713/10BC

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 07NOV12
ACTWGT: 45.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

3

FedEx Express

J111311060801 25

2 of 3

MPS# 0263 5462 9832 5079

Mstr# 5462 9832 5068

THU - 08 NOV A1
PRIORITY OVERNIGHT

0201

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

580C1/6713/10BC

FON2/LANL

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 07NOV12
ACTWGT: 20.0 LB MAN
CAD: 00

BILL SE

5080
11.08

B
1
249
HT

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWK0

19

FedEx
Express

J111311060601 25

3 of 3
MPS# 0263 5462 9832 5080
Mstr# 5462 9832 5068

THU - 08 NOV A1
PRIORITY OVERNIGHT
0201

XX CHSA

29407
SC-US CHS

Part # 156148-434 RITZ 08/10

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC/MSMS
ARS International (ARSL)
SDG 2013-276

Method/Analysis Information

Procedure:	**Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method:	SW846 6850 Modified
Prep Method:	SW846 6850 Modified
Analytical Batch Number:	1262376
Prep Batch Number:	1262373

Sample Analysis

Sample ID	Client ID
314749002	CAMO-13-24264
314749003	CAMO-13-24265
1202777953	Interference Check Sample (ICS)
1202777944	Method Blank (MB)
1202777945	Laboratory Control Sample (LCS)
1202777946	314639003(CASA-13-24224) Matrix Spike (MS)
1202777947	314639003(CASA-13-24224) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 9.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

ICV Requirements
The initial calibration verification standards (ICV) met the acceptance criteria.

CCB Requirements
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

CCV Requirements
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

Low Level Standard (CRI) Requirements
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Interference Check Sample (ICS)
The interference check sample (ICS) met all recovery acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Client sample 314639003 (CASA-13-24224) from SDG 2013-270 was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits.

Retention Time Standard Area Acceptance
The retention time standard areas were within the required acceptance criteria for all samples and QC.

Retention Time
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Sample 314749002 (CAMO-13-24264) was re-analyzed to confirm the potential of carryover from the previous sample. The re-analysis data are reported.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

A data exception report (DER) was not generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

Additional Comments
The concentration observed in each matrix spike was above the calibration range. This was due to the background concentration present in the parent sample, 314639003 (CASA-13-24224). Re-analysis at a dilution was not necessary since the parent sample did not require a dilution.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples.

Please see the isotope ratio criteria in the Miscellaneous Section.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-276 GEL Work Order: 314749

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 20 NOV 2012 **Title: Group Leader**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24264

Date Received: 08-NOV-12

GEL Job No (SDG): 2013-276

GEL Sample ID: 314749002

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.577	ug/L		1	13-NOV-12 17:26	per1113033a
	Perchlorate Isotope Ratio			3.19			1	13-NOV-12 17:26	per1113033a
14797-73-0	Perchlorate-101	.05	.2	0.576	ug/L		1	13-NOV-12 17:26	per1113033a
	Perchlorate-O(18)			0.512	ug/L		1	13-NOV-12 17:26	per1113033a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24265

Date Received: 08-NOV-12

GEL Job No (SDG): 2013-276

GEL Sample ID: 314749003

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.388	ug/L		1	13-NOV-12 15:50	per1113021a
	Perchlorate Isotope Ratio			3.05			1	13-NOV-12 15:50	per1113021a
14797-73-0	Perchlorate-101	.05	.2	0.405	ug/L		1	13-NOV-12 15:50	per1113021a
	Perchlorate-O(18)			0.493	ug/L		1	13-NOV-12 15:50	per1113021a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2013-276

Extract Batch Code: 1262373

Date Filtered: 13-NOV-12

Matrix: WATER

Sample ID: 1202777945

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.202	ug/L	101		85 - 115
Perchlorate Isotope Ratio		2.92				-
Perchlorate-101	0.200	.22	ug/L	110		85 - 115
Perchlorate-O(18)		.486	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2013-276

Extract Batch Code: 1262373

Date Extracted: 13-NOV-12

GEL MS/PS ID: 1202777946

Client ID: CASA-13-24224

GEL MSD/PSD ID: 1202777947

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec #	MSD Conc	MSD Rec #	RPD #	RPD Limit	Recovery Limit
Perchlorate	0.200	0.942	ug/L	1.14	100	1.17	114	2.41	30	75 - 125
Perchlorate Isotope Ratio	0	3.08		3.19		3.09		3.03		-
Perchlorate-101	0.200	0.974	ug/L	1.14	84.3	1.21	116	5.44	30	75 - 125
Perchlorate-O(18)	0	0.515	ug/L	0.490		.502		2.49		-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 13-NOV-12

GEL Job No (SDG): 2013-276

GEL Sample ID: 1202777944

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	13-NOV-12 14:37	per1113012a
	Perchlorate Isotope Ratio						1	13-NOV-12 14:37	per1113012a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	13-NOV-12 14:37	per1113012a
	Perchlorate-O(18)			0.496	ug/L		1	13-NOV-12 14:37	per1113012a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 13-NOV-12

GEL Job No (SDG): 2013-276

GEL Sample ID: 1202777945

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.202	ug/L		1	13-NOV-12 14:45	per1113013a
	Perchlorate Isotope Ratio			2.92			1	13-NOV-12 14:45	per1113013a
14797-73-0	Perchlorate-101	.05	.2	0.220	ug/L		1	13-NOV-12 14:45	per1113013a
	Perchlorate-O(18)			0.486	ug/L		1	13-NOV-12 14:45	per1113013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2013-276

GEL Sample ID: 1202777953

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.198	ug/L	J	1	13-NOV-12 14:53	per1113014a
	Perchlorate Isotope Ratio			3.06			1	13-NOV-12 14:53	per1113014a
14797-73-0	Perchlorate-101	.05	.2	0.206	ug/L		1	13-NOV-12 14:53	per1113014a
	Perchlorate-O(18)			0.489	ug/L		1	13-NOV-12 14:53	per1113014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24224MS

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-276

GEL Sample ID: 1202777946

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	1.14	ug/L		1	13-NOV-12 15:25	per1113018a
	Perchlorate Isotope Ratio			3.19			1	13-NOV-12 15:25	per1113018a
14797-73-0	Perchlorate-101	.05	.2	1.14	ug/L		1	13-NOV-12 15:25	per1113018a
	Perchlorate-O(18)			0.490	ug/L		1	13-NOV-12 15:25	per1113018a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24224MSD

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-276

GEL Sample ID: 1202777947

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	1.17	ug/L		1	13-NOV-12 15:33	per1113019a
	Perchlorate Isotope Ratio			3.09			1	13-NOV-12 15:33	per1113019a
14797-73-0	Perchlorate-101	.05	.2	1.21	ug/L		1	13-NOV-12 15:33	per1113019a
	Perchlorate-O(18)			0.502	ug/L		1	13-NOV-12 15:33	per1113019a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-276

Sample Analysis

Sample ID	Client ID
314749002	CAMO-13-24264
314749003	CAMO-13-24265
1202777116	Method Blank (MB) **ICP**
1202777117	Laboratory Control Sample (LCS)
1202777120	314849002(CASA-13-24221L) Serial Dilution (SD)
1202777118	314849002(CASA-13-24221D) Sample Duplicate (DUP)
1202777119	314849002(CASA-13-24221S) Matrix Spike (MS)
1202777127	Method Blank (MB) **ICP-MS**
1202777128	Laboratory Control Sample (LCS)
1202777131	314849002(CASA-13-24221L) Serial Dilution (SD)
1202777129	314849002(CASA-13-24221D) Sample Duplicate (DUP)
1202777130	314849002(CASA-13-24221S) Matrix Spike (MS)
1202783062	Method Blank (MB) **CVAA**
1202783069	Laboratory Control Sample (LCS)
1202783065	314340002(CAMO-13-24255L) Serial Dilution (SD)
1202783063	314340002(CAMO-13-24255D) Sample Duplicate (DUP)
1202783067	314340002(CAMO-13-24255S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1262051, 1262054, 1264600 and 1267632
Prep Batch :	1262047, 1262053 and 1264596
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 7
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B

Prep Method : SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 314849002 (CASA-13-24221)-ICP and ICP-MS and 314340002 (CAMO-13-24255)-CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instruments. The sample 314749002 (CAMO-13-24264)-ICP required 5x dilution in order to minimize tin suppression due to matrix interferences

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 12/04/12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-276 GEL Work Order: 314749

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 12/04/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-276 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314749002 **BASIS:** As Received **DATE COLLECTED** 06-NOV-12

CLIENT ID: CAMO-13-24264 **LEVEL:** Low **DATE RECEIVED** 08-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/20/12 10:01	112012W1-5	1264600

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-276 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314749002 **BASIS:** As Received **DATE COLLECTED** 06-NOV-12

CLIENT ID: CAMO-13-24264 **LEVEL:** Low **DATE RECEIVED** 08-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/17/12 16:18	111712-1	1262051
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/20/12 00:39	121119-3	1262054
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/20/12 14:47	121120-4	1262054
7440-39-3	Barium	29.9	ug/L		1	5	5	1	P	HSC	11/17/12 16:18	111712-1	1262051
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 16:18	111712-1	1262051
7440-42-8	Boron	16.7	ug/L	J	15	50	50	1	P	HSC	11/17/12 16:18	111712-1	1262051
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/20/12 14:47	121120-4	1262054
7440-70-2	Calcium	18600	ug/L		50	200	200	1	P	HSC	11/17/12 16:18	111712-1	1262051
7440-47-3	Chromium	23	ug/L		2	10	10	1	MS	BAJ	11/20/12 00:39	121119-3	1262054
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 16:18	111712-1	1262051
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/19/12 10:29	111912-2	1262051
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/17/12 16:18	111712-1	1262051
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/20/12 14:47	121120-4	1262054
7439-95-4	Magnesium	5240	ug/L		110	300	300	1	P	HSC	11/17/12 16:18	111712-1	1262051
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/17/12 16:18	111712-1	1262051
7439-98-7	Molybdenum	0.908	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/20/12 00:39	121119-3	1262054
7440-02-0	Nickel	1.22	ug/L	J	0.5	2	2	1	MS	BAJ	11/20/12 00:39	121119-3	1262054
7440-09-7	Potassium	1430	ug/L		50	150	150	1	P	HSC	11/17/12 16:18	111712-1	1262051
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/20/12 14:47	121120-4	1262054
7631-86-9	Silica	77900	ug/L		53	213	213	1	P	HSC	11/17/12 16:18	111712-1	1262051
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/20/12 00:39	121119-3	1262054
7440-23-5	Sodium	11600	ug/L		100	300	300	1	P	HSC	11/17/12 16:18	111712-1	1262051
7440-24-6	Strontium	81.7	ug/L		1	5	5	1	P	HSC	11/17/12 16:18	111712-1	1262051
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/20/12 00:39	121119-3	1262054
7440-31-5	Tin	50	ug/L	U	12.5	50	50	5	P	HSC	11/19/12 11:28	111912-2	1262051
7440-61-1	Uranium	0.827	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/20/12 00:39	121119-3	1262054
7440-62-2	Vanadium	5.25	ug/L		1	5	5	1	P	HSC	11/17/12 16:18	111712-1	1262051
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	11/17/12 16:18	111712-1	1262051

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-276 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314749002 **BASIS:** As Received **DATE COLLECTED** 06-NOV-12

CLIENT ID: CAMO-13-24264 **LEVEL:** Low **DATE RECEIVED** 08-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	68	mg/L		0.453	1.24	1.24	1		JJ2	12/03/12 11:12		1267632

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1262051	1262047	SW846 3005A	50	mL	50	mL	11/16/12	AXG2
1262054	1262053	SW846 3005A	50	mL	50	mL	11/16/12	AXG2
1264600	1264596	EPA 245.1/245.2 Prep	20	mL	20	mL	11/19/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-276 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314749003 **BASIS:** As Received **DATE COLLECTED** 06-NOV-12

CLIENT ID: CAMO-13-24265 **LEVEL:** Low **DATE RECEIVED** 08-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/20/12 10:02	112012W1-5	1264600

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-276 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314749003 **BASIS:** As Received **DATE COLLECTED** 06-NOV-12

CLIENT ID: CAMO-13-24265 **LEVEL:** Low **DATE RECEIVED** 08-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/17/12 16:21	111712-1	1262051
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/20/12 00:46	121119-3	1262054
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/20/12 14:51	121120-4	1262054
7440-39-3	Barium	30.3	ug/L		1	5	5	1	P	HSC	11/17/12 16:21	111712-1	1262051
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 16:21	111712-1	1262051
7440-42-8	Boron	20.8	ug/L	J	15	50	50	1	P	HSC	11/17/12 16:21	111712-1	1262051
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/20/12 14:51	121120-4	1262054
7440-70-2	Calcium	17800	ug/L		50	200	200	1	P	HSC	11/17/12 16:21	111712-1	1262051
7440-47-3	Chromium	12.5	ug/L		2	10	10	1	MS	BAJ	11/20/12 00:46	121119-3	1262054
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 16:21	111712-1	1262051
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/19/12 10:32	111912-2	1262051
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/17/12 16:21	111712-1	1262051
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/20/12 14:51	121120-4	1262054
7439-95-4	Magnesium	5220	ug/L		110	300	300	1	P	HSC	11/17/12 16:21	111712-1	1262051
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/17/12 16:21	111712-1	1262051
7439-98-7	Molybdenum	0.942	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/20/12 00:46	121119-3	1262054
7440-02-0	Nickel	0.999	ug/L	J	0.5	2	2	1	MS	BAJ	11/20/12 00:46	121119-3	1262054
7440-09-7	Potassium	1540	ug/L		50	150	150	1	P	HSC	11/17/12 16:21	111712-1	1262051
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/20/12 14:51	121120-4	1262054
7631-86-9	Silica	82500	ug/L		53	213	213	1	P	HSC	11/17/12 16:21	111712-1	1262051
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/20/12 00:46	121119-3	1262054
7440-23-5	Sodium	12200	ug/L		100	300	300	1	P	HSC	11/17/12 16:21	111712-1	1262051
7440-24-6	Strontium	75.6	ug/L		1	5	5	1	P	HSC	11/17/12 16:21	111712-1	1262051
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/20/12 00:46	121119-3	1262054
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/19/12 10:32	111912-2	1262051
7440-61-1	Uranium	0.746	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/20/12 00:46	121119-3	1262054
7440-62-2	Vanadium	7.69	ug/L		1	5	5	1	P	HSC	11/17/12 16:21	111712-1	1262051
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	11/17/12 16:21	111712-1	1262051

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-276 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314749003 **BASIS:** As Received **DATE COLLECTED** 06-NOV-12

CLIENT ID: CAMO-13-24265 **LEVEL:** Low **DATE RECEIVED** 08-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	65.9	mg/L		0.453	1.24	1.24	1		JJ2	12/03/12 11:12		1267632

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1262051	1262047	SW846 3005A	50	mL	50	mL	11/16/12	AXG2
1262054	1262053	SW846 3005A	50	mL	50	mL	11/16/12	AXG2
1264600	1264596	EPA 245.1/245.2 Prep	20	mL	20	mL	11/19/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−276

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202777116								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	130	ug/L	+/−150	J	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202777127								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202783062								
	Mercury	0.067	ug/L	+/−0.2	U	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−276 **Client ID** CASA−13−24221S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314849002 **Spike ID:** 1202777119

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5090		68	U	5000	101		P
Barium	ug/L	75−125	532		23		500	102		P
Beryllium	ug/L	75−125	521		1	U	500	104		P
Boron	ug/L	75−125	534		15	U	500	104		P
Calcium	ug/L	75−125	23200		18100		5000	101		P
Cobalt	ug/L	75−125	504		1	U	500	101		P
Copper	ug/L	75−125	529		3	U	500	105		P
Iron	ug/L	75−125	5220		57.5	J	5000	103		P
Magnesium	ug/L	75−125	9290		4070		5000	104		P
Manganese	ug/L	75−125	514		2.53	J	500	102		P
Potassium	ug/L	75−125	6650		1570		5000	102		P
Silica	ug/L		93000		79600		10700	125	N/A	P
Sodium	ug/L	75−125	16800		11400		5000	108		P
Strontium	ug/L	75−125	579		69.9		500	102		P
Tin	ug/L	75−125	501		2.5	U	500	100		P
Vanadium	ug/L	75−125	528		7.04		500	104		P
Zinc	ug/L	75−125	509		3.89	J	500	101		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−276 **Client ID** CASA−13−24221S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314849002 **Spike ID:** 1202777130

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	211		1	U	200	105		MS
Arsenic	ug/L	75−125	79.2		1.7	U	80	97.6		MS
Cadmium	ug/L	75−125	10.4		0.11	U	10	104		MS
Chromium	ug/L	75−125	99.6		49.6		50	99.9		MS
Lead	ug/L	75−125	41.2		0.5	U	40	103		MS
Molybdenum	ug/L	75−125	57		1.31		50	111		MS
Nickel	ug/L	75−125	57.7		5.21		50	105		MS
Selenium	ug/L	75−125	22.4		2.07	J	20	102		MS
Silver	ug/L	75−125	55.3		0.2	U	50	111		MS
Thallium	ug/L	75−125	102		0.45	U	100	102		MS
Uranium	ug/L	75−125	56.7		0.123	J	50	113		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−276 **Client ID** CAMO−13−24255S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314340002 **Spike ID:** 1202783067

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.05		0.067	U	2	103		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−276 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CASA−13−24221D

Matrix: LIQUID **Level:** Low

Sample ID: 314849002 **Duplicate ID:** 1202777118 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−5	23		22.8		.721		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	16.5	J	200		P
Calcium	ug/L	+/−20%	18100		18900		3.98		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L		3	U	3	U			P
Iron	ug/L	+/−100	57.5	J	62.4	J	8.15		P
Magnesium	ug/L	+/−20%	4070		4250		4.35		P
Manganese	ug/L	+/−10	2.53	J	2.54	J	.62		P
Potassium	ug/L	+/−20%	1570		1670		6.15		P
Silica	ug/L	+/−20%	79600		81700		2.6		P
Sodium	ug/L	+/−20%	11400		11800		3.56		P
Strontium	ug/L	+/−20%	69.9		71.8		2.71		P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L	+/−5	7.04		7.32		3.82		P
Zinc	ug/L		3.89	J	3.3	U	200		P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−276 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CASA−13−24221D

Matrix: LIQUID **Level:** Low

Sample ID: 314849002 **Duplicate ID:** 1202777129 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	49.6		48.6		2.15		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.31		1.26		3.35		MS
Nickel	ug/L	+/−2	5.21		5.19		.5		MS
Selenium	ug/L	+/−5	2.07	J	2.23	J	7.43		MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.123	J	0.115	J	6.72		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−276 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24255D

Matrix: LIQUID **Level:** Low

Sample ID: 314340002 **Duplicate ID:** 1202783063 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−276

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202777117								
	Aluminum	ug/L	5000	5090		102	80−120	P
	Barium	ug/L	500	505		101	80−120	P
	Beryllium	ug/L	500	510		102	80−120	P
	Boron	ug/L	500	507		101	80−120	P
	Calcium	ug/L	5000	5110		102	80−120	P
	Cobalt	ug/L	500	504		101	80−120	P
	Copper	ug/L	500	508		102	80−120	P
	Iron	ug/L	5000	5080		102	80−120	P
	Magnesium	ug/L	5000	5190		104	80−120	P
	Manganese	ug/L	500	512		102	80−120	P
	Potassium	ug/L	5000	5210		104	80−120	P
	Silica	ug/L	10700	10800		101	80−120	P
	Sodium	ug/L	5000	5360		107	80−120	P
	Strontium	ug/L	500	504		101	80−120	P
	Tin	ug/L	500	499		99.7	80−120	P
	Vanadium	ug/L	500	514		103	80−120	P
	Zinc	ug/L	500	501		100	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−276

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202777128								
	Antimony	ug/L	50	50.2		100	80−120	MS
	Arsenic	ug/L	50	47.7		95.3	80−120	MS
	Cadmium	ug/L	50	47.4		94.7	80−120	MS
	Chromium	ug/L	50	48.9		97.9	80−120	MS
	Lead	ug/L	50	48.1		96.1	80−120	MS
	Molybdenum	ug/L	50	49.7		99.4	80−120	MS
	Nickel	ug/L	50	51.1		102	80−120	MS
	Selenium	ug/L	50	49.9		99.7	80−120	MS
	Silver	ug/L	50	51.6		103	80−120	MS
	Thallium	ug/L	50	48.6		97.2	80−120	MS
	Uranium	ug/L	50	50.9		102	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−276

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783069								
	Mercury	ug/L	2	2.08		104	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−276 **Client ID** CASA−13−24221L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314849002 **Serial Dilution ID:** 1202777120

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	23		23.1	J	.595			P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	18100		17400		3.8		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	57.5	J	150	U	100			P
Magnesium	4070		4170		2.49			P
Manganese	2.53	J	10	U	100			P
Potassium	1570		1850		17.8			P
Silica	79600		79300		.394		10	P
Sodium	11400		11500		.394		10	P
Strontium	69.9		71.9		2.85		10	P
Tin	2.5	U	12.5	U				P
Vanadium	7.04		7.51	J	6.65			P
Zinc	3.89	J	16.5	U	100			P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−276 **Client ID** CASA−13−24221L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314849002 **Serial Dilution ID:** 1202777131

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	49.6		50.1		.844			MS
Lead	.5	U	2.5	U				MS
Molybdenum	1.31		1.58	J	20.7			MS
Nickel	5.21		5.14	J	1.36			MS
Selenium	2.07	J	7.5	U	100			MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.123	J	.335	U	100			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−276 **Client ID** CAMO−13−24255L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314340002 **Serial Dilution ID:** 1202783065

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-276

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1261921 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
314749001	CAMO-13-24247
314749004	CAMO-13-24248
1202777397	Method Blank (MB)
1202777399	314750001(CAMO-13-24325) Sample Duplicate (DUP)
1202777401	314750001(CAMO-13-24325) Post Spike (PS)
1202777402	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314750001 (CAMO-13-24325).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages

electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1265843	**Method:**	EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
314749002	CAMO-13-24264
314749003	CAMO-13-24265
1202785831	314637002(CAMO-13-24280) Sample Duplicate (DUP)
1202785832	314749002(CAMO-13-24264) Sample Duplicate (DUP)
1202785833	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314637002 (CAMO-13-24280) and 314749002 (CAMO-13-24264).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1261978 **Method:** EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
314749002	CAMO-13-24264
314749003	CAMO-13-24265
1202776955	314749002(CAMO-13-24264) Sample Duplicate (DUP)
1202776957	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314749002 (CAMO-13-24264).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following samples from this sample group were received by the lab outside of the method specified holding time: 314749002 (CAMO-13-24264) and 314749003 (CAMO-13-24265).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1140192 314749002 (CAMO-13-24264) and 314749003 (CAMO-13-24265).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1261648	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
314749002	CAMO-13-24264
314749003	CAMO-13-24265
1202776150	Method Blank (MB)
1202776151	314749002(CAMO-13-24264) Sample Duplicate (DUP)
1202776152	314749002(CAMO-13-24264) Post Spike (PS)
1202776153	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314749002 (CAMO-13-24264).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202776151 (CAMO-13-24264) and 314749002 (CAMO-13-24264).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202776151 (CAMO-13-24264), 1202776152 (CAMO-13-24264), 314749002 (CAMO-13-24264) and 314749003 (CAMO-13-24265).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1261640	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1261639	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
314749002	CAMO-13-24264
314749003	CAMO-13-24265
1202776122	Method Blank (MB)
1202776123	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202776124	314591002(CAMO-13-24256) Matrix Spike (MS)
1202776125	314591002(CAMO-13-24256) Matrix Spike Duplicate (MSD)
1202776126	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference and/or sample matrix non-homogeneity: 1202776124 (CAMO-13-24256).

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The Relative Percent Difference (RPD) between the MS and MSD falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202776125 (CAMO-13-24256).

Duplicate Relative Percent Difference (RPD) Statement
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202776123 (CAMO-13-24256).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following samples were re-analyzed due to instrument failure: 314749002 (CAMO-13-24264) and 314749003 (CAMO-13-24265).

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1139508 1202776124 (CAMO-13-24256) and 1202776125 (CAMO-13-24256).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1261638	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1261637	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
314749001	CAMO-13-24247
314749004	CAMO-13-24248
1202776117	Method Blank (MB)
1202776118	314591001(CAMO-13-24239) Sample Duplicate (DUP)
1202776119	314591001(CAMO-13-24239) Matrix Spike (MS)
1202776120	314591001(CAMO-13-24239) Matrix Spike Duplicate (MSD)
1202776121	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591001 (CAMO-13-24239).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits. Since both the spike duplicate recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported. 1202776119 (CAMO-13-24239).

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202776118 (CAMO-13-24239).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1139938 1202776119 (CAMO-13-24239).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1261993	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
314749002	CAMO-13-24264
314749003	CAMO-13-24265
1202776982	Method Blank (MB)
1202776984	314749002(CAMO-13-24264) Sample Duplicate (DUP)
1202776987	314749002(CAMO-13-24264) Post Spike (PS)
1202776989	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314749002 (CAMO-13-24264).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202776984 (CAMO-13-24264), 1202776987 (CAMO-13-24264) and 314749002 (CAMO-13-24264). The following sample in this sample group was diluted due to matrix interference: 314749003 (CAMO-13-24265).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1261643	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1261641	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
314749002	CAMO-13-24264
314749003	CAMO-13-24265
1202776127	Method Blank (MB)
1202776128	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202776130	314591002(CAMO-13-24256) Matrix Spike (MS)
1202776132	314591002(CAMO-13-24256) Matrix Spike Duplicate (MSD)
1202776134	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following samples were re-analyzed due to CCV failure: 1202776132 (CAMO-13-24256), 314749002 (CAMO-13-24264) and 314749003 (CAMO-13-24265).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Solids, Total Dissolved**		
Analytical Batch:	1261975	**Method:**	EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
314749002	CAMO-13-24264
314749003	CAMO-13-24265
1202776940	Method Blank (MB)
1202776941	314749002(CAMO-13-24264) Sample Duplicate (DUP)
1202776944	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314749002 (CAMO-13-24264).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Alkalinity**

Analytical Batch: 1264393 **Method:** EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
314749002	CAMO-13-24264
314749003	CAMO-13-24265
1202782624	Laboratory Control Sample (LCS)
1202782627	314848002(WST05-12-23563) Sample Duplicate (DUP)
1202782628	314848002(WST05-12-23563) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314848002 (WST05-12-23563).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____04Dec12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-276 GEL Work Order: 314749

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 4, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-276

Client Sample ID:	CAMO-13-24247	Project:	ESHL00210
Sample ID:	314749001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	06-NOV-12 12:40		
Receive Date:	08-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	U	ND	0.330	1.00	mg/L	1	TSM	11/10/12	1654	1261921	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.035	0.100	mg/L	1	KLP1	11/14/12	1049	1261638	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/13/12	1700	1261637

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 4, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-276

Client Sample ID:	CAMO-13-24264	Project:	ESHL00210
Sample ID:	314749002	Client ID:	ARSL001
Matrix:	W		
Collect Date:	06-NOV-12 12:40		
Receive Date:	08-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		175	1.00	1.00	umhos/cm	1	TXT1	11/26/12	1153	1265843	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 20.1C	H	7.86	0.010	0.100	SU	1	LYG1	11/09/12	1337	1261978	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	11/29/12	0734	1261648	3
Chloride		3.97	0.067	0.200	mg/L	1					
Fluoride		0.351	0.033	0.100	mg/L	1					
Sulfate		6.42	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	J	0.0243	0.017	0.050	mg/L	1	KLP1	11/13/12	1310	1261640	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		2.65	0.425	1.25	mg/L	25	AXH3	11/09/12	1041	1261993	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.0821	0.017	0.050	mg/L	1	KLP1	11/14/12	1325	1261643	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		176	3.40	14.3	mg/L		LYG1	11/09/12	0749	1261975	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		67.0	0.725	1.00	mg/L		LXA1	11/19/12	1546	1264393	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/12/12	1500	1261639
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/13/12	1700	1261641

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 4, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-276
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24264	Project:	ESHL00210
Sample ID:	314749002	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 4, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-276

Client Sample ID:	CAMO-13-24265	Project:	ESHL00210
Sample ID:	314749003	Client ID:	ARSL001
Matrix:	W		
Collect Date:	06-NOV-12 11:07		
Receive Date:	08-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		167	1.00	1.00	umhos/cm	1	TXT1	11/26/12	1154	1265843	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 20.2C	H	8.08	0.010	0.100	SU	1	LYG1	11/09/12	1341	1261978	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	11/30/12	0225	1261648	3
Chloride		3.43	0.067	0.200	mg/L	1					
Fluoride		0.422	0.033	0.100	mg/L	1					
Sulfate		4.38	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	U	ND	0.017	0.050	mg/L	1	KLP1	11/13/12	1311	1261640	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.700	0.085	0.250	mg/L	5	AXH3	11/09/12	1049	1261993	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.0834	0.017	0.050	mg/L	1	KLP1	11/14/12	1326	1261643	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		181	3.40	14.3	mg/L		LYG1	11/09/12	0749	1261975	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		70.8	0.725	1.00	mg/L		LXA1	11/19/12	1549	1264393	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/12/12	1500	1261639
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/13/12	1700	1261641

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 4, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-276
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24265	Project:	ESHL00210
Sample ID:	314749003	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 4, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-276

Client Sample ID:	CAMO-13-24248	Project:	ESHL00210
Sample ID:	314749004	Client ID:	ARSL001
Matrix:	W		
Collect Date:	06-NOV-12 11:07		
Receive Date:	08-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	U	ND	0.330	1.00	mg/L	1	TSM	11/10/12	1728	1261921	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.035	0.100	mg/L	1	KLP1	11/14/12	1054	1261638	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/13/12	1700	1261637

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: December 4, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **314749**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis											
Batch 1261921											
QC1202777399 314750001 DUP											
Total Organic Carbon Average			5.42		5.38	mg/L	0.611		(0%-20%)	TSM	11/10/12 18:35
QC1202777402 LCS											
Total Organic Carbon Average	10.0				9.74	mg/L		97.4	(85%-115%)		11/10/12 16:46
QC1202777397 MB											
Total Organic Carbon Average				U	ND	mg/L					11/10/12 16:37
QC1202777401 314750001 PS											
Total Organic Carbon Average	10.0		5.42		15.6	mg/L		101	(65%-120%)		11/10/12 18:55
Conductivity Analysis											
Batch 1265843											
QC1202785831 314637002 DUP											
Conductivity			130		129	umhos/cm	1.01		(0%-10%)	TXT1	11/26/12 11:45
QC1202785832 314749002 DUP											
Conductivity			175		177	umhos/cm	0.795		(0%-10%)		11/26/12 11:54
QC1202785833 LCS											
Conductivity	1410				1420	umhos/cm		100	(95%-105%)		11/26/12 11:39
Electrode Analysis											
Batch 1261978											
QC1202776955 314749002 DUP											
pH		H	7.86	H	7.91	SU	0.634		(0%-10%)	LYG1	11/09/12 13:39
QC1202776957 LCS											
pH	7.00				7.02	SU		100	(99%-101%)		11/09/12 13:34
Ion Chromatography											
Batch 1261648											
QC1202776151 314749002 DUP											
Bromide		U	ND	J	0.0811	mg/L	N/A			MAR1	11/29/12 08:06
Chloride			3.97		3.97	mg/L	0.101		(0%-20%)		
Fluoride			0.351		0.351	mg/L	0.143 ^		(+/-0.100)		
Sulfate			6.42		6.42	mg/L	0.0265		(0%-20%)		
QC1202776153 LCS											
Bromide	2.50				2.74	mg/L		109	(90%-110%)		11/29/12 07:03
Chloride	10.0				9.69	mg/L		96.9	(90%-110%)		
Fluoride	5.00				4.99	mg/L		99.8	(90%-110%)		
Sulfate	20.0				19.8	mg/L		99.1	(90%-110%)		
QC1202776150 MB											
Bromide				U	ND	mg/L					11/29/12 06:31
Chloride				U	ND	mg/L					
Fluoride				U	ND	mg/L					
Sulfate				U	ND	mg/L					
QC1202776152 314749002 PS											

QC Summary

Workorder: 314749

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1261648											
Bromide	2.50	U	ND		2.67	mg/L		105	(90%-110%)		11/30/12 01:54
Chloride	10.0		3.97		14.6	mg/L		106	(90%-110%)	MAR1	
Fluoride	5.00		0.351		5.44	mg/L		102	(90%-110%)		
Sulfate	20.0		6.42		27.2	mg/L		104	(90%-110%)		
Nutrient Analysis											
Batch 1261638											
QC1202776118 314591001 DUP											
Nitrogen, Total Kjeldahl			0.163	J	0.0865	mg/L	61.3 ^		(+/-0.100)	KLP1	11/14/12 10:44
QC1202776121 LCS											
Nitrogen, Total Kjeldahl	1.00				1.00	mg/L		100	(90%-110%)		11/14/12 10:42
QC1202776117 MB											
Nitrogen, Total Kjeldahl				U	ND	mg/L					11/14/12 10:42
QC1202776119 314591001 MS											
Nitrogen, Total Kjeldahl	1.00		0.163		1.06	mg/L		89.7 *	(90%-110%)		11/14/12 10:45
QC1202776120 314591001 MSD											
Nitrogen, Total Kjeldahl	1.00		0.163		1.07	mg/L	0.939	90.7	(0%-20%)		11/14/12 10:46
Batch 1261640											
QC1202776123 314591002 DUP											
Nitrogen, Ammonia			0.0587	J	0.0276	mg/L	72.1 ^		(+/-0.050)	KLP1	11/13/12 12:46
QC1202776126 LCS											
Nitrogen, Ammonia	1.00				1.06	mg/L		106	(90%-110%)		11/13/12 12:45
QC1202776122 MB											
Nitrogen, Ammonia				U	ND	mg/L					11/13/12 12:44
QC1202776124 314591002 MS											
Nitrogen, Ammonia	1.00		0.0587		1.20	mg/L		114 *	(90%-110%)		11/13/12 12:47
QC1202776125 314591002 MSD											
Nitrogen, Ammonia	1.00		0.0587		1.01	mg/L	17.2*	95.1	(0%-15%)		11/13/12 12:48
Batch 1261643											
QC1202776128 314591002 DUP											
Phosphorus, Total as P			0.0976		0.0915	mg/L	6.45 ^		(+/-0.050)	KLP1	11/14/12 13:01
QC1202776134 LCS											
Phosphorus, Total as P	1.00				1.08	mg/L		108	(76%-120%)		11/14/12 12:55
QC1202776127 MB											
Phosphorus, Total as P				U	ND	mg/L					11/14/12 12:54
QC1202776130 314591002 MS											
Phosphorus, Total as P	1.00		0.0976		1.17	mg/L		107	(62%-139%)		11/14/12 13:02
QC1202776132 314591002 MSD											
Phosphorus, Total as P	1.00		0.0976		0.986	mg/L	17.1	88.8	(0%-20%)		11/14/12 13:22
Batch 1261993											
QC1202776984 314749002 DUP											
Nitrogen, Nitrate/Nitrite			2.65		2.55	mg/L	3.85 ^		(+/-1.25)	AXH3	11/09/12 10:46
QC1202776989 LCS											
Nitrogen, Nitrate/Nitrite	1.00				1.04	mg/L		104	(90%-110%)		11/09/12 10:39
QC1202776982 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					11/09/12 10:38
QC1202776987 314749002 PS											

QC Summary

Workorder: 314749

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis											
Batch 1261993											
Nitrogen, Nitrate/Nitrite	1.00		0.106		1.18	mg/L		107	(90%-110%)		11/09/12 10:48
Solids Analysis											
Batch 1261975											
QC1202776941 314749002 DUP											
Total Dissolved Solids			176		193	mg/L	9.30		(0%-10%)	LYG1	11/09/12 07:49
QC1202776944 LCS											
Total Dissolved Solids	300				289	mg/L		96.2	(95%-105%)		11/09/12 07:49
QC1202776940 MB											
Total Dissolved Solids				U	ND	mg/L					11/09/12 07:49
Titration Analysis											
Batch 1264393											
QC1202782627 314848002 DUP											
Alkalinity, Total as CaCO3			208		211	mg/L	1.28		(0%-20%)	LXA1	11/19/12 16:19
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A				
QC1202782624 LCS											
Alkalinity, Total as CaCO3	50.0				52.6	mg/L		105	(90%-110%)		11/19/12 12:02
QC1202782628 314848002 MS											
Alkalinity, Total as CaCO3	50.0		208		263	mg/L		N/A	(80%-120%)		11/19/12 16:26

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E Organics--Concentration of the target analyte exceeds the instrument calibration range
- F Estimated Value
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded
- J Value is estimated
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- M M if above MDC and less than LLD

QC Summary

Workorder: 314749

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
13-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1261640	See below.		

Potentially affected work order(s)(SDG): **314591(2013-267),314637(2013-271),314639(2013-270),314696,314749(2013-276),314750(2013-277),314773,314848(2013-285),314849(2013-286),314945,314987(2013-297)**

Application Issues:

Failed Recovery for MS/PS

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS: QC 1202776124MS 2. Failed RPD for MS/MSD: QC 1202776125MSD	1. The spike recovery falls outside of the established acceptance limits due to matrix interference and/or sample matrix non-homogeneity. 2. The Relative Percent Difference (RPD) between the MS and MSD falls outside of the established acceptance limits because of the heterogeneous matrix of the sample.

Originator's Name:

Kristen Parson 13-NOV-12

Data Validator/Group Leader:

Julia Hamilton 13-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
14-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1261638	See below.		

Potentially affected work order(s)(SDG): **314591(2013-267),314637(2013-271),314639(2013-270),314749(2013-276),314750(2013-277),314773,314848(2013-285),314849(2013-286),314945,314987(2013-297)**

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS: QC 1202776119MS	1. The spike recovery falls outside of the established acceptance limits. Since both the spike duplicate recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported.

Originator's Name:
Kristen Parson 14-NOV-12

Data Validator/Group Leader:
Julia Hamilton 14-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
14-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	BESE, CHCO, ESHL, FBWP
Batch ID:	**Sample Numbers:**		
1261978	See below.		

Potentially affected work order(s)(SDG): 314749(2013-276),314750(2013-277),314770,314782,314836

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 314749 002,003 314750 001 314770 001,002 314782 006 314836 001	1. Samples were received out of holding.

Originator's Name:

Lisa Gregory 14-NOV-12

Data Validator/Group Leader:

Julia Hamilton 15-NOV-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-276
Work Order 314749

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1262092

Sample ID	**Client ID**
314749001	CAMO-13-24247
314749004	CAMO-13-24248
1202777245	Method Blank (MB)
1202777246	314849001(CASA-13-24213) Sample Duplicate (DUP)
1202777247	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202777245 (MB) and 1202777247 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314849001 (CASA-13-24213). The QC was from ARSL work order 314849.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1262093

Sample ID	Client ID
314749001	CAMO-13-24247
314749004	CAMO-13-24248
1202777248	Method Blank (MB)
1202777249	314849001(CASA-13-24213) Sample Duplicate (DUP)
1202777250	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202777248 (MB) and 1202777250 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314849001 (CASA-13-24213). The QC was from ARSL work order 314849.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1262094

Sample ID	Client ID
314749001	CAMO-13-24247
314749004	CAMO-13-24248
1202777251	Method Blank (MB)
1202777252	314849001(CASA-13-24213) Sample Duplicate (DUP)
1202777253	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202777251 (MB) and 1202777253 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314849001 (CASA-13-24213). The QC was from ARSL work order 314849.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population. Sample 1202777251 (MB) did not meet the client's yield requirement. However, there are 400 tracer counts, GEL's standard tracer yield requirements are met, and the client's detection limits are met.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1262434

Sample ID	Client ID
314749001	CAMO-13-24247
314749004	CAMO-13-24248
1202778038	Method Blank (MB)
1202778039	314849001(CASA-13-24213) Sample Duplicate (DUP)
1202778040	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in June 2012 and July 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314849001 (CASA-13-24213). The QC was from ARSL work order 314849.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank 1202778038 (MB) result is greater than 1.65 times the CSU but less than the MDC for K-40.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank 1202778038 (MB) result is greater than the decision level but less than the MDC for K-40.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1263026

Sample ID	Client ID
314749001	CAMO-13-24247
314749004	CAMO-13-24248
1202779527	Method Blank (MB)
1202779528	314987003(CAMO-13-24253) Sample Duplicate (DUP)
1202779529	314987003(CAMO-13-24253) Matrix Spike (MS)
1202779530	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202779527 (MB) and 1202779530 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314987003 (CAMO-13-24253). The QC was from ARSL work order 314987.

QC Information
All of the QC samples met the required acceptance limits.

CSU

The blank 1202779527 (MB) result is greater than 1.65 times the CSU but less than the MDC.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202779529 (CAMO-13-24253), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1263054

Sample ID	Client ID
314749001	CAMO-13-24247
314749004	CAMO-13-24248
1202779586	Method Blank (MB)
1202779587	314849003(CASA-13-24214) Sample Duplicate (DUP)
1202779588	314849003(CASA-13-24214) Matrix Spike (MS)
1202779589	314849003(CASA-13-24214) Matrix Spike Duplicate (MSD)
1202779590	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in September 2011. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202779586 (MB) and 1202779590 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314849003 (CASA-13-24214). The QC was from ARSL work order 314849.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced

SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike and matrix spike duplicate, 1202779588 (CASA-13-24214) and 1202779589 (CASA-13-24214), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-276 GEL Work Order: 314749

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Theresa L. Austin **Name: Theresa Austin**

Date: 30 NOV 2012 **Title: Group Leader**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 30, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24247
Sample ID: 314749001
Matrix: W
Collect Date: 06-NOV-12
Receive Date: 08-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.000766	+/-0.00766	0.0261	+/-0.00766	0.050	pCi/L		JXH2	11/26/12	1259	1262092	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	-0.00169	+/-0.0059	0.0278	+/-0.0059	0.050	pCi/L		JXH2	11/26/12	1259	1262093	2
Plutonium-239/240	U	0.00301	+/-0.00487	0.0459	+/-0.00487	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.973	+/-0.0534	0.0617	+/-0.0831	1.00	pCi/L		JXH2	11/26/12	1259	1262094	3
Uranium-235/236	U	0.0319	+/-0.0121	0.0388	+/-0.0123	1.00	pCi/L						
Uranium-238		0.471	+/-0.0366	0.042	+/-0.0477	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-0.912	+/-1.70	5.99	+/-1.70	8.00	pCi/L		KXG3	11/13/12	1124	1262434	4
Cobalt-60	U	-1.56	+/-1.66	5.75	+/-1.66	8.00	pCi/L						
Neptunium-237	U	-5.88	+/-3.63	11.7	+/-3.63	10.0	pCi/L						
Potassium-40	U	0.685	+/-22.8	85.3	+/-22.8	10.0	pCi/L						
Sodium-22	U	-1.71	+/-1.64	5.62	+/-1.64	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	-0.0292	+/-0.102	0.403	+/-0.102	0.500	pCi/L		VXC2	11/25/12	1736	1263026	5
WSP-GrossA/B "As Received"													
Beta	U	1.68	+/-0.674	2.02	+/-0.690	3.00	pCi/L		MYS1	11/26/12	1958	1263054	6
Alpha	U	0.806	+/-0.750	2.78	+/-0.753	3.00	pCi/L		MYS1	11/27/12	1955	1263054	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1262092	92.9	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1262093	86.2	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1262094	74.8	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1263026	93.5	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 30, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24247
Sample ID: 314749001

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 30, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24248
Sample ID: 314749004
Matrix: W
Collect Date: 06-NOV-12
Receive Date: 08-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.0146	+/-0.00714	0.0256	+/-0.00717	0.050	pCi/L		JXH2	11/26/12	1259	1262092	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	-0.01	+/-0.00555	0.0237	+/-0.00555	0.050	pCi/L		JXH2	11/26/12	1259	1262093	2
Plutonium-239/240	U	0.00314	+/-0.00528	0.0392	+/-0.00529	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.517	+/-0.041	0.0637	+/-0.0534	1.00	pCi/L		JXH2	11/26/12	1259	1262094	3
Uranium-235/236	U	0.0194	+/-0.0112	0.040	+/-0.0113	1.00	pCi/L						
Uranium-238		0.243	+/-0.027	0.0434	+/-0.0313	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	0.935	+/-1.61	6.04	+/-1.61	8.00	pCi/L		KXG3	11/13/12	1124	1262434	4
Cobalt-60	U	2.74	+/-1.66	7.07	+/-1.66	8.00	pCi/L						
Neptunium-237	U	0.480	+/-3.21	11.3	+/-3.21	10.0	pCi/L						
Potassium-40	U	32.8	+/-18.4	77.0	+/-18.4	10.0	pCi/L						
Sodium-22	U	-1.26	+/-1.54	5.52	+/-1.54	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.229	+/-0.140	0.464	+/-0.141	0.500	pCi/L		VXC2	11/25/12	1736	1263026	5
WSP-GrossA/B "As Received"													
Beta	U	2.36	+/-0.847	2.51	+/-0.871	3.00	pCi/L		MYS1	11/26/12	1958	1263054	6
Alpha	U	-0.049	+/-0.702	2.95	+/-0.703	3.00	pCi/L		MYS1	11/27/12	1952	1263054	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1262092	93.1	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1262093	88.2	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1262094	75.6	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1263026	94.9	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 30, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24248
Sample ID: 314749004

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

QC Summary

Report Date: November 30, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico
Contact: **Keith Greene**

Workorder: **314749**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1262092										
QC1202777246 314849001 DUP										
Americium-241	U	0.0062	U	-0.0113	pCi/L	0.652		(0-1)	JXH2	11/26/1212:59
	Uncert:	+/-0.00677		+/-0.00664						
	TPU:	+/-0.00678		+/-0.00664						
**Americium-243 Tracer	2.60	2.52		2.29	pCi/L		88.1	(50%-105%)		
	Uncert:	+/-0.0774		+/-0.0811						
	TPU:	+/-0.133		+/-0.138						
QC1202777247 LCS										
Americium-241	1.41			1.42	pCi/L		101	(80%-120%)	JXH2	11/26/1212:59
	Uncert:			+/-0.0524						
	TPU:			+/-0.0794						
**Americium-243 Tracer	2.08			2.06	pCi/L		99.1	(50%-105%)		
	Uncert:			+/-0.0627						
	TPU:			+/-0.108						
QC1202777245 MB										
Americium-241			U	-0.014	pCi/L				JXH2	11/26/1212:59
	Uncert:			+/-0.00584						
	TPU:			+/-0.00584						
**Americium-243 Tracer	2.08			2.05	pCi/L		98.2	(50%-105%)		
	Uncert:			+/-0.0596						
	TPU:			+/-0.104						
Batch 1262093										
QC1202777249 314849001 DUP										
Plutonium-238	U	0.00	U	0.00112	pCi/L	0.0595		(0-1)	JXH2	11/26/1212:59
	Uncert:	+/-0.0038		+/-0.00558						
	TPU:	+/-0.0038		+/-0.00558						
Plutonium-239/240	U	-0.00467	U	-0.000863	pCi/L	0.174		(0-1)		
	Uncert:	+/-0.00504		+/-0.00592						
	TPU:	+/-0.00504		+/-0.00592						
**Plutonium-242 Tracer	2.43	1.81		2.14	pCi/L		88.1	(50%-105%)		
	Uncert:	+/-0.0856		+/-0.0796						
	TPU:	+/-0.140		+/-0.132						
QC1202777250 LCS										
Plutonium-238			U	0.0092	pCi/L			(80%-120%)	JXH2	11/26/1212:59
	Uncert:			+/-0.00545						
	TPU:			+/-0.00546						
Plutonium-239/240	2.03			2.15	pCi/L		106	(80%-120%)		
	Uncert:			+/-0.0704						
	TPU:			+/-0.119						
**Plutonium-242 Tracer	1.94			1.45	pCi/L		74.4	(50%-105%)		
	Uncert:			+/-0.0672						
	TPU:			+/-0.110						
QC1202777248 MB										

QC Summary

Workorder: 314749

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1262093										
Plutonium-238			U	-0.0085	pCi/L				JXH2	11/26/1212:59
	Uncert:			+/-0.00584						
	TPU:			+/-0.00584						
Plutonium-239/240			U	0.00445	pCi/L					
	Uncert:			+/-0.00458						
	TPU:			+/-0.00458						
**Plutonium-242 Tracer	1.94			1.82	pCi/L		93.6	(50%-105%)		
	Uncert:			+/-0.0633						
	TPU:			+/-0.105						
Batch 1262094										
QC1202777252 314849001 DUP										
Uranium-234		0.0741		0.061	pCi/L	0.190		(0-1)	JXH2	11/27/1208:51
	Uncert:	+/-0.0167		+/-0.0164						
	TPU:	+/-0.0175		+/-0.017						
Uranium-235/236	U	0.00	U	0.0026	pCi/L	0.112		(0-1)		
	Uncert:	+/-0.00476		+/-0.00688						
	TPU:	+/-0.00476		+/-0.00688						
Uranium-238	U	0.034		0.040	pCi/L	0.135		(0-1)		
	Uncert:	+/-0.0114		+/-0.0101						
	TPU:	+/-0.0117		+/-0.0104						
**Uranium-232 Tracer	2.73	1.91		2.22	pCi/L		81.2	(50%-105%)		
	Uncert:	+/-0.0922		+/-0.0765						
	TPU:	+/-0.202		+/-0.188						
QC1202777253 LCS										
Uranium-234				2.56	pCi/L				JXH2	11/27/1208:51
	Uncert:			+/-0.0756						
	TPU:			+/-0.183						
Uranium-235/236				0.0983	pCi/L					
	Uncert:			+/-0.0173						
	TPU:			+/-0.0184						
Uranium-238	2.70			2.65	pCi/L		98.1	(80%-120%)		
	Uncert:			+/-0.0769						
	TPU:			+/-0.188						
**Uranium-232 Tracer	2.19			1.26	pCi/L		57.4	(50%-105%)		
	Uncert:			+/-0.0702						
	TPU:			+/-0.158						
QC1202777251 MB										
Uranium-234			U	-0.0341	pCi/L				JXH2	11/26/1212:59
	Uncert:			+/-0.0136						
	TPU:			+/-0.0136						
Uranium-235/236			U	-0.00635	pCi/L					
	Uncert:			+/-0.00997						
	TPU:			+/-0.00998						
Uranium-238			U	-0.00215	pCi/L					
	Uncert:			+/-0.00749						
	TPU:			+/-0.0075						
**Uranium-232 Tracer	2.19			1.03	pCi/L		47.4 *	(50%-105%)		
	Uncert:			+/-0.0933						

QC Summary

Workorder: 314749

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1262094										
	TPU:			+/-0.180						
Rad Gamma Spec										
Batch 1262434										
QC1202778039 314849001 DUP										
Cesium-137	U	-0.677	U	-0.0582	pCi/L	0.102		(0-1)	KXG3	11/13/1213:45
	Uncert:	+/-1.40		+/-1.64						
	TPU:	+/-1.40		+/-1.64						
Cobalt-60	U	2.33	U	1.12	pCi/L	0.205		(0-1)		
	Uncert:	+/-1.29		+/-1.67						
	TPU:	+/-1.29		+/-1.67						
Neptunium-237	U	-5.83	U	0.248	pCi/L	0.468		(0-1)		
	Uncert:	+/-2.78		+/-3.72						
	TPU:	+/-2.78		+/-3.72						
Potassium-40	U	-8.92	U	12.4	pCi/L	0.285		(0-1)		
	Uncert:	+/-17.2		+/-20.1						
	TPU:	+/-17.2		+/-20.1						
Sodium-22	U	-1.44	U	-2.59	pCi/L	0.235		(0-1)		
	Uncert:	+/-0.927		+/-1.52						
	TPU:	+/-0.927		+/-1.52						
QC1202778040 LCS										
Americium-241	2780			3040	pCi/L		109	(80%-120%)	KXG3	11/13/1212:13
	Uncert:			+/-261						
	TPU:			+/-261						
Cesium-137	6090			6210	pCi/L		102	(80%-120%)		
	Uncert:			+/-271						
	TPU:			+/-271						
Cobalt-60	5650			5740	pCi/L		101	(80%-120%)		
	Uncert:			+/-243						
	TPU:			+/-243						
Neptunium-237			U	4.78	pCi/L					
	Uncert:			+/-25.6						
	TPU:			+/-25.6						
Potassium-40			U	33.5	pCi/L					
	Uncert:			+/-50.9						
	TPU:			+/-50.9						
Sodium-22			U	10.4	pCi/L					
	Uncert:			+/-7.67						
	TPU:			+/-7.67						
QC1202778038 MB										
Cesium-137			U	1.66	pCi/L				KXG3	11/13/1212:00
	Uncert:			+/-1.79						
	TPU:			+/-1.79						
Cobalt-60			U	0.766	pCi/L					
	Uncert:			+/-1.23						
	TPU:			+/-1.23						
Neptunium-237			U	-1.98	pCi/L					
	Uncert:			+/-2.68						
	TPU:			+/-2.68						

QC Summary

Workorder: 314749

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1262434										
Potassium-40			U	32.9	pCi/L					
Uncert:				+/-16.8						
TPU:				+/-16.8						
Sodium-22			U	-1.57	pCi/L					
Uncert:				+/-1.38						
TPU:				+/-1.38						
Rad Gas Flow										
Batch 1263026										
QC1202779528 314987003 DUP										
Strontium-90	U	0.0275	U	-0.0248	pCi/L	0.104		(0-1)	VXC2	11/26/1215:37
Uncert:		+/-0.123		+/-0.130						
TPU:		+/-0.123		+/-0.130						
**Strontium Carrier	7.17	7.00		7.10	mg		99.1	(50%-105%)		
QC1202779530 LCS										
Strontium-90	24.8			24.6	pCi/L		99	(80%-120%)	VXC2	11/26/1215:38
Uncert:				+/-0.498						
TPU:				+/-2.02						
**Strontium Carrier	7.17			6.40	mg		89.3	(50%-105%)		
QC1202779527 MB										
Strontium-90			U	0.162	pCi/L				VXC2	11/26/1215:37
Uncert:				+/-0.0895						
TPU:				+/-0.0904						
**Strontium Carrier	7.17			6.70	mg		93.5	(50%-105%)		
QC1202779529 314987003 MS										
Strontium-90	124 U	0.0275		122	pCi/L		98.1	(75%-125%)	VXC2	11/26/1215:38
Uncert:		+/-0.123		+/-2.49						
TPU:		+/-0.123		+/-10.2						
**Strontium Carrier	7.17	7.00		6.40	mg		89.3	(50%-105%)		
Batch 1263054										
QC1202779587 314849003 DUP										
Alpha	U	2.00	U	2.13	pCi/L	0.0316		(0-1)	MYS1	11/27/1221:14
Uncert:		+/-0.977		+/-1.00						
TPU:		+/-0.992		+/-1.02						
Beta	U	2.13	U	0.444	pCi/L	0.563		(0-1)		11/26/1219:58
Uncert:		+/-0.785		+/-0.686						
TPU:		+/-0.805		+/-0.688						
QC1202779590 LCS										
Alpha	12.0			12.1	pCi/L		101	(80%-120%)	MYS1	11/27/1220:02
Uncert:				+/-0.661						
TPU:				+/-1.27						
Beta	49.6			49.0	pCi/L		98.8	(80%-120%)		11/26/1219:56
Uncert:				+/-0.892						
TPU:				+/-4.18						
QC1202779586 MB										
Alpha			U	-0.0618	pCi/L				MYS1	11/27/1221:14
Uncert:				+/-0.0846						
TPU:				+/-0.0846						
Beta			U	0.0566	pCi/L					11/26/1219:56

QC Summary

Workorder: 314749

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1263054										
	Uncert:			+/-0.101						
	TPU:			+/-0.101						
QC1202779588 314849003 MS										
Alpha	481	2.00	U	416	pCi/L		86.3	(75%-125%)	MYS1	11/27/1220:19
	Uncert:	+/-0.977		+/-22.5						
	TPU:	+/-0.992		+/-42.7						
Beta	1990	2.13	U	1990	pCi/L		100	(75%-125%)		11/26/1219:56
	Uncert:	+/-0.785		+/-36.5						
	TPU:	+/-0.805		+/-169						
QC1202779589 314849003 MSD										
Alpha	481	2.00	U	496	pCi/L	0.402	103	(0-1)	MYS1	11/27/1220:02
	Uncert:	+/-0.977		+/-26.2						
	TPU:	+/-0.992		+/-57.4						
Beta	1990	2.13	U	2100	pCi/L	0.153	106	(0-1)		11/26/1219:56
	Uncert:	+/-0.785		+/-38.0						
	TPU:	+/-0.805		+/-187						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative

QC Summary

Workorder: 314749

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-270

Client Contact:

Lab Agreement #: 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8082-PCB	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-H-3	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CASA-13-24209	Nov 5 2012	13:50	W				1				1	1	
CASA-13-24217	Nov 5 2012	11:50	W		1	1			1	1			
CASA-13-24224	Nov 5 2012	11:18	W		1	1			1	1			
CASA-13-24216	Nov 5 2012	11:18	W	3			1	1			1	1	

Special Instructions:

Relinquished by: Shem Sherwood	S. Sherwood	Date/Time: 11/6/12 3pm	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24209 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/05/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1350	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-11		FIELD PREP:	UF	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 75 feet of a running diesel generator

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 7.17 mg/L Oxidation-Reduction Potential 100.3 MV pH 8.04 SU

Specific Conductance 226 uS/cm Temperature 21.38 deg C Turbidity 0.34 NTU

COLLECTED BY (PRINT) W Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/05/12 1435	(Printed Name) (Signature)	11/05/12 1435
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24217 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/05/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1150	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-11		FIELD PREP:	F	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
	WSP-GENINORG	1 LITER POLY	1	ICE		
	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

See CASA-13-24209

COLLECTED BY (PRINT) W Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/05/12 1435	(Printed Name) M. Martin (Signature)	11/05/12 1435
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24216 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/05/2012	FIELD MATRIX: WG		OK
TIME COLLECTED (HH:MM):		1118	MEDIA: UA		OK
PRS ID:		OK	SAMPLE TECH CODE: UA		RSP
LOCATION ID: SCI-2			FIELD PREP: UF		OK
LOCATION TYPE: MON			FIELD QC TYPE: REG		
PORT: SINGLE COMPLETION			SAMPLE USAGE: INV		

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	~~2~~ 3 11/5/12	ICE	Y	NA
	WSP-GrossA/B	1 LITER POLY	1	NONE		
	WSP-H-3	250 ML AMBER GLASS	1	ICE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: None

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 9.77 mg/L Oxidation-Reduction Potential 149.1 MV pH 7.46 SU

Specific Conductance 590 uS/cm Temperature 14.35 deg C Turbidity 3.13 NTU

COLLECTED BY (PRINT) W Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/05/12 1435	(Printed Name) (Signature)	11/05/12 1435
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24224 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/05/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1118	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	RSP
LOCATION ID:	SCI-2		FIELD PREP:	F	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
	WSP-GENINORG	1 LITER POLY	1	ICE		
	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: None

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU
Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU } See CASA-13-24216

COLLECTED BY (PRINT) W Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) J Woody (Signature) David Woody	11/05/12 1435	(Printed Name) (Signature)	11/05/12 1435
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-270

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
314639	EPA:120.1	2				
314639	EPA:150.1	2				
314639	EPA:160.1	2				
314639	EPA:245.2	2				
314639	EPA:300.0	2				
314639	EPA:310.1	2				
314639	EPA:350.1	2				
314639	EPA:351.2	2				
314639	EPA:353.2	2				
314639	EPA:365.4	2				
314639	EPA:900	2				
314639	EPA:901.1	2				
314639	EPA:905.0	2				
314639	EPA:906.0	1				
314639	HASL-300:AM-241	2				
314639	HASL-300:ISOPU	2				
314639	HASL-300:ISOU	2				
314639	SM:A2340B	2				
314639	SW-846:6010B	2				
314639	SW-846:6020	2				
314639	SW-846:6850	2				
314639	SW-846:8082	1				
314639	SW-846:9060	2				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
314639	EPA:120.1	1265843	1265843	2							
314639	EPA:150.1	1261553	1261553	2							
314639	EPA:160.1	1261522	1261522	2					1		
314639	EPA:245.2	1264600	1264596	2					1	2	
314639	EPA:300.0	1261315	1261315	2					1		
314639	EPA:310.1	1263936	1263936	2					2	1	
314639	EPA:350.1	1261640	1261639	2					1	1	1
314639	EPA:351.2	1261638	1261637	2					1	1	1
314639	EPA:353.2	1261528	1261528	2					1		
314639	EPA:365.4	1261643	1261641	2					1	1	1
314639	EPA:900	1263054	1263054	2					1	1	1
314639	EPA:901.1	1261091	1261091	2					1		
314639	EPA:905.0	1263026	1263026	2					1	1	
314639	EPA:906.0	1261839	1261839	1					1	1	
314639	HASL-300:AM-241	1261192	1261192	2					1		
314639	HASL-300:ISOPU	1261194	1261194	2					1		
314639	HASL-300:ISOU	1261195	1261195	2					1		
314639	SM:A2340B	1267632	1267632	1							
314639	SM:A2340B	1267710	1267710	1							
314639	SW-846:6010B	1261333	1261332	2					1	1	
314639	SW-846:6020	1261331	1261330	2					1	1	

Data Validation Report for:

Chain Of Custody No. 2013-270

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				2			
		1				1			
		1				1			
		1				2			
		1				1			
		2				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			

314639	SW-846:6850	1262376	1262373	2					1	1	1
314639	SW-846:8082	1262673	1262672	1					1	1	1
314639	SW-846:9060	1260735	1260735	2					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24264	1202785832	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24280	1202785831	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CASA-13-24217	314639002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CASA-13-24224	314639003	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202785833	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24217	1202775968	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24217	314639002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24224	314639003	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202775970	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24280	1202775862	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CASA-13-24217	314639002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CASA-13-24224	314639003	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202775864	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202775861	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783063	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783067	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783064	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783068	MS	0	0	1	0
EPA:245.2	INORGANIC	CASA-13-24217	314639002	REG	1	0	0	0
EPA:245.2	INORGANIC	CASA-13-24224	314639003	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202783069	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202783062	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24256	1202775359	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CASA-13-24217	314639002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CASA-13-24224	314639003	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202775361	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202775358	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24280	1202781593	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24280	1202781606	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CASA-13-24217	314639002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CASA-13-24224	314639003	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202781586	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202782634	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202781585	MB	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202782633	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776123	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776124	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776125	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24217	314639002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24224	314639003	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202776126	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202776122	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776118	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776119	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776120	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24209	314639001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24216	314639004	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202776121	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202776117	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24256	1202775881	DUP	1	0	0	0

		1							
		1							
		1				1			

EPA:353.2	GENERAL CHEMISTRY	CASA-13-24217	314639002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CASA-13-24224	314639003	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202775885	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202775880	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776128	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776130	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776132	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24217	314639002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24224	314639003	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202776134	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202776127	MB	1	0	0	0
EPA:900	RAD	CASA-13-24209	314639001	REG	2	0	0	0
EPA:900	RAD	CASA-13-24214	1202779587	DUP	2	0	0	0
EPA:900	RAD	CASA-13-24214	1202779588	MS	0	0	2	0
EPA:900	RAD	CASA-13-24214	1202779589	MSD	0	0	2	0
EPA:900	RAD	CASA-13-24216	314639004	REG	2	0	0	0
EPA:900	RAD	LCS	1202779590	LCS	0	0	2	0
EPA:900	RAD	MB	1202779586	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24276	1202774852	DUP	6	0	0	0
EPA:901.1	RAD	CASA-13-24209	314639001	REG	5	0	0	0
EPA:901.1	RAD	CASA-13-24216	314639004	REG	5	0	0	0
EPA:901.1	RAD	LCS	1202774853	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202774851	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24253	1202779528	DUP	1	0	0	0
EPA:905.0	RAD	CAMO-13-24253	1202779529	MS	0	0	1	0
EPA:905.0	RAD	CASA-13-24209	314639001	REG	1	0	0	0
EPA:905.0	RAD	CASA-13-24216	314639004	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202779530	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202779527	MB	1	0	0	0
EPA:906.0	RAD	CASA-13-24216	1202776612	DUP	1	0	0	0
EPA:906.0	RAD	CASA-13-24216	1202776613	MS	0	0	1	0
EPA:906.0	RAD	CASA-13-24216	314639004	REG	1	0	0	0
EPA:906.0	RAD	LCS	1202776614	LCS	0	0	1	0
EPA:906.0	RAD	MB	1202776611	MB	1	0	0	0
HASL-300:AM-241	RAD	CASA-13-24209	1202775076	DUP	1	0	0	0
HASL-300:AM-241	RAD	CASA-13-24209	314639001	REG	1	0	0	0
HASL-300:AM-241	RAD	CASA-13-24216	314639004	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202775077	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202775075	MB	1	0	0	0
HASL-300:ISOPU	RAD	CASA-13-24209	1202775079	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CASA-13-24209	314639001	REG	2	0	0	0
HASL-300:ISOPU	RAD	CASA-13-24216	314639004	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202775080	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202775078	MB	2	0	0	0
HASL-300:ISOU	RAD	CASA-13-24209	1202775082	DUP	3	0	0	0
HASL-300:ISOU	RAD	CASA-13-24209	314639001	REG	3	0	0	0
HASL-300:ISOU	RAD	CASA-13-24216	314639004	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202775083	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202775081	MB	3	0	0	0
SM:A2340B	INORGANIC	CASA-13-24217	314639002	REG	1	0	0	0
SM:A2340B	INORGANIC	CASA-13-24224	314639003	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24280	1202775410	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24280	1202775411	MS	0	0	17	0
SW-846:6010B	INORGANIC	CASA-13-24217	314639002	REG	17	0	0	0
SW-846:6010B	INORGANIC	CASA-13-24224	314639003	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202775409	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202775408	MB	17	0	0	0

SW-846:6020	INORGANIC	CAMO-13-24280	1202775405	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24280	1202775406	MS	0	0	11	0
SW-846:6020	INORGANIC	CASA-13-24217	314639002	REG	11	0	0	0
SW-846:6020	INORGANIC	CASA-13-24224	314639003	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202775404	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202775403	MB	11	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24217	314639002	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24224	1202777946	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24224	1202777947	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24224	314639003	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202777945	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202777944	MB	1	0	0	0
SW-846:8082	PESTPCB	CASA-13-24216	314639004	REG	8	2	0	0
SW-846:8082	PESTPCB	LCS	1202778593	LCS	0	2	2	0
SW-846:8082	PESTPCB	MB	1202778592	MB	8	2	0	0
SW-846:8082	PESTPCB	WST05-12-23548	1202778594	MS	0	2	2	0
SW-846:8082	PESTPCB	WST05-12-23548	1202778595	MSD	0	2	2	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24241	1202773872	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CASA-13-24209	314639001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CASA-13-24216	314639004	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202773876	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202773871	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202773871	METHOD BLANK	SW-846:9060	W	Total Organic Carbon	0.488	J	mg/L	1
MB	1202775408	METHOD BLANK	SW-846:6010B	W	Potassium	81.8	J	ug/L	150

Any samples affected by the presence of contaminants in blanks?

Field Sample ID	Blank Field Sample ID	Blank Lab Sample ID	Blank Type	Analytical Method	Parameter Name	Units	Blank Result	Sample Result	Lab Qualifier	Detect Limit	Detected
CASA-13-24216	MB	1202773871	METHOD BLANK	SW-846:9060	Total Organic Carbon	mg/L	0.488	1.05		1	Y

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

Data Validation Report for:

Chain Of Custody No. 2013-270

Correction Factor (ND)	Correction Factor (J)	Use Factors
5		Y

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CAMO-13-24256	1202776124	1202776125	EPA:350.1	Ammonia as Nitrogen	1261639	11/13/2012	W	114	95.1	110	90
CAMO-13-24239	1202776119	1202776120	EPA:351.2	Total Kjeldahl Nitrogen	1261637	11/14/2012	W	89.7	90.7	110	90
CASA-13-24214	1202779588	1202779589	EPA:900	Gross alpha	1263054	11/27/2012	W	86.3	103	125	75
CAMO-13-24280	1202775411		SW-846:6010B	Silicon Dioxide	1261332	11/17/2012	W	178		125	75
CAMO-13-24280	1202775411		SW-846:6010B	Sodium	1261332	11/17/2012	W	132		125	75

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

Field Sample ID	Lab SampleID	Lab Duplicate Sample ID	Analytical Method	Parameter Name	Sample Matrix	Sample Result	Dup Sample Result	Units	Detected In Sample	Detected In Dup	RPD
CASA-13-24209	314639001	1202775082	HASL-300:ISOU	Uranium-234	W	0.516	0.547	pCi/L	Y	Y	5.86
CASA-13-24209	314639001	1202775082	HASL-300:ISOU	Uranium-238	W	0.218	0.231	pCi/L	Y	Y	5.66

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-11	2013-270	CASA-13-24209	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-11	2013-270	CASA-13-24209	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-11	2013-270	CASA-13-24209	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-11	2013-270	CASA-13-24209	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-11	2013-270	CASA-13-24209	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-11	2013-270	CASA-13-24209	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-11	2013-270	CASA-13-24209	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-11	2013-270	CASA-13-24209	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-11	2013-270	CASA-13-24209	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-11	2013-270	CASA-13-24209	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-11	2013-270	CASA-13-24209	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-11	2013-270	CASA-13-24209	REG	INIT	RAD	HASL-300:ISOU	Uranium-234		J	R10	Y
R-11	2013-270	CASA-13-24209	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-11	2013-270	CASA-13-24209	REG	INIT	RAD	HASL-300:ISOU	Uranium-238		J	R10	Y
SCI-2	2013-270	CASA-13-24216	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
SCI-2	2013-270	CASA-13-24216	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
SCI-2	2013-270	CASA-13-24216	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N

Data Validation Report for:

Chain Of Custody No. 2013-270

Rejection Limit	RPD	RPD Limit
10	17.2	15
10	0.939	20
10	17.6	11.5
10		
10		

RPD Limit
0.0678
0.046

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
0.0123	pCi/L	0.0123	pCi/L	0.0349	0.00867	W	11/5/2012		1261192	VAL	Y
-0.37	pCi/L	-0.37	pCi/L	4.54	1.23	W	11/5/2012		1261091	VAL	Y
-1.04	pCi/L	-1.04	pCi/L	4.29	1.24	W	11/5/2012		1261091	VAL	Y
1.27	pCi/L	1.27	pCi/L	2.89	0.862	W	11/5/2012		1263054	VAL	Y
1.23	pCi/L	1.23	pCi/L	2.26	0.697	W	11/5/2012		1263054	VAL	Y
0.342	pCi/L	0.342	pCi/L	9.17	2.55	W	11/5/2012		1261091	VAL	Y
-0.0105	pCi/L	-0.0105	pCi/L	0.0201	0.00628	W	11/5/2012		1261194	VAL	Y
0.00837	pCi/L	0.00837	pCi/L	0.0334	0.00662	W	11/5/2012		1261194	VAL	Y
15.8	pCi/L	15.8	pCi/L	70.2	17.4	W	11/5/2012		1261091	VAL	Y
-1.73	pCi/L	-1.73	pCi/L	3.75	1.17	W	11/5/2012		1261091	VAL	Y
0.391	pCi/L	0.391	pCi/L	0.399	0.135	W	11/5/2012		1263026	VAL	Y
0.516	pCi/L	0.516	pCi/L	0.0617	0.039	W	11/5/2012		1261195	VAL	Y
0.0132	pCi/L	0.0132	pCi/L	0.0385	0.0104	W	11/5/2012		1261195	VAL	Y
0.218	pCi/L	0.218	pCi/L	0.0419	0.0258	W	11/5/2012		1261195	VAL	Y
0.0183	pCi/L	0.0183	pCi/L	0.0297	0.00782	W	11/5/2012		1261192	VAL	Y
-0.947	pCi/L	-0.947	pCi/L	4.88	1.43	W	11/5/2012		1261091	VAL	Y
2.39	pCi/L	2.39	pCi/L	6.69	1.57	W	11/5/2012		1261091	VAL	Y

SCI-2	2013-270	CASA-13-24216	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
SCI-2	2013-270	CASA-13-24216	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
SCI-2	2013-270	CASA-13-24216	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
SCI-2	2013-270	CASA-13-24216	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
SCI-2	2013-270	CASA-13-24216	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
SCI-2	2013-270	CASA-13-24216	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
SCI-2	2013-270	CASA-13-24216	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
SCI-2	2013-270	CASA-13-24216	REG	INIT	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon		U	I4	N
SCI-2	2013-270	CASA-13-24216	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N

Reason Code	Description
I4	the sample result is =<5x the concentration of related analyte in the method blank.
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R10	Associated duplicate sample has DER or RER> the analytical laboratory's acceptance limits.
R5	Analyte is not detected because the amount reported is less than the MDC.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CASA-13-24209	R-11	REG	EPA:351.2	0	1
CASA-13-24209	R-11	REG	EPA:900	0	2
CASA-13-24209	R-11	REG	EPA:901.1	0	5
CASA-13-24209	R-11	REG	EPA:905.0	0	1
CASA-13-24209	R-11	REG	HASL-300:AM-241	0	1
CASA-13-24209	R-11	REG	HASL-300:ISOPU	0	2
CASA-13-24209	R-11	REG	HASL-300:ISOU	0	3
CASA-13-24209	R-11	REG	SW-846:9060	0	1
CASA-13-24216	SCI-2	REG	EPA:351.2	0	1
CASA-13-24216	SCI-2	REG	EPA:900	0	2
CASA-13-24216	SCI-2	REG	EPA:901.1	0	5
CASA-13-24216	SCI-2	REG	EPA:905.0	0	1
CASA-13-24216	SCI-2	REG	EPA:906.0	0	1
CASA-13-24216	SCI-2	REG	HASL-300:AM-241	0	1
CASA-13-24216	SCI-2	REG	HASL-300:ISOPU	0	2
CASA-13-24216	SCI-2	REG	HASL-300:ISOU	0	3
CASA-13-24216	SCI-2	REG	SW-846:8082	0	8
CASA-13-24216	SCI-2	REG	SW-846:9060	0	1
CASA-13-24217	R-11	REG	EPA:120.1	0	1
CASA-13-24217	R-11	REG	EPA:150.1	0	1
CASA-13-24217	R-11	REG	EPA:160.1	0	1
CASA-13-24217	R-11	REG	EPA:245.2	0	1
CASA-13-24217	R-11	REG	EPA:300.0	0	4
CASA-13-24217	R-11	REG	EPA:310.1	0	2
CASA-13-24217	R-11	REG	EPA:350.1	0	1
CASA-13-24217	R-11	REG	EPA:353.2	0	1
CASA-13-24217	R-11	REG	EPA:365.4	0	1
CASA-13-24217	R-11	REG	SM:A2340B	0	1
CASA-13-24217	R-11	REG	SW-846:6010B	0	17
CASA-13-24217	R-11	REG	SW-846:6020	0	11
CASA-13-24217	R-11	REG	SW-846:6850	0	1

1.21	pCi/L	1.21	pCi/L	2.77	0.828	W	11/5/2012		1263054	VAL	Y
-3.39	pCi/L	-3.39	pCi/L	10.5	3.05	W	11/5/2012		1261091	VAL	Y
0.00567	pCi/L	0.00567	pCi/L	0.0272	0.00567	W	11/5/2012		1261194	VAL	Y
0.00567	pCi/L	0.00567	pCi/L	0.0453	0.00567	W	11/5/2012		1261194	VAL	Y
13.4	pCi/L	13.4	pCi/L	80.6	19.2	W	11/5/2012		1261091	VAL	Y
0.364	pCi/L	0.364	pCi/L	5.09	1.3	W	11/5/2012		1261091	VAL	Y
-0.0837	pCi/L	-0.0837	pCi/L	0.437	0.109	W	11/5/2012		1263026	VAL	Y
1.05	mg/L	1.05	mg/L			W	11/5/2012		1260735	VAL	Y
0.0307	pCi/L	0.0307	pCi/L	0.04	0.0123	W	11/5/2012		1261195	VAL	Y

CASA-13-24224	SCI-2	REG	EPA:120.1	0	1
CASA-13-24224	SCI-2	REG	EPA:150.1	0	1
CASA-13-24224	SCI-2	REG	EPA:160.1	0	1
CASA-13-24224	SCI-2	REG	EPA:245.2	0	1
CASA-13-24224	SCI-2	REG	EPA:300.0	0	4
CASA-13-24224	SCI-2	REG	EPA:310.1	0	2
CASA-13-24224	SCI-2	REG	EPA:350.1	0	1
CASA-13-24224	SCI-2	REG	EPA:353.2	0	1
CASA-13-24224	SCI-2	REG	EPA:365.4	0	1
CASA-13-24224	SCI-2	REG	SM:A2340B	0	1
CASA-13-24224	SCI-2	REG	SW-846:6010B	0	17
CASA-13-24224	SCI-2	REG	SW-846:6020	0	11
CASA-13-24224	SCI-2	REG	SW-846:6850	0	1

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

November 29, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 314639
SDG: 2013-270

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 07, 2012, and analyzed for GC Semivolatile PCB, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

for

Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-270
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 314639
SDG: 2013-270

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....9

Perchlorates by LCMSMS Analysis.....11

Case Narrative.....12

Sample Data Summary.....18

Quality Control Summary.....21

Quality Control Data.....24

PCB Analysis.....30

Case Narrative.....31

Sample Data Summary.....36

Quality Control Summary.....38

Quality Control Data.....44

Metals Analysis.....47

Case Narrative.....48

Sample Data Summary.....54

Quality Control Summary.....60

Miscellaneous.....74

General Chem Analysis.....76

Case Narrative.....77

Sample Data Summary.....105

Quality Control Summary.....113

Miscellaneous.....118

Radiological Analysis.....122

Sample Data Summary.....135

Quality Control Data.....140

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 314639
SDG # : 2013-270

November 29, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 07, 2012 for analysis. Please see attached email for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. The containers for Gross A/B were preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). The container for radiochemistry analysis were received a temperature of 19C. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
314639001	CASA-13-24209
314639002	CASA-13-24217
314639003	CASA-13-24224
314639004	CASA-13-24216

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC Semivolatile PCB, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

for

Valerie Davis
Project Manager

List of current GEL Certifications as of 29 November 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

314639

COC/Lab Request #: 2013-270

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8082-PCB	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-H-3	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CASA-13-24209	Nov 5 2012	13:50	W				1				1	1
CASA-13-24217	Nov 5 2012	11:50	W		1	1			1	1		
CASA-13-24224	Nov 5 2012	11:18	W		1	1			1	1		
CASA-13-24216	Nov 5 2012	11:18	W	3			1	1			1	1

Special Instructions:

Special Instructions:

Relinquished by: Sheri Sherwood	S. Sherwood	Date/Time: 11/6/12 3pm	Received by: P. Nlert	11-7-12 09:00
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/AR/COC/Work Order: 2013-270**
Received By: Patricia Dent	**Date Received:November 7, 2012**

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0CPM**
Classified Radioactive II or III by RSO?		X	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		X	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **2-4,19**
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			X	Sample ID's, containers affected and observed pH: **CASA-13-24209, CASA-13-24216 for Gross A/B** 34209,If Preservation added, Lot# **L03022**
6	VOA vials free of headspace (defined as < 6mm bubble)?	X			Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?			X	Sample ID's affected: **CASA-13-24216 the lab received 2 8082 PCB container COC indicates 3.**
12	Are sample containers identifiable as GEL provided?			X	**CLIENTS**
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.	X			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9832 5013 2C 5462 9832 5002 4C 5462 9832 5024 19C**

Comments (Use Continuation Form if needed):

PM (PMA) review Initials P. D. Date 11-7-12 Page 1 of 1

Subject: Sample Issues from today 11/07/12
From: Pat Dent <Pat.Dent@gel.com>
Date: 11/7/2012 4:54 PM
To: "Keith R. Greene" <kgreene@lanl.gov>
CC: "team.davis" <team.davis@gel.com>, LANL@amrad.com

Good Afternoon all listed below are today's Issues

Containers received for Gross A/B was preserved prior to analysis
RN#2013-270
Sample Id CASA-13-24216 the lab received 2 8082-PCB containers, COC indicates 3.

RN#2013-271
Sample Id CAMO-13-24275 the lab received 1 8260b container, coc indicates 2.

Thanks!

--
Patricia Dent
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Rd.
Charleston, S.C. 29407
Main: 843-556-8171 Ext 4264
Fax: 843-766-1178
Email: pad@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 06NOV12
ACTWGT: 48.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MP5R13AAV000

2c

580C1/6713/18BC

FedEx Express

J111311060601 25

2 of 3
MPS# 0263 5462 9832 5013
Mstr# 5462 9832 5002 0201

WED - 07 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 06NOV12
ACTWGT: 55.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MP5R13AAV000

4c

FedEx Express

1 of 3
TRK# 0201 5462 9832 5002
MASTER

WED - 07 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 06NOV12
ACTWGT: 41.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MP5R13AAV000

19c

FedEx Express

J111311060601 25

3 of 3
MPS# 0263 5462 9832 5024
Mstr# 5462 9832 5002 0201

WED - 07 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC/MSMS
ARS International (ARSL)
SDG 2013-270

Method/Analysis Information

Procedure:	**Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method:	SW846 6850 Modified
Prep Method:	SW846 6850 Modified
Analytical Batch Number:	1262376
Prep Batch Number:	1262373

Sample Analysis

Sample ID	Client ID
314639002	CASA-13-24217
314639003	CASA-13-24224
1202777953	Interference Check Sample (ICS)
1202777944	Method Blank (MB)
1202777945	Laboratory Control Sample (LCS)
1202777946	314639003(CASA-13-24224) Matrix Spike (MS)
1202777947	314639003(CASA-13-24224) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 9.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

ICV Requirements
The initial calibration verification standards (ICV) met the acceptance criteria.

CCB Requirements
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

CCV Requirements
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

Low Level Standard (CRI) Requirements
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Interference Check Sample (ICS)
The interference check sample (ICS) met all recovery acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Client sample 314639003 (CASA-13-24224) was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits.

Retention Time Standard Area Acceptance
The retention time standard areas were within the required acceptance criteria for all samples and QC.

Retention Time
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Sample 314639002 (CASA-13-24217) was re-analyzed to confirm the potential of carryover from the previous sample. The re-analysis data are reported.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

A data exception report (DER) was not generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

Additional Comments
The concentration observed in each matrix spike was above the calibration range. This was due to the background concentration present in the parent sample, 314639003 (CASA-13-24224). Re-analysis at a dilution was not necessary since the parent sample did not require a dilution.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples.

Please see the isotope ratio criteria in the Miscellaneous Section.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-270 GEL Work Order: 314639

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 20 NOV 2012 **Title: Group Leader**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24217

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-270

GEL Sample ID: 314639002

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.860	ug/L		1	13-NOV-12 17:18	per1113032a
	Perchlorate Isotope Ratio			3.01			1	13-NOV-12 17:18	per1113032a
14797-73-0	Perchlorate-101	.05	.2	0.911	ug/L		1	13-NOV-12 17:18	per1113032a
	Perchlorate-O(18)			0.523	ug/L		1	13-NOV-12 17:18	per1113032a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24224

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-270

GEL Sample ID: 314639003

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.942	ug/L		1	13-NOV-12 15:17	per1113017a
	Perchlorate Isotope Ratio			3.08			1	13-NOV-12 15:17	per1113017a
14797-73-0	Perchlorate-101	.05	.2	0.974	ug/L		1	13-NOV-12 15:17	per1113017a
	Perchlorate-O(18)			0.515	ug/L		1	13-NOV-12 15:17	per1113017a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2013-270

Extract Batch Code: 1262373

Date Filtered: 13-NOV-12

Matrix: WATER

Sample ID: 1202777945

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.202	ug/L	101		85 - 115
Perchlorate Isotope Ratio		2.92				-
Perchlorate-101	0.200	.22	ug/L	110		85 - 115
Perchlorate-O(18)		.486	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2013-270

Extract Batch Code: 1262373

Date Extracted: 13-NOV-12

GEL MS/PS ID: 1202777946

Client ID: CASA-13-24224

GEL MSD/PSD ID: 1202777947

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec #	MSD Conc	MSD Rec #	RPD #	RPD Limit	Recovery Limit
Perchlorate	0.200	0.942	ug/L	1.14	100	1.17	114	2.41	30	75 - 125
Perchlorate Isotope Ratio	0	3.08		3.19		3.09		3.03		-
Perchlorate-101	0.200	0.974	ug/L	1.14	84.3	1.21	116	5.44	30	75 - 125
Perchlorate-O(18)	0	0.515	ug/L	0.490		.502		2.49		-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 13-NOV-12

GEL Job No (SDG): 2013-270

GEL Sample ID: 1202777944

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	13-NOV-12 14:37	per1113012a
	Perchlorate Isotope Ratio						1	13-NOV-12 14:37	per1113012a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	13-NOV-12 14:37	per1113012a
	Perchlorate-O(18)			0.496	ug/L		1	13-NOV-12 14:37	per1113012a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 13-NOV-12

GEL Job No (SDG): 2013-270

GEL Sample ID: 1202777945

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.202	ug/L		1	13-NOV-12 14:45	per1113013a
	Perchlorate Isotope Ratio			2.92			1	13-NOV-12 14:45	per1113013a
14797-73-0	Perchlorate-101	.05	.2	0.220	ug/L		1	13-NOV-12 14:45	per1113013a
	Perchlorate-O(18)			0.486	ug/L		1	13-NOV-12 14:45	per1113013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2013-270

GEL Sample ID: 1202777953

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.198	ug/L	J	1	13-NOV-12 14:53	per1113014a
	Perchlorate Isotope Ratio			3.06			1	13-NOV-12 14:53	per1113014a
14797-73-0	Perchlorate-101	.05	.2	0.206	ug/L		1	13-NOV-12 14:53	per1113014a
	Perchlorate-O(18)			0.489	ug/L		1	13-NOV-12 14:53	per1113014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24224MS

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-270

GEL Sample ID: 1202777946

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	1.14	ug/L		1	13-NOV-12 15:25	per1113018a
	Perchlorate Isotope Ratio			3.19			1	13-NOV-12 15:25	per1113018a
14797-73-0	Perchlorate-101	.05	.2	1.14	ug/L		1	13-NOV-12 15:25	per1113018a
	Perchlorate-O(18)			0.490	ug/L		1	13-NOV-12 15:25	per1113018a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24224MSD

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-270

GEL Sample ID: 1202777947

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	1.17	ug/L		1	13-NOV-12 15:33	per1113019a
	Perchlorate Isotope Ratio			3.09			1	13-NOV-12 15:33	per1113019a
14797-73-0	Perchlorate-101	.05	.2	1.21	ug/L		1	13-NOV-12 15:33	per1113019a
	Perchlorate-O(18)			0.502	ug/L		1	13-NOV-12 15:33	per1113019a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

PCB Analysis

Case Narrative

PCB Case Narrative
ARS International (ARSL)
SDG 2013-270

Method/Analysis Information

Procedure:	**Analysis of Polychlorinated Biphenyls by ECD**
Analytical Method:	SW846 3535A/8082
Prep Method:	SW846 3535A
Analytical Batch Number:	1262673
Prep Batch Number:	1262672

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3535A/8082:

Sample ID	Client ID
314639004	CASA-13-24216
1202778592	Method Blank (MB)
1202778593	Laboratory Control Sample (LCS)
1202778594	314048005(WST05-12-23548) Matrix Spike (MS)
1202778595	314048005(WST05-12-23548) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-040 REV# 19.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 23.0.

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standards (ICV or CCV) met the acceptance criteria. All analytes were within the established retention time windows for this method.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
An ARSL sample of similar matrix in SDG 2013-225 was selected for the matrix spike and matrix spike duplicate analysis for this batch of the samples.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the MS and MSD met the acceptance limits.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns. All sample extracts were cleaned using alumina.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not performed in this SDG.

Miscellaneous Information

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception report (DER) is generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A DER was not required for this SDG.

Manual Integrations
Certain standards and samples may have required manual integration to correctly position the baseline as set in the calibration standard injections. If manual integration was performed, copies of all manual integration peak profiles are included in the raw data section of this PCB fraction.

Additional Comments
The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

The higher results from either column have been chosen and reported in the data package for the client samples, MB and LCS. The data reported for the MS and MSD are from the same analytical column as the parent sample.

Due to software issue, the surrogate recovery range was not indicated or possibly indicated incorrectly in Quantitation Report. Please see Surrogate Recovery Report for correct surrogate acceptance limits.

Due to rounding differences in the calculation between the forms, the data reported in Sample Summary (form 1) and Spike Recovery Report (form 3) may differ slightly from the data reported in Identification Summary (form 10).

Aroclors quantitated on the raw data report by ChemStation data system do not necessarily represent positive Aroclor identification. In order for positive identification to be made, the Aroclor must match in pattern and retention time; as well as quantitate relatively close between the primary and confirmation columns, as specified in SW846 method 8000. When these conditions are not met, the Aroclor is reported as a non-detect on the data report.

System Configuration

The Semi-Volatiles-PCB analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
ECD8A.I_1	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP I	30m x 0.25mm, 0.25um (Rtx-CLPesticide I)
ECD8A.I_2	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP II	30m x 0.25mm, 0.20um (Rtx-CLPesticide II)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-270 GEL Work Order: 314639

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Jimi Cao **Name: Jimin Cao**

Date: 28 NOV 2012 **Title: Data Validator**

Sample Data Summary

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-270**	**Date Collected:**	**11/05/2012 11:18**	**Matrix:**	**W**
Lab Sample ID:	**314639004**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24216**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1262673**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 15:47**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/14/2012 08:57**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**111512.B\e8k1543.D**	**Column:**	**1 RTX-CLPEST1**		
	111512.B\e8k1543.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.100	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260	U	0.100	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.132	0.200	ug/L	66.1	(42%-120%)
Decachlorobiphenyl	0.153	0.200	ug/L	76.4	(41%-120%)

Quality Control Summary

PCB

Surrogate Recovery Report

SDG Number: 2013-270

Matrix Type: LIQUID

Sample ID	Client ID	4CMX 1 %REC #	4CMX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #
1202778592	MB for batch 1262672	54	55	72	72
1202778593	LCS for batch 1262672	69	70	79	79
1202778594	WST05-12-23548MS	67	69	89	86
1202778595	WST05-12-23548MSD	66	67	81	81
314639004	CASA-13-24216	63	66	76	76

Surrogate		Acceptance Limits
4CMX	= 4cmx	(42%-120%)
DCB	= Decachlorobiphenyl	(41%-120%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-270**
Client ID: **LCS for batch 1262672**
Lab Sample ID: **1202778593**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/15/2012 13:19**
Prep Batch ID: **1262672**
Batch ID: **1262673**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	LCS	Aroclor-1016	1.00	0.0	0.728	73	47-115
11096-82-5	LCS	Aroclor-1260	1.00	0.0	0.797	80	42-115

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-270**
Client ID: **WST05-12-23548MS**
Lab Sample ID: **1202778594**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/15/2012 13:44**
Prep Batch ID: **1262672**
Batch ID: **1262673**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	MS	Aroclor-1016	1.00	0.00	U	0.762	76	34-123
11096-82-5	MS	Aroclor-1260	1.00	0.00	U	0.809	81	30-127

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-270**
Sample Type: **Matrix Spike Duplicate**
Client ID: **WST05-12-23548MSD**
Matrix: **W**
Lab Sample ID: **1202778595**
Instrument: **ECD8A.I**
Analysis Date: **11/15/2012 13:56**
Dilution: 1
Analyst: **JXM**
Prep Batch ID: **1262672**
Inj. Vol: **1 uL**
Batch ID: **1262673**

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
12674-11-2	MSD Aroclor-1016	1.00	0.00	U	0.703	70	34-123	8	0-30
11096-82-5	MSD Aroclor-1260	1.00	0.00	U	0.811	81	30-127	0	0-30

Method Blank Summary

SDG Number:	**2013-270**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1262672**	**Instrument ID:**	**ECD8A.I_1** **ECD8A.I_2**	**Data File:**	**111512.B\e8k1530.D** **111512.B\e8k1530.D**
Lab Sample ID:	**1202778592**				
Column:	**RTX-CLPEST1** **RTX-CLPEST2**	**Prep Date:**	**11/14/2012 08:57**	**Analyzed:**	**11/15/12 13:07**

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1262672	**1202778593**	**111512.B\e8k1531.D** **111512.B\e8k1531.D**	**11/15/12**	**1319**
02 WST05-12-23548MS	**1202778594**	**111512.B\e8k1533.D** **111512.B\e8k1533.D**	**11/15/12**	**1344**
03 WST05-12-23548MSD	**1202778595**	**111512.B\e8k1534.D** **111512.B\e8k1534.D**	**11/15/12**	**1356**
04 CASA-13-24216	**314639004**	**111512.B\e8k1543.D** **111512.B\e8k1543.D**	**11/15/12**	**1547**

Quality Control Data

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-270**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778592**				
Client Sample:	**QC for batch 1262672**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262672**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1262673**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 13:07**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/14/2012 08:57**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**111512.B\e8k1530.D**	**Column:**	**1 RTX-CLPEST1**		
	111512.B\e8k1530.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.100	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260	U	0.100	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.109	0.200	ug/L	54.5	(42%-120%)
Decachlorobiphenyl	0.145	0.200	ug/L	72.5	(41%-120%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-270**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778593**				
Client Sample:	**QC for batch 1262672**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262672**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1262673**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 13:19**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/14/2012 08:57**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**111512.B\e8k1531.D**	**Column:**	**1 RTX-CLPEST1**		
	111512.B\e8k1531.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		0.728	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260		0.797	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
Decachlorobiphenyl	0.158	0.200	ug/L	79.0	(41%-120%)
4cmx	0.140	0.200	ug/L	69.9	(42%-120%)

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-270

Sample Analysis

Sample ID	Client ID
314639002	CASA-13-24217
314639003	CASA-13-24224
1202775408	Method Blank (MB) **ICP**
1202775409	Laboratory Control Sample (LCS)
1202775412	314637002(CAMO-13-24280L) Serial Dilution (SD)
1202775410	314637002(CAMO-13-24280D) Sample Duplicate (DUP)
1202775411	314637002(CAMO-13-24280S) Matrix Spike (MS)
1202775403	Method Blank (MB) **ICP-MS**
1202775404	Laboratory Control Sample (LCS)
1202775407	314637002(CAMO-13-24280L) Serial Dilution (SD)
1202775405	314637002(CAMO-13-24280D) Sample Duplicate (DUP)
1202775406	314637002(CAMO-13-24280S) Matrix Spike (MS)
1202783062	Method Blank (MB) **CVAA**
1202783069	Laboratory Control Sample (LCS)
1202783065	314340002(CAMO-13-24255L) Serial Dilution (SD)
1202783063	314340002(CAMO-13-24255D) Sample Duplicate (DUP)
1202783067	314340002(CAMO-13-24255S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1261333, 1261331, 1264600, 1267632 and 1267710
Prep Batch :	1261332, 1261330 and 1264596
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 7
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B
Prep Method :	SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All initial CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 314637002 (CAMO-13-24280)-ICP and ICP-MS and 314340002 (CAMO-13-24255)-CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes, with the exception of sodium..

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are

calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instruments. Samples 314639002 and 314639003 required dilutions for tin in order to minimize suppression due to matrix interferences.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: 1145271. A copy is included in the Miscellaneous Data section of this package.

Additional Comments

Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation

Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: By Davis **Date:** 12-3-12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-270 GEL Work Order: 314639

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by By Davis 12-3-12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-270 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314639002 **BASIS:** As Received **DATE COLLECTED** 05-NOV-12

CLIENT ID: CASA-13-24217 **LEVEL:** Low **DATE RECEIVED** 07-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/20/12 09:54	112012W1-12	1264600

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-270 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314639002 **BASIS:** As Received **DATE COLLECTED** 05-NOV-12

CLIENT ID: CASA-13-24217 **LEVEL:** Low **DATE RECEIVED** 07-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/17/12 15:59	111712-1	1261333
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/20/12 06:51	121119-3	1261331
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/20/12 16:56	121120-4	1261331
7440-39-3	Barium	40.4	ug/L		1	5	5	1	P	HSC	11/17/12 15:59	111712-1	1261333
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 15:59	111712-1	1261333
7440-42-8	Boron	28.3	ug/L	J	15	50	50	1	P	HSC	11/17/12 15:59	111712-1	1261333
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/20/12 18:08	121120-5	1261331
7440-70-2	Calcium	24400	ug/L		50	200	200	1	P	HSC	11/17/12 15:59	111712-1	1261333
7440-47-3	Chromium	23.7	ug/L		2	10	10	1	MS	BAJ	11/20/12 06:51	121119-3	1261331
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 15:59	111712-1	1261333
7440-50-8	Copper	3.05	ug/L	J	3	10	10	1	P	HSC	11/19/12 09:55	111912-2	1261333
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/17/12 15:59	111712-1	1261333
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/21/12 09:19	121120-11	1261331
7439-95-4	Magnesium	6770	ug/L		110	300	300	1	P	HSC	11/17/12 15:59	111712-1	1261333
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/17/12 15:59	111712-1	1261333
7439-98-7	Molybdenum	1.51	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/20/12 06:51	121119-3	1261331
7440-02-0	Nickel	0.619	ug/L	J	0.5	2	2	1	MS	BAJ	11/20/12 16:56	121120-4	1261331
7440-09-7	Potassium	1650	ug/L		50	150	150	1	P	HSC	11/19/12 09:55	111912-2	1261333
7782-49-2	Selenium	1.88	ug/L	J	1.5	5	5	1	MS	BAJ	11/20/12 16:56	121120-4	1261331
7631-86-9	Silica	80400	ug/L		53	213	213	1	P	HSC	11/17/12 15:59	111712-1	1261333
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/20/12 16:56	121120-4	1261331
7440-23-5	Sodium	13500	ug/L		100	300	300	1	P	HSC	11/17/12 15:59	111712-1	1261333
7440-24-6	Strontium	96.3	ug/L		1	5	5	1	P	HSC	11/17/12 15:59	111712-1	1261333
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/20/12 06:51	121119-3	1261331
7440-31-5	Tin	100	ug/L	U	25	100	100	10	P	HSC	11/19/12 11:22	111912-2	1261333
7440-61-1	Uranium	0.758	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/21/12 09:19	121120-11	1261331
7440-62-2	Vanadium	7.53	ug/L		1	5	5	1	P	HSC	11/17/12 15:59	111712-1	1261333
7440-66-6	Zinc	5.94	ug/L	J	3.3	10	10	1	P	HSC	11/17/12 15:59	111712-1	1261333

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-270 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314639002 **BASIS:** As Received **DATE COLLECTED** 05-NOV-12

CLIENT ID: CASA-13-24217 **LEVEL:** Low **DATE RECEIVED** 07-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	88.9	mg/L		0.453	1.24	1.24	1		JJ2	12/03/12 14:19		1267710

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1261331	1261330	SW846 3005A	50	mL	50	mL	11/15/12	AXG2
1261333	1261332	SW846 3005A	50	mL	50	mL	11/15/12	AXG2
1264600	1264596	EPA 245.1/245.2 Prep	20	mL	20	mL	11/19/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-270 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314639003 **BASIS:** As Received **DATE COLLECTED** 05-NOV-12

CLIENT ID: CASA-13-24224 **LEVEL:** Low **DATE RECEIVED** 07-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/20/12 09:59	112012W1-12	1264600

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-270 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314639003 **BASIS:** As Received **DATE COLLECTED** 05-NOV-12

CLIENT ID: CASA-13-24224 **LEVEL:** Low **DATE RECEIVED** 07-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/17/12 16:02	111712-1	1261333
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/20/12 06:57	121119-3	1261331
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/20/12 17:00	121120-4	1261331
7440-39-3	Barium	69.8	ug/L		1	5	5	1	P	HSC	11/17/12 16:02	111712-1	1261333
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 16:02	111712-1	1261333
7440-42-8	Boron	19.6	ug/L	J	15	50	50	1	P	HSC	11/17/12 16:02	111712-1	1261333
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/20/12 18:11	121120-5	1261331
7440-70-2	Calcium	70900	ug/L		50	200	200	1	P	HSC	11/17/12 16:02	111712-1	1261333
7440-47-3	Chromium	436	ug/L		2	10	10	1	MS	BAJ	11/20/12 06:57	121119-3	1261331
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 16:02	111712-1	1261333
7440-50-8	Copper	5.09	ug/L	J	3	10	10	1	P	HSC	11/19/12 09:58	111912-2	1261333
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/17/12 16:02	111712-1	1261333
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/21/12 09:22	121120-11	1261331
7439-95-4	Magnesium	16700	ug/L		110	300	300	1	P	HSC	11/17/12 16:02	111712-1	1261333
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/17/12 16:02	111712-1	1261333
7439-98-7	Molybdenum	0.655	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/20/12 06:57	121119-3	1261331
7440-02-0	Nickel	18.2	ug/L		0.5	2	2	1	MS	BAJ	11/20/12 17:00	121120-4	1261331
7440-09-7	Potassium	3780	ug/L		50	150	150	1	P	HSC	11/19/12 09:58	111912-2	1261333
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/20/12 17:00	121120-4	1261331
7631-86-9	Silica	68900	ug/L		53	213	213	1	P	HSC	11/17/12 16:02	111712-1	1261333
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/20/12 17:00	121120-4	1261331
7440-23-5	Sodium	24200	ug/L		100	300	300	1	P	HSC	11/17/12 16:02	111712-1	1261333
7440-24-6	Strontium	344	ug/L		1	5	5	1	P	HSC	11/17/12 16:02	111712-1	1261333
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/20/12 06:57	121119-3	1261331
7440-31-5	Tin	100	ug/L	U	25	100	100	10	P	HSC	11/19/12 11:25	111912-2	1261333
7440-61-1	Uranium	2.06	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/21/12 09:22	121120-11	1261331
7440-62-2	Vanadium	1.3	ug/L	J	1	5	5	1	P	HSC	11/17/12 16:02	111712-1	1261333
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	11/17/12 16:02	111712-1	1261333

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-270 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314639003 **BASIS:** As Received **DATE COLLECTED** 05-NOV-12

CLIENT ID: CASA-13-24224 **LEVEL:** Low **DATE RECEIVED** 07-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	246	mg/L		0.453	1.24	1.24	1		JJ2	12/03/12 11:12		1267632

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1261331	1261330	SW846 3005A	50	mL	50	mL	11/15/12	AXG2
1261333	1261332	SW846 3005A	50	mL	50	mL	11/15/12	AXG2
1264600	1264596	EPA 245.1/245.2 Prep	20	mL	20	mL	11/19/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−270

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202775403								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202775408								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	81.8	ug/L	+/−150	J	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202783062								
	Mercury	0.067	ug/L	+/−0.2	U	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−270 **Client ID** CAMO−13−24280S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314637002 **Spike ID:** 1202775406

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	192		1	U	200	95.8		MS
Arsenic	ug/L	75−125	78.5		1.7	U	80	96.9		MS
Cadmium	ug/L	75−125	11.3		0.11	U	10	113		MS
Chromium	ug/L	75−125	55.6		5.68	J	50	99.9		MS
Lead	ug/L	75−125	45.1		0.5	U	40	113		MS
Molybdenum	ug/L	75−125	49.9		1.2		50	97.3		MS
Nickel	ug/L	75−125	49.4		0.5	U	50	98.1		MS
Selenium	ug/L	75−125	19.9		1.5	U	20	98		MS
Silver	ug/L	75−125	48.6		0.2	U	50	97.3		MS
Thallium	ug/L	75−125	98.3		0.45	U	100	98.3		MS
Uranium	ug/L	75−125	57.1		0.93		50	112		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−270 **Client ID** CAMO−13−24280S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314637002 **Spike ID:** 1202775411

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5290		68	U	5000	105		P
Barium	ug/L	75−125	548		28.5		500	104		P
Beryllium	ug/L	75−125	530		1	U	500	106		P
Boron	ug/L	75−125	537		15	U	500	105		P
Calcium	ug/L	75−125	16400		10600		5000	118		P
Cobalt	ug/L	75−125	517		1	U	500	103		P
Copper	ug/L	75−125	542		3	U	500	108		P
Iron	ug/L	75−125	5220		30	U	5000	104		P
Magnesium	ug/L	75−125	9000		3530		5000	110		P
Manganese	ug/L	75−125	522		2	U	500	104		P
Potassium	ug/L	75−125	7330		2200		5000	103		P
Silica	ug/L		105000		86300		10700	178	N/A	P
Sodium	ug/L	75−125	17900		11300		5000	132	N	P
Strontium	ug/L	75−125	568		49.9		500	104		P
Tin	ug/L	75−125	507		2.5	U	500	101		P
Vanadium	ug/L	75−125	540		7.66		500	106		P
Zinc	ug/L	75−125	516		3.3	U	500	103		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−270 **Client ID** CAMO−13−24255S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314340002 **Spike ID:** 1202783067

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.05		0.067	U	2	103		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−270 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24280D

Matrix: LIQUID **Level:** Low

Sample ID: 314637002 **Duplicate ID:** 1202775405 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	5.68	J	4.97	J	13.3		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.2		1.12		7.25		MS
Nickel	ug/L		0.5	U	0.5	U			MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.93		0.881		5.41		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−270 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24280D

Matrix: LIQUID **Level:** Low

Sample ID: 314637002 **Duplicate ID:** 1202775410 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−20%	28.5		28.6		.525		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	15	U			P
Calcium	ug/L	+/−20%	10600		10500		.133		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L		3	U	3	U			P
Iron	ug/L		30	U	30	U			P
Magnesium	ug/L	+/−20%	3530		3500		.837		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	2200		2120		3.45		P
Silica	ug/L	+/−20%	86300		86300		.0243		P
Sodium	ug/L	+/−20%	11300		11200		.523		P
Strontium	ug/L	+/−20%	49.9		49.6		.541		P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L	+/−5	7.66		7.79		1.66		P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−270 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24255D

Matrix: LIQUID **Level:** Low

Sample ID: 314340002 **Duplicate ID:** 1202783063 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−270

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202775404								
	Antimony	ug/L	50	47.6		95.3	80−120	MS
	Arsenic	ug/L	50	49.2		98.3	80−120	MS
	Cadmium	ug/L	50	51.4		103	80−120	MS
	Chromium	ug/L	50	51.2		102	80−120	MS
	Lead	ug/L	50	51.6		103	80−120	MS
	Molybdenum	ug/L	50	46.6		93.1	80−120	MS
	Nickel	ug/L	50	51.1		102	80−120	MS
	Selenium	ug/L	50	50.6		101	80−120	MS
	Silver	ug/L	50	48.7		97.4	80−120	MS
	Thallium	ug/L	50	51.2		102	80−120	MS
	Uranium	ug/L	50	52.6		105	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−270

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202775409								
	Aluminum	ug/L	5000	5270		105	80−120	P
	Barium	ug/L	500	510		102	80−120	P
	Beryllium	ug/L	500	514		103	80−120	P
	Boron	ug/L	500	509		102	80−120	P
	Calcium	ug/L	5000	5180		104	80−120	P
	Cobalt	ug/L	500	511		102	80−120	P
	Copper	ug/L	500	510		102	80−120	P
	Iron	ug/L	5000	5120		102	80−120	P
	Magnesium	ug/L	5000	5250		105	80−120	P
	Manganese	ug/L	500	517		103	80−120	P
	Potassium	ug/L	5000	5070		101	80−120	P
	Silica	ug/L	10700	11000		102	80−120	P
	Sodium	ug/L	5000	5500		110	80−120	P
	Strontium	ug/L	500	508		102	80−120	P
	Tin	ug/L	500	511		102	80−120	P
	Vanadium	ug/L	500	520		104	80−120	P
	Zinc	ug/L	500	504		101	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−270

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783069								
	Mercury	ug/L	2	2.08		104	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−270 **Client ID** CAMO−13−24280L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314637002 **Serial Dilution ID:** 1202775407

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	5.68	J	10	U	100			MS
Lead	.5	U	2.5	U				MS
Molybdenum	1.2		1.32	J	9.49			MS
Nickel	.5	U	2.5	U				MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.93		.92	J	1.08			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−270 **Client ID** CAMO−13−24280L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314637002 **Serial Dilution ID:** 1202775412

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	28.5		28.5		.125			P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	10600		10300		2.43		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	3530		3550		.553			P
Manganese	2	U	10	U				P
Potassium	2200		2380		8.18			P
Silica	86300		86400		.155		10	P
Sodium	11300		11500		1.48		10	P
Strontium	49.9		54.9		9.99			P
Tin	2.5	U	12.5	U				P
Vanadium	7.66		9.56	J	24.8			P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−270 **Client ID** CAMO−13−24255L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314340002 **Serial Dilution ID:** 1202783065

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
30-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ICP	SW846 3005/6010B	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1261333	See Below		

Potentially affected work order(s)(SDG): 314637(2013-271),314639(2013-270)

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS/PS: QC 1202775411MS	1. The matrix spike recovery failed outside of the control limits for sodium due to possible matrix interferences and/or non-homogeneity. Per GEL's accredited methods and SOPs, a corrective action is not required and the data is qualified and reported.

Originator's Name:

Helen Camello 03-DEC-12

Data Validator/Group Leader:

Theresa McKelvey 03-DEC-12

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-270

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1260735 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
314639001	CASA-13-24209
314639004	CASA-13-24216
1202773871	Method Blank (MB)
1202773872	314445001(CAMO-13-24241) Sample Duplicate (DUP)
1202773874	314445001(CAMO-13-24241) Post Spike (PS)
1202773876	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314445001 (CAMO-13-24241).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following samples were re-analyzed due to CCV failure: 314639001 (CASA-13-24209) and 314639004 (CASA-13-24216).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1265843	**Method:**	EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
314639002	CASA-13-24217
314639003	CASA-13-24224
1202785831	314637002(CAMO-13-24280) Sample Duplicate (DUP)
1202785832	314749002(CAMO-13-24264) Sample Duplicate (DUP)
1202785833	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314637002 (CAMO-13-24280) and 314749002 (CAMO-13-24264).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1261553 **Method:** EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
314639002	CASA-13-24217
314639003	CASA-13-24224
1202775968	314639002(CASA-13-24217) Sample Duplicate (DUP)
1202775970	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314639002 (CASA-13-24217).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following samples from this sample group were received by the lab outside of the method specified holding time: 314639002 (CASA-13-24217) and 314639003 (CASA-13-24224).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1141330 314639002 (CASA-13-24217) and 314639003 (CASA-13-24224).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1261315	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
314639002	CASA-13-24217
314639003	CASA-13-24224
1202775358	Method Blank (MB)
1202775359	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202775360	314591002(CAMO-13-24256) Post Spike (PS)
1202775361	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202775359 (CAMO-13-24256), 1202775360 (CAMO-13-24256) and 314639003 (CASA-13-24224).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202775359 (CAMO-13-24256), 1202775360 (CAMO-13-24256), 314639002 (CASA-13-24217) and 314639003 (CASA-13-24224).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1261640	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1261639	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
314639002	CASA-13-24217
314639003	CASA-13-24224
1202776122	Method Blank (MB)
1202776123	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202776124	314591002(CAMO-13-24256) Matrix Spike (MS)
1202776125	314591002(CAMO-13-24256) Matrix Spike Duplicate (MSD)
1202776126	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference and/or sample matrix non-homogeneity: 1202776124 (CAMO-13-24256).

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The Relative Percent Difference (RPD) between the MS and MSD falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202776125 (CAMO-13-24256).

Duplicate Relative Percent Difference (RPD) Statement
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202776123 (CAMO-13-24256).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1139508 1202776124 (CAMO-13-24256) and 1202776125 (CAMO-13-24256).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1261638	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1261637	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
314639001	CASA-13-24209
314639004	CASA-13-24216
1202776117	Method Blank (MB)
1202776118	314591001(CAMO-13-24239) Sample Duplicate (DUP)
1202776119	314591001(CAMO-13-24239) Matrix Spike (MS)
1202776120	314591001(CAMO-13-24239) Matrix Spike Duplicate (MSD)
1202776121	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591001 (CAMO-13-24239).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits. Since both the spike duplicate recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported. 1202776119 (CAMO-13-24239).

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202776118 (CAMO-13-24239).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1139938 1202776119 (CAMO-13-24239).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1261528	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
314639002	CASA-13-24217
314639003	CASA-13-24224
1202775880	Method Blank (MB)
1202775881	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202775883	314591002(CAMO-13-24256) Post Spike (PS)
1202775885	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202775881 (CAMO-13-24256), 1202775883 (CAMO-13-24256), 314639002 (CASA-13-24217) and 314639003 (CASA-13-24224).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1261643	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1261641	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
314639002	CASA-13-24217
314639003	CASA-13-24224
1202776127	Method Blank (MB)
1202776128	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202776130	314591002(CAMO-13-24256) Matrix Spike (MS)
1202776132	314591002(CAMO-13-24256) Matrix Spike Duplicate (MSD)
1202776134	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following samples were re-analyzed due to CCV failure: 1202776132 (CAMO-13-24256), 314639002 (CASA-13-24217) and 314639003 (CASA-13-24224).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Solids, Total Dissolved**		
Analytical Batch:	1261522	**Method:**	EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
314639002	CASA-13-24217
314639003	CASA-13-24224
1202775861	Method Blank (MB)
1202775862	314637002(CAMO-13-24280) Sample Duplicate (DUP)
1202775864	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314637002 (CAMO-13-24280).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Alkalinity**

Analytical Batch: 1263936 **Method:** EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
314639002	CASA-13-24217
314639003	CASA-13-24224
1202781586	Laboratory Control Sample (LCS)
1202781593	314637002(CAMO-13-24280) Sample Duplicate (DUP)
1202781606	314637002(CAMO-13-24280) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314637002 (CAMO-13-24280).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____03Dec12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-270 GEL Work Order: 314639

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 30, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-270

Client Sample ID:	CASA-13-24209	Project:	ESHL00210
Sample ID:	314639001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	05-NOV-12 13:50		
Receive Date:	07-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	U	ND	0.330	1.00	mg/L	1	TSM	11/09/12	1219	1260735	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.035	0.100	mg/L	1	KLP1	11/14/12	1047	1261638	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/13/12	1700	1261637

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 30, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-270

Client Sample ID:	CASA-13-24217	Project:	ESHL00210
Sample ID:	314639002	Client ID:	ARSL001
Matrix:	W		
Collect Date:	05-NOV-12 11:50		
Receive Date:	07-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		234	1.00	1.00	umhos/cm	1	TXT1	11/26/12	1146	1265843	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 9.40C	H	8.09	0.010	0.100	SU	1	LYG1	11/08/12	0918	1261553	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	J	0.126	0.067	0.200	mg/L	1	VH1	11/09/12	0503	1261315	3
Chloride		5.26	0.067	0.200	mg/L	1					
Fluoride		0.421	0.033	0.100	mg/L	1					
Sulfate		13.4	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.114	0.017	0.050	mg/L	1	KLP1	11/13/12	1250	1261640	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		5.93	0.425	1.25	mg/L	25	AXH3	11/09/12	1020	1261528	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	J	0.0308	0.017	0.050	mg/L	1	KLP1	11/14/12	1324	1261643	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		214	3.40	14.3	mg/L		LYG1	11/08/12	0809	1261522	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		69.2	0.725	1.00	mg/L		LXA1	11/16/12	1429	1263936	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/12/12	1500	1261639
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/13/12	1700	1261641

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 30, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-270
Project:	LANL-WQH Water Samples		

Client Sample ID:	CASA-13-24217	Project:	ESHL00210
Sample ID:	314639002	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 30, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-270

Client Sample ID:	CASA-13-24224	Project:	ESHL00210
Sample ID:	314639003	Client ID:	ARSL001
Matrix:	W		
Collect Date:	05-NOV-12 11:18		
Receive Date:	07-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		618	1.00	1.00	umhos/cm	1	TXT1	11/26/12	1146	1265843	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 10.1C	H	7.65	0.010	0.100	SU	1	LYG1	11/08/12	0920	1261553	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide		0.639	0.067	0.200	mg/L	1	VH1	11/09/12	0534	1261315	3
Fluoride		0.225	0.033	0.100	mg/L	1					
Chloride		63.7	0.670	2.00	mg/L	10	VH1	11/12/12	2019	1261315	4
Sulfate		91.7	1.33	4.00	mg/L	10					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.0761	0.017	0.050	mg/L	1	KLP1	11/13/12	1250	1261640	5
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		4.28	0.425	1.25	mg/L	25	AXH3	11/09/12	1022	1261528	6
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.0773	0.017	0.050	mg/L	1	KLP1	11/14/12	1324	1261643	7
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		429	3.40	14.3	mg/L		LYG1	11/08/12	0809	1261522	8
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		93.3	0.725	1.00	mg/L		LXA1	11/16/12	1435	1263936	9
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/12/12	1500	1261639
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/13/12	1700	1261641

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 30, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-270
Project:	LANL-WQH Water Samples		

Client Sample ID:	CASA-13-24224	Project:	ESHL00210
Sample ID:	314639003	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 300.0	
5	EPA 350.1	
6	EPA 353.2	
7	EPA 365.4	
8	EPA 160.1	
9	EPA 310.1	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 30, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-270

Client Sample ID:	CASA-13-24216	Project:	ESHL00210
Sample ID:	314639004	Client ID:	ARSL001
Matrix:	W		
Collect Date:	05-NOV-12 11:18		
Receive Date:	07-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average		1.05	0.330	1.00	mg/L	1	TSM	11/09/12	1252	1260735	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	J	0.088	0.035	0.100	mg/L	1	KLP1	11/14/12	1048	1261638	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/13/12	1700	1261637

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 30, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **314639**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis											
Batch 1260735											
QC1202773872 314445001 DUP											
Total Organic Carbon Average		J	0.680	J	0.815	mg/L	18.1 ^		(+/-1.00)	TSM	11/08/12 23:32
QC1202773876 LCS											
Total Organic Carbon Average	10.0				9.75	mg/L		97.5	(85%-115%)		11/08/12 18:41
QC1202773871 MB											
Total Organic Carbon Average				J	0.488	mg/L					11/08/12 18:32
QC1202773874 314445001 PS											
Total Organic Carbon Average	10.0	J	0.680		10.4	mg/L		97.7	(65%-120%)		11/08/12 23:52
Conductivity Analysis											
Batch 1265843											
QC1202785831 314637002 DUP											
Conductivity			130		129	umhos/cm	1.01		(0%-10%)	TXT1	11/26/12 11:45
QC1202785832 314749002 DUP											
Conductivity			175		177	umhos/cm	0.795		(0%-10%)		11/26/12 11:54
QC1202785833 LCS											
Conductivity	1410				1420	umhos/cm		100	(95%-105%)		11/26/12 11:39
Electrode Analysis											
Batch 1261553											
QC1202775968 314639002 DUP											
pH		H	8.09	H	8.10	SU	0.124		(0%-10%)	LYG1	11/08/12 09:19
QC1202775970 LCS											
pH	7.00				7.02	SU		100	(99%-101%)		11/08/12 09:14
Ion Chromatography											
Batch 1261315											
QC1202775359 314591002 DUP											
Bromide			0.702		0.653	mg/L	7.21 ^		(+/-0.200)	VH1	11/09/12 03:29
Chloride			58.6		58.7	mg/L	0.167		(0%-20%)		11/12/12 19:16
Fluoride			0.563		0.561	mg/L	0.374		(0%-20%)		11/09/12 03:29
Sulfate			66.1		65.2	mg/L	1.35		(0%-20%)		11/12/12 19:16
QC1202775361 LCS											
Bromide	2.50				2.76	mg/L		110	(90%-110%)		11/09/12 02:26
Chloride	10.0				9.95	mg/L		99.5	(90%-110%)		
Fluoride	5.00				5.42	mg/L		108	(90%-110%)		
Sulfate	20.0				20.6	mg/L		103	(90%-110%)		
QC1202775358 MB											
Bromide				U	ND	mg/L					11/09/12 01:55
Chloride				U	ND	mg/L					
Fluoride				U	ND	mg/L					
Sulfate				U	ND	mg/L					
QC1202775360 314591002 PS											

QC Summary

Workorder: 314639

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 1261315										
Bromide	2.50	0.702		3.31	mg/L		104	(90%-110%)		11/09/12 04:00
Chloride	10.0	5.86		16.8	mg/L		109	(90%-110%)	VH1	11/12/12 19:48
Fluoride	5.00	0.563		5.61	mg/L		101	(90%-110%)		11/09/12 04:00
Sulfate	20.0	6.61		27.2	mg/L		103	(90%-110%)		11/12/12 19:48
Nutrient Analysis										
Batch 1261528										
QC1202775881 314591002 DUP										
Nitrogen, Nitrate/Nitrite		8.50		8.20	mg/L	3.59		(0%-20%)	AXH3	11/09/12 10:17
QC1202775885 LCS										
Nitrogen, Nitrate/Nitrite	1.00			1.02	mg/L		102	(90%-110%)		11/09/12 10:14
QC1202775880 MB										
Nitrogen, Nitrate/Nitrite			U	ND	mg/L					11/09/12 10:13
QC1202775883 314591002 PS										
Nitrogen, Nitrate/Nitrite	1.00	0.340		1.41	mg/L		107	(90%-110%)		11/09/12 10:18
Batch 1261638										
QC1202776118 314591001 DUP										
Nitrogen, Total Kjeldahl		0.163	J	0.0865	mg/L	61.3 ^		(+/-0.100)	KLP1	11/14/12 10:44
QC1202776121 LCS										
Nitrogen, Total Kjeldahl	1.00			1.00	mg/L		100	(90%-110%)		11/14/12 10:42
QC1202776117 MB										
Nitrogen, Total Kjeldahl			U	ND	mg/L					11/14/12 10:42
QC1202776119 314591001 MS										
Nitrogen, Total Kjeldahl	1.00	0.163		1.06	mg/L		89.7 *	(90%-110%)		11/14/12 10:45
QC1202776120 314591001 MSD										
Nitrogen, Total Kjeldahl	1.00	0.163		1.07	mg/L	0.939	90.7	(0%-20%)		11/14/12 10:46
Batch 1261640										
QC1202776123 314591002 DUP										
Nitrogen, Ammonia		0.0587	J	0.0276	mg/L	72.1 ^		(+/-0.050)	KLP1	11/13/12 12:46
QC1202776126 LCS										
Nitrogen, Ammonia	1.00			1.06	mg/L		106	(90%-110%)		11/13/12 12:45
QC1202776122 MB										
Nitrogen, Ammonia			U	ND	mg/L					11/13/12 12:44
QC1202776124 314591002 MS										
Nitrogen, Ammonia	1.00	0.0587		1.20	mg/L		114 *	(90%-110%)		11/13/12 12:47
QC1202776125 314591002 MSD										
Nitrogen, Ammonia	1.00	0.0587		1.01	mg/L	17.2*	95.1	(0%-15%)		11/13/12 12:48
Batch 1261643										
QC1202776128 314591002 DUP										
Phosphorus, Total as P		0.0976		0.0915	mg/L	6.45 ^		(+/-0.050)	KLP1	11/14/12 13:01
QC1202776134 LCS										
Phosphorus, Total as P	1.00			1.08	mg/L		108	(76%-120%)		11/14/12 12:55
QC1202776127 MB										
Phosphorus, Total as P			U	ND	mg/L					11/14/12 12:54
QC1202776130 314591002 MS										
Phosphorus, Total as P	1.00	0.0976		1.17	mg/L		107	(62%-139%)		11/14/12 13:02
QC1202776132 314591002 MSD										

QC Summary

Workorder: 314639

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis										
Batch 1261643										
Phosphorus, Total as P	1.00	0.0976		0.986	mg/L	17.1	88.8	(0%-20%)		11/14/12 13:22
Solids Analysis										
Batch 1261522										
QC1202775862 314637002 DUP										
Total Dissolved Solids		144		143	mg/L	0.995		(0%-10%)	LYG1	11/08/12 08:09
QC1202775864 LCS										
Total Dissolved Solids	300			300	mg/L		100	(95%-105%)		11/08/12 08:09
QC1202775861 MB										
Total Dissolved Solids			U	ND	mg/L					11/08/12 08:09
Titration Analysis										
Batch 1263936										
QC1202781593 314637002 DUP										
Alkalinity, Total as CaCO3		59.0		59.5	mg/L	0.905		(0%-20%)	LXA1	11/16/12 14:21
Carbonate alkalinity (CaCO3)	U	ND	U	ND	mg/L	N/A				
QC1202781586 LCS										
Alkalinity, Total as CaCO3	50.0			52.6	mg/L		105	(90%-110%)		11/16/12 12:01
QC1202781606 314637002 MS										
Alkalinity, Total as CaCO3	50.0	59.0		111	mg/L		104	(80%-120%)		11/16/12 14:25

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E Organics--Concentration of the target analyte exceeds the instrument calibration range
- F Estimated Value
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded
- J Value is estimated
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- M M if above MDC and less than LLD

QC Summary

Workorder: **314639**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
13-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1261640	See below.		

Potentially affected work order(s)(SDG): **314591(2013-267),314637(2013-271),314639(2013-270),314696,314749(2013-276),314750(2013-277),314773,314848(2013-285),314849(2013-286),314945,314987(2013-297)**

Application Issues:

Failed Recovery for MS/PS

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS: QC 1202776124MS 2. Failed RPD for MS/MSD: QC 1202776125MSD	1. The spike recovery falls outside of the established acceptance limits due to matrix interference and/or sample matrix non-homogeneity. 2. The Relative Percent Difference (RPD) between the MS and MSD falls outside of the established acceptance limits because of the heterogeneous matrix of the sample.

Originator's Name:

Kristen Parson 13-NOV-12

Data Validator/Group Leader:

Julia Hamilton 13-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
14-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1261638	See below.		

Potentially affected work order(s)(SDG): **314591(2013-267),314637(2013-271),314639(2013-270),314749(2013-276),314750(2013-277),314773,314848(2013-285),314849(2013-286),314945,314987(2013-297)**

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS: QC 1202776119MS	1. The spike recovery falls outside of the established acceptance limits. Since both the spike duplicate recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported.

Originator's Name:
Kristen Parson 14-NOV-12

Data Validator/Group Leader:
Julia Hamilton 14-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
16-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ESHL, FBWP
Batch ID:	**Sample Numbers:**		
1261553	See below.		

Potentially affected work order(s)(SDG): 314597,314637(2013-271),314639(2013-270),314643

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 314597 009 314637 002 314639 002,003 314643 018	1. Samples were received out of holding.

Originator's Name:

Lisa Gregory 19-NOV-12

Data Validator/Group Leader:

Julia Hamilton 19-NOV-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-270
Work Order 314639

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1261192

Sample ID	**Client ID**
314639001	CASA-13-24209
314639004	CASA-13-24216
1202775075	Method Blank (MB)
1202775076	314639001(CASA-13-24209) Sample Duplicate (DUP)
1202775077	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202775075 (MB) and 1202775077 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314639001 (CASA-13-24209). The QC was from ARSL work order 314639.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Samples 1202775077 (LCS), 314639001 (CASA-13-24209) and 314639004 (CASA-13-24216) were recounted due to poor resolution. The recounts are reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1261194

Sample ID	Client ID
314639001	CASA-13-24209
314639004	CASA-13-24216
1202775078	Method Blank (MB)
1202775079	314639001(CASA-13-24209) Sample Duplicate (DUP)
1202775080	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202775078 (MB) and 1202775080 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314639001 (CASA-13-24209). The QC was from ARSL work order 314639.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202775078 (MB) was recounted due to a peak shift. The recount is reported. Sample 1202775080 (LCS) was recounted due to poor resolution. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1261195

Sample ID	Client ID
314639001	CASA-13-24209
314639004	CASA-13-24216
1202775081	Method Blank (MB)
1202775082	314639001(CASA-13-24209) Sample Duplicate (DUP)
1202775083	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202775081 (MB) and 1202775083 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314639001 (CASA-13-24209). The QC was from ARSL work order

314639.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1261091

Sample ID	Client ID
314639001	CASA-13-24209
314639004	CASA-13-24216
1202774851	Method Blank (MB)
1202774852	314637001(CAMO-13-24276) Sample Duplicate (DUP)
1202774853	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in June 2012, July 2012, August 2012 and October 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314637001 (CAMO-13-24276). The QC was from ARSL work order 314637.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1263026

Sample ID	Client ID
314639001	CASA-13-24209
314639004	CASA-13-24216
1202779527	Method Blank (MB)
1202779528	314987003(CAMO-13-24253) Sample Duplicate (DUP)
1202779529	314987003(CAMO-13-24253) Matrix Spike (MS)
1202779530	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202779527 (MB) and 1202779530 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314987003 (CAMO-13-24253). The QC was from ARSL work order 314987.

QC Information

All of the QC samples met the required acceptance limits.

CSU
The blank 1202779527 (MB) result is greater than 1.65 times the CSU but less than the MDC.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202779529 (CAMO-13-24253), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1263054

Sample ID	Client ID
314639001	CASA-13-24209
314639004	CASA-13-24216
1202779586	Method Blank (MB)
1202779587	314849003(CASA-13-24214) Sample Duplicate (DUP)
1202779588	314849003(CASA-13-24214) Matrix Spike (MS)
1202779589	314849003(CASA-13-24214) Matrix Spike Duplicate (MSD)
1202779590	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in September 2011. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202779586 (MB) and 1202779590 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314849003 (CASA-13-24214). The QC was from ARSL work order 314849.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike and matrix spike duplicate, 1202779588 (CASA-13-24214) and 1202779589 (CASA-13-24214), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-H-3**
Analytical Method:	EPA 906.0 Modified
Analytical Batch Number:	1261839

Sample ID	Client ID
314639004	CASA-13-24216
1202776611	Method Blank (MB)
1202776612	314639004(CASA-13-24216) Sample Duplicate (DUP)
1202776613	314639004(CASA-13-24216) Matrix Spike (MS)
1202776614	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-002 REV# 20.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in August 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314639004 (CASA-13-24216). The QC was from ARSL work order 314639.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-270 GEL Work Order: 314639

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Heather M. McCarty **Name:** **Heather McCarty**

Date: **28 NOV 2012** **Title:** **Analyst II**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 28, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CASA-13-24209
Sample ID: 314639001
Matrix: W
Collect Date: 05-NOV-12
Receive Date: 07-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.0123	+/-0.00867	0.0349	+/-0.00869	0.050	pCi/L		LYS1	11/26/12	1603	1261192	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	-0.0105	+/-0.00628	0.0201	+/-0.00628	0.050	pCi/L		LYS1	11/21/12	1140	1261194	2
Plutonium-239/240	U	0.00837	+/-0.00662	0.0334	+/-0.00663	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.516	+/-0.039	0.0617	+/-0.0516	1.00	pCi/L		LYS1	11/21/12	1135	1261195	3
Uranium-235/236	U	0.0132	+/-0.0104	0.0385	+/-0.0104	1.00	pCi/L						
Uranium-238		0.218	+/-0.0258	0.0419	+/-0.0294	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-0.37	+/-1.23	4.54	+/-1.23	8.00	pCi/L		KXG3	11/08/12	1219	1261091	4
Cobalt-60	U	-1.04	+/-1.24	4.29	+/-1.24	8.00	pCi/L						
Neptunium-237	U	0.342	+/-2.55	9.17	+/-2.55	10.0	pCi/L						
Potassium-40	U	15.8	+/-17.4	70.2	+/-17.4	10.0	pCi/L						
Sodium-22	U	-1.73	+/-1.17	3.75	+/-1.17	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.391	+/-0.135	0.399	+/-0.139	0.500	pCi/L		VXC2	11/25/12	1541	1263026	5
WSP-GrossA/B "As Received"													
Beta	U	1.23	+/-0.697	2.26	+/-0.706	3.00	pCi/L		MYS1	11/26/12	1958	1263054	6
Alpha	U	1.27	+/-0.862	2.89	+/-0.869	3.00	pCi/L		MYS1	11/27/12	1955	1263054	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1261192	80.3	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1261194	82.0	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1261195	81.6	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1263026	94.9	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 28, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CASA-13-24209
Sample ID: 314639001

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 28, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CASA-13-24216
Sample ID: 314639004
Matrix: W
Collect Date: 05-NOV-12
Receive Date: 07-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.0183	+/-0.00782	0.0297	+/-0.00786	0.050	pCi/L		LYS1	11/26/12	1603	1261192	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.00567	+/-0.00567	0.0272	+/-0.00568	0.050	pCi/L		LYS1	11/21/12	1139	1261194	2
Plutonium-239/240	U	0.00567	+/-0.00567	0.0453	+/-0.00567	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		1.02	+/-0.0545	0.0641	+/-0.0864	1.00	pCi/L		LYS1	11/21/12	1135	1261195	3
Uranium-235/236	U	0.0307	+/-0.0123	0.040	+/-0.0125	1.00	pCi/L						
Uranium-238		0.577	+/-0.0401	0.0435	+/-0.0549	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-0.947	+/-1.43	4.88	+/-1.43	8.00	pCi/L		KXG3	11/08/12	1223	1261091	4
Cobalt-60	U	2.39	+/-1.57	6.69	+/-1.57	8.00	pCi/L						
Neptunium-237	U	-3.39	+/-3.05	10.5	+/-3.05	10.0	pCi/L						
Potassium-40	U	13.4	+/-19.2	80.6	+/-19.2	10.0	pCi/L						
Sodium-22	U	0.364	+/-1.30	5.09	+/-1.30	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	-0.0837	+/-0.109	0.437	+/-0.109	0.500	pCi/L		VXC2	11/25/12	1541	1263026	5
WSP-GrossA/B "As Received"													
Beta		3.82	+/-0.916	2.38	+/-0.970	3.00	pCi/L		MYS1	11/26/12	1956	1263054	6
Alpha	U	1.21	+/-0.828	2.77	+/-0.835	3.00	pCi/L		MYS1	11/27/12	1955	1263054	7
Rad Liquid Scintillation Analysis													
WSP-H-3 "As Received"													
Tritium		398	+/-48.1	111	+/-62.1	200	pCi/L		BYS1	11/19/12	0643	1261839	8

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310
8	EPA 906.0 Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1261192	87.9	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1261194	77.6	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1261195	82.8	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 28, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CASA-13-24216
Sample ID: 314639004

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1263026	97.7	(50%-105%)

Notes:
TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

QC Summary

Report Date: November 28, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico
Contact: **Keith Greene**

Workorder: **314639**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1261192										
QC1202775076 314639001 DUP										
Americium-241	U	0.0123	U	0.0045	pCi/L	0.245		(0-1)	LYS1	11/21/1211:40
	Uncert:	+/-0.00867		+/-0.00712						
	TPU:	+/-0.00869		+/-0.00712						
**Americium-243 Tracer	2.60	2.09		2.05	pCi/L		78.7	(50%-105%)		
	Uncert:	+/-0.0889		+/-0.0767						
	TPU:	+/-0.147		+/-0.132						
QC1202775077 LCS										
Americium-241	1.41			1.42	pCi/L		100	(80%-120%)	LYS1	11/26/1216:03
	Uncert:			+/-0.0543						
	TPU:			+/-0.0816						
**Americium-243 Tracer	2.08			1.78	pCi/L		85.2	(50%-105%)		
	Uncert:			+/-0.0652						
	TPU:			+/-0.111						
QC1202775075 MB										
Americium-241			U	-0.00174	pCi/L				LYS1	11/21/1211:40
	Uncert:			+/-0.00627						
	TPU:			+/-0.00627						
**Americium-243 Tracer	2.08			1.61	pCi/L		77.4	(50%-105%)		
	Uncert:			+/-0.060						
	TPU:			+/-0.104						
Batch 1261194										
QC1202775079 314639001 DUP										
Plutonium-238	U	-0.0105	U	-0.00459	pCi/L	0.230		(0-1)	LYS1	11/21/1211:40
	Uncert:	+/-0.00628		+/-0.0065						
	TPU:	+/-0.00628		+/-0.0065						
Plutonium-239/240	U	0.00837	U	0.00919	pCi/L	0.0332		(0-1)		
	Uncert:	+/-0.00662		+/-0.00563						
	TPU:	+/-0.00663		+/-0.00564						
**Plutonium-242 Tracer	2.43	1.99		1.89	pCi/L		77.9	(50%-105%)		
	Uncert:	+/-0.0722		+/-0.0757						
	TPU:	+/-0.124		+/-0.128						
QC1202775080 LCS										
Plutonium-238				0.0208	pCi/L			(80%-120%)	LYS1	11/26/1215:37
	Uncert:			+/-0.00779						
	TPU:			+/-0.00784						
Plutonium-239/240	2.03			2.23	pCi/L		110	(80%-120%)		
	Uncert:			+/-0.0683						
	TPU:			+/-0.119						
**Plutonium-242 Tracer	1.94			1.65	pCi/L		84.6	(50%-105%)		
	Uncert:			+/-0.0638						
	TPU:			+/-0.106						
QC1202775078 MB										

QC Summary

Workorder: 314639

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1261194										
Plutonium-238			U	0.00	pCi/L				LYS1	11/26/1215:37
	Uncert:			+/-0.0049						
	TPU:			+/-0.0049						
Plutonium-239/240			U	0.00	pCi/L					
	Uncert:			+/-0.00566						
	TPU:			+/-0.00566						
**Plutonium-242 Tracer	1.94			1.80	pCi/L		92.7	(50%-105%)		
	Uncert:			+/-0.0626						
	TPU:			+/-0.105						
Batch 1261195										
QC1202775082 314639001 DUP										
Uranium-234		0.516		0.547	pCi/L	0.144		(0-1)	LYS1	11/21/1211:36
	Uncert:	+/-0.039		+/-0.0427						
	TPU:	+/-0.0516		+/-0.056						
Uranium-235/236	U	0.0132	U	0.00722	pCi/L	0.129		(0-1)		
	Uncert:	+/-0.0104		+/-0.0125						
	TPU:	+/-0.0104		+/-0.0125						
Uranium-238		0.218		0.231	pCi/L	0.105		(0-1)		
	Uncert:	+/-0.0258		+/-0.0272						
	TPU:	+/-0.0294		+/-0.0311						
**Uranium-232 Tracer	2.73	2.23		2.14	pCi/L		78.4	(50%-105%)		
	Uncert:	+/-0.0859		+/-0.0899						
	TPU:	+/-0.196		+/-0.200						
QC1202775083 LCS										
Uranium-234				2.68	pCi/L				LYS1	11/21/1211:34
	Uncert:			+/-0.074						
	TPU:			+/-0.188						
Uranium-235/236				0.134	pCi/L					
	Uncert:			+/-0.0192						
	TPU:			+/-0.021						
Uranium-238	2.70			2.75	pCi/L		102	(80%-120%)		
	Uncert:			+/-0.0745						
	TPU:			+/-0.192						
**Uranium-232 Tracer	2.19			1.93	pCi/L		88.2	(50%-105%)		
	Uncert:			+/-0.0672						
	TPU:			+/-0.156						
QC1202775081 MB										
Uranium-234			U	-0.0048	pCi/L				LYS1	11/21/1211:36
	Uncert:			+/-0.0085						
	TPU:			+/-0.0085						
Uranium-235/236			U	-0.00241	pCi/L					
	Uncert:			+/-0.00539						
	TPU:			+/-0.00539						
Uranium-238			U	0.00195	pCi/L					
	Uncert:			+/-0.00338						
	TPU:			+/-0.00338						
**Uranium-232 Tracer	2.19			1.94	pCi/L		89	(50%-105%)		
	Uncert:			+/-0.0657						

QC Summary

Workorder: 314639

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1261195										
	TPU:			+/-0.154						
Rad Gamma Spec										
Batch 1261091										
QC1202774852 314637001 DUP										
Cesium-137	U	-2.29	U	-1.95	pCi/L	0.053		(0-1)	KXG3	11/09/1208:43
	Uncert:	+/-1.46		+/-1.74						
	TPU:	+/-1.46		+/-1.74						
Cobalt-60	U	-1.01	U	-0.983	pCi/L	0.00507		(0-1)		
	Uncert:	+/-1.43		+/-1.43						
	TPU:	+/-1.43		+/-1.43						
Neptunium-237	U	-2.08	U	-4.08	pCi/L	0.160		(0-1)		
	Uncert:	+/-2.92		+/-3.32						
	TPU:	+/-2.92		+/-3.32						
Potassium-40	U	-17.6	U	2.23	pCi/L	0.298		(0-1)		
	Uncert:	+/-15.8		+/-17.3						
	TPU:	+/-15.8		+/-17.3						
Sodium-22	U	-0.457	U	-0.731	pCi/L	0.0504		(0-1)		
	Uncert:	+/-1.03		+/-1.68						
	TPU:	+/-1.03		+/-1.68						
QC1202774853 LCS										
Americium-241	2780			2640	pCi/L		95	(80%-120%)	KXG3	11/09/1211:44
	Uncert:			+/-191						
	TPU:			+/-191						
Cesium-137	6090			6090	pCi/L		99.9	(80%-120%)		
	Uncert:			+/-257						
	TPU:			+/-257						
Cobalt-60	5660			5620	pCi/L		99.2	(80%-120%)		
	Uncert:			+/-235						
	TPU:			+/-235						
Neptunium-237			U	8.55	pCi/L					
	Uncert:			+/-21.9						
	TPU:			+/-21.9						
Potassium-40			U	-57.9	pCi/L					
	Uncert:			+/-50.4						
	TPU:			+/-50.4						
Sodium-22			U	4.78	pCi/L					
	Uncert:			+/-7.41						
	TPU:			+/-7.41						
QC1202774851 MB										
Cesium-137			U	0.997	pCi/L				KXG3	11/08/1212:23
	Uncert:			+/-1.34						
	TPU:			+/-1.34						
Cobalt-60			U	-2.32	pCi/L					
	Uncert:			+/-1.41						
	TPU:			+/-1.41						
Neptunium-237			U	-1.66	pCi/L					
	Uncert:			+/-2.58						
	TPU:			+/-2.58						

QC Summary

Workorder: 314639

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1261091										
Potassium-40			U	-6.49	pCi/L					
Uncert:				+/-14.7						
TPU:				+/-14.7						
Sodium-22			U	-1.17	pCi/L					
Uncert:				+/-0.991						
TPU:				+/-0.991						
Rad Gas Flow										
Batch 1263026										
QC1202779528 314987003 DUP										
Strontium-90	U	0.0275	U	-0.0248	pCi/L	0.104		(0-1)	VXC2	11/26/1215:37
Uncert:		+/-0.123		+/-0.130						
TPU:		+/-0.123		+/-0.130						
**Strontium Carrier	7.17	7.00		7.10	mg		99.1	(50%-105%)		
QC1202779530 LCS										
Strontium-90	24.8			24.6	pCi/L		99	(80%-120%)	VXC2	11/26/1215:38
Uncert:				+/-0.498						
TPU:				+/-2.02						
**Strontium Carrier	7.17			6.40	mg		89.3	(50%-105%)		
QC1202779527 MB										
Strontium-90			U	0.162	pCi/L				VXC2	11/26/1215:37
Uncert:				+/-0.0895						
TPU:				+/-0.0904						
**Strontium Carrier	7.17			6.70	mg		93.5	(50%-105%)		
QC1202779529 314987003 MS										
Strontium-90	124 U	0.0275		122	pCi/L		98.1	(75%-125%)	VXC2	11/26/1215:38
Uncert:		+/-0.123		+/-2.49						
TPU:		+/-0.123		+/-10.2						
**Strontium Carrier	7.17	7.00		6.40	mg		89.3	(50%-105%)		
Batch 1263054										
QC1202779587 314849003 DUP										
Alpha	U	2.00	U	2.13	pCi/L	0.0316		(0-1)	MYS1	11/27/1221:14
Uncert:		+/-0.977		+/-1.00						
TPU:		+/-0.992		+/-1.02						
Beta	U	2.13	U	0.444	pCi/L	0.563		(0-1)		11/26/1219:58
Uncert:		+/-0.785		+/-0.686						
TPU:		+/-0.805		+/-0.688						
QC1202779590 LCS										
Alpha	12.0			12.1	pCi/L		101	(80%-120%)	MYS1	11/27/1220:02
Uncert:				+/-0.661						
TPU:				+/-1.27						
Beta	49.6			49.0	pCi/L		98.8	(80%-120%)		11/26/1219:56
Uncert:				+/-0.892						
TPU:				+/-4.18						
QC1202779586 MB										
Alpha			U	-0.0618	pCi/L				MYS1	11/27/1221:14
Uncert:				+/-0.0846						
TPU:				+/-0.0846						
Beta			U	0.0566	pCi/L					11/26/1219:56

QC Summary

Workorder: 314639

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1263054										
	Uncert:			+/-0.101						
	TPU:			+/-0.101						
QC1202779588 314849003 MS										
Alpha	481 U	2.00		416	pCi/L		86.3	(75%-125%)	MYS1	11/27/1220:19
	Uncert:	+/-0.977		+/-22.5						
	TPU:	+/-0.992		+/-42.7						
Beta	1990 U	2.13		1990	pCi/L		100	(75%-125%)		11/26/1219:56
	Uncert:	+/-0.785		+/-36.5						
	TPU:	+/-0.805		+/-169						
QC1202779589 314849003 MSD										
Alpha	481 U	2.00		496	pCi/L	0.402	103	(0-1)	MYS1	11/27/1220:02
	Uncert:	+/-0.977		+/-26.2						
	TPU:	+/-0.992		+/-57.4						
Beta	1990 U	2.13		2100	pCi/L	0.153	106	(0-1)		11/26/1219:56
	Uncert:	+/-0.785		+/-38.0						
	TPU:	+/-0.805		+/-187						
Rad Liquid Scintillation										
Batch 1261839										
QC1202776612 314639004 DUP										
Tritium		398		464	pCi/L	0.253		(0-1)	BYS1	11/19/1208:28
	Uncert:	+/-48.1		+/-50.8						
	TPU:	+/-62.1		+/-68.4						
QC1202776614 LCS										
Tritium	2010			1650	pCi/L		82.4	(80%-120%)	BYS1	11/19/1209:38
	Uncert:			+/-146						
	TPU:			+/-219						
QC1202776611 MB										
Tritium			U	46.8	pCi/L				BYS1	11/19/1207:36
	Uncert:			+/-33.3						
	TPU:			+/-33.6						
QC1202776613 314639004 MS										
Tritium	2010	398		2460	pCi/L		103	(75%-125%)	BYS1	11/19/1209:21
	Uncert:	+/-48.1		+/-174						
	TPU:	+/-62.1		+/-299						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample

QC Summary

Workorder: 314639

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-267

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-H-3	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CAMO-13-24239	Nov 2 2012	12:03	W	2	3			1	1			1	1	
CAMO-13-24256	Nov 2 2012	12:03	W			1	1			1	1			
CAMO-13-24232	Nov 2 2012	12:03	W	2										

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time: 11/5/12 3:00	Received by:	
Relinquished by:		Date/Time:	Received by:	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24239

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/2/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1203	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	MCOI-6	↓	FIELD PREP:	UF	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-H-3	250 ML AMBER GLASS	1	ICE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Collected within 50 ft of diesel generator.

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 7.18 mg/L Oxidation-Reduction Potential 110.6 MV pH 7.18 SU

Specific Conductance 623 uS/cm Temperature 15.49 deg C Turbidity 0.43 NTU

COLLECTED BY (PRINT) A. Vigil

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
Megan Green	11/2/2012 1320	Sheri Sherwood	11/2/12 1320
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24232

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/2/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1203	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	MCOI-6	↓	FIELD PREP:	UF	ok
LOCATION TYPE:		↓	FIELD QC TYPE:	FTB	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL 11/2/12	Y	NA

SAMPLE COMMENTS: see CAMO-13-24239

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) A. Vigil

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Megan Green (Signature)	11/2/12 1322	(Printed Name) S. Sherwood (Signature) Shari Sherwood	11/2/12 1320
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24256

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/2/2012	**FIELD MATRIX:**	WG	ok
TIME COLLECTED (HH:MM):		1203	**MEDIA:**	UA	✓
PRS ID:		ok	**SAMPLE TECH CODE:**	UA	GJP
LOCATION ID:	MCOI-6	↓	**FIELD PREP:**	F	ok
LOCATION TYPE:	MON	↓	**FIELD QC TYPE:**	REG	↓
PORT:	SINGLE COMPLETION	↓	**SAMPLE USAGE:**	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
↓	WSP-GENINORG	1 LITER POLY	1	ICE	↓	↓
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: See CAMO-13-24239

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ ~~MV~~ pH _____ ~~SU~~

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ ~~NTU~~

COLLECTED BY (PRINT) A. Wigl

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Megan Green (Signature)	11/2/12 1320	(Printed Name) B. Sherwood (Signature)	11/2/12 1320
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-267

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
314591	EPA:120.1	1				
314591	EPA:150.1	1				
314591	EPA:160.1	1				
314591	EPA:245.2	1				
314591	EPA:300.0	1				
314591	EPA:310.1	1				
314591	EPA:350.1	1				
314591	EPA:351.2	1				
314591	EPA:353.2	1				
314591	EPA:365.4	1				
314591	EPA:900	1				
314591	EPA:901.1	1				
314591	EPA:905.0	1				
314591	EPA:906.0	1				
314591	HASL-300:AM-241	1				
314591	HASL-300:ISOPU	1				
314591	HASL-300:ISOU	1				
314591	SM:A2340B	1				
314591	SW-846:6010B	1				
314591	SW-846:6020	1				
314591	SW-846:6850	1				
314591	SW-846:8260B	1		1		
314591	SW-846:8270C	1				
314591	SW-846:9060	1				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
314591	EPA:120.1	1265081	1265081	1							
314591	EPA:150.1	1261157	1261157	1							
314591	EPA:160.1	1261079	1261079	1					1		
314591	EPA:245.2	1264600	1264596	1					1	2	
314591	EPA:300.0	1261315	1261315	1					1		
314591	EPA:310.1	1262945	1262945	1					1	1	
314591	EPA:350.1	1261640	1261639	1					1	1	1
314591	EPA:351.2	1261638	1261637	1					1	1	1
314591	EPA:353.2	1261528	1261528	1					1		
314591	EPA:365.4	1261643	1261641	1					1	1	1
314591	EPA:900	1260898	1260898	1					1	1	1
314591	EPA:901.1	1261091	1261091	1					1		
314591	EPA:905.0	1260884	1260884	1					1	1	
314591	EPA:906.0	1261839	1261839	1					1	1	
314591	HASL-300:AM-241	1261192	1261192	1					1		
314591	HASL-300:ISOPU	1261194	1261194	1					1		
314591	HASL-300:ISOU	1261195	1261195	1					1		
314591	SM:A2340B	1267632	1267632	1							
314591	SW-846:6010B	1260872	1260871	1					1	1	
314591	SW-846:6020	1260875	1260874	1					1	1	

Data Validation Report for:

Chain Of Custody No. 2013-267

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				2			
		1				1			
		1				1			
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			

314591	SW-846:6850	1262376	1262373	1					1	1	1
314591	SW-846:8260B	1262779	1262779	1		1			2		
314591	SW-846:8270C	1261145	1261144	1					1	1	1
314591	SW-846:9060	1260735	1260735	1					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24255	1202784135	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24256	314591002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24258	1202784136	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202784137	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24256	1202774988	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24256	314591002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202774989	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24256	1202774823	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24256	314591002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202774824	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202774820	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783063	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783067	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24256	314591002	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783064	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783068	MS	0	0	1	0
EPA:245.2	INORGANIC	LCS	1202783069	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202783062	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24256	1202775359	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24256	314591002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202775361	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202775358	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24256	1202779306	DUP	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24256	1202779307	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24256	314591002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202779299	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202779298	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776123	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776124	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776125	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	314591002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202776126	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202776122	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776118	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776119	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776120	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	314591001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202776121	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202776117	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24256	1202775881	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24256	314591002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202775885	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202775880	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776128	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776130	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776132	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	314591002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202776134	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202776127	MB	1	0	0	0

		1							
		4							
		1							
		1				1			

EPA:900	RAD	CAMO-13-24239	314591001	REG	2	0	0	0
EPA:900	RAD	CAPA-12-23808	1202774276	DUP	2	0	0	0
EPA:900	RAD	CAPA-12-23808	1202774277	MS	0	0	2	0
EPA:900	RAD	CAPA-12-23808	1202774278	MSD	0	0	2	0
EPA:900	RAD	LCS	1202774279	LCS	0	0	2	0
EPA:900	RAD	MB	1202774275	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24239	314591001	REG	5	0	0	0
EPA:901.1	RAD	CAMO-13-24276	1202774852	DUP	6	0	0	0
EPA:901.1	RAD	LCS	1202774853	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202774851	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24239	314591001	REG	1	0	0	0
EPA:905.0	RAD	CAMO-13-24241	1202774231	DUP	1	0	0	0
EPA:905.0	RAD	CAMO-13-24241	1202774232	MS	0	0	1	0
EPA:905.0	RAD	LCS	1202774233	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202774230	MB	1	0	0	0
EPA:906.0	RAD	CAMO-13-24239	314591001	REG	1	0	0	0
EPA:906.0	RAD	CASA-13-24216	1202776612	DUP	1	0	0	0
EPA:906.0	RAD	CASA-13-24216	1202776613	MS	0	0	1	0
EPA:906.0	RAD	LCS	1202776614	LCS	0	0	1	0
EPA:906.0	RAD	MB	1202776611	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24239	314591001	REG	1	0	0	0
HASL-300:AM-241	RAD	CASA-13-24209	1202775076	DUP	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202775077	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202775075	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24239	314591001	REG	2	0	0	0
HASL-300:ISOPU	RAD	CASA-13-24209	1202775079	DUP	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202775080	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202775078	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24239	314591001	REG	3	0	0	0
HASL-300:ISOU	RAD	CASA-13-24209	1202775082	DUP	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202775083	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202775081	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24256	314591002	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24256	1202774167	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24256	1202774168	MS	0	0	17	0
SW-846:6010B	INORGANIC	CAMO-13-24256	314591002	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202774166	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202774165	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24256	1202774172	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24256	1202774173	MS	0	0	11	0
SW-846:6020	INORGANIC	CAMO-13-24256	314591002	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202774171	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202774170	MB	11	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24256	314591002	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24224	1202777946	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24224	1202777947	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202777945	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202777944	MB	1	0	0	0
SW-846:8260B	VOC	CAMO-13-24232	314591003	FTB	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24239	314591001	REG	80	3	0	0
SW-846:8260B	VOC	LCS	1202778863	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202778864	LCS	0	3	10	0

SW-846:8260B	VOC	LCS	1202780091	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202780092	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1202778860	MB	80	3	0	0
SW-846:8260B	VOC	MB	1202780090	MB	80	3	0	0
SW-846:8270C	SVOC	CAMO-13-24239	314591001	REG	80	6	0	0
SW-846:8270C	SVOC	CAMO-13-24279	1202774964	MS	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24279	1202774965	MSD	0	6	76	0
SW-846:8270C	SVOC	LCS	1202774966	LCS	0	6	76	0
SW-846:8270C	SVOC	MB	1202774963	MB	80	6	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24239	314591001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24241	1202773872	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202773876	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202773871	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202773871	METHOD BLANK	SW-846:9060	W	Total Organic Carbon	0.488	J	mg/L	1
MB	1202774165	METHOD BLANK	SW-846:6010B	W	Potassium	125	J	ug/L	150

Any samples affected by the presence of contaminants in blanks?

Field Sample ID	Blank Field Sample ID	Blank Lab Sample ID	Blank Type	Analytical Method	Parameter Name	Units	Blank Result	Sample Result	Lab Qualifier	Detect Limit	Detected
CAMO-13-24239	MB	1202773871	METHOD BLANK	SW-846:9060	Total Organic Carbon	mg/L	0.488	1.09		1	Y

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CAMO-13-24256	1202776124	1202776125	EPA:350.1	Ammonia as Nitrogen	1261639	11/13/2012	W	114	95.1	110	90
CAMO-13-24256	1202776124	1202776125	EPA:350.1	Ammonia as Nitrogen	1261639	11/13/2012	W	114	95.1	110	90
CAMO-13-24239	1202776119	1202776120	EPA:351.2	Total Kjeldahl Nitrogen	1261637	11/14/2012	W	89.7	90.7	110	90
CAMO-13-24239	1202776119	1202776120	EPA:351.2	Total Kjeldahl Nitrogen	1261637	11/14/2012	W	89.7	90.7	110	90
CAMO-13-24256	1202774168		SW-846:6010B	Calcium	1260871	11/17/2012	W	52.6		125	75
CAMO-13-24256	1202774168		SW-846:6010B	Calcium	1260871	11/17/2012	W	52.6		125	75

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

Data Validation Report for:

Chain Of Custody No. 2013-267

Correction Factor (ND)	Correction Factor (J)	Use Factors
5		Y

Rejection Limit	RPD	RPD Limit
10	17.2	15
10	17.2	15
10	0.939	20
10	0.939	20
10		
10		

LCS Sample ID	LCSD Sample ID	Analytical Method	Parameter Name	Lab Lot ID	Analysis Date	Sample Matrix	LCS Recovery	LCSD Recovery	Upper Limit	Lower Limit	Lower Reject Limit
1202778863		SW-846:8260B	Bromoform	1262779	11/13/2012	W	128		125	72	10
1202778863		SW-846:8260B	Dibromo-3-Chloropropane[1,2-]	1262779	11/13/2012	W	129		128	69	10
1202778863		SW-846:8260B	Trichlorofluoromethane	1262779	11/13/2012	W	124		123	65	10
1202774966		SW-846:8270C	Benzidine	1261144	11/8/2012	W	6		124	19	10

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

Field Sample ID	Lab SampleID	Lab Duplicate Sample ID	Analytical Method	Parameter Name	Sample Matrix	Sample Result	Dup Sample Result	Units	Detected In Sample	Detected In Dup	RPD
CAMO-13-242S6	314591002	1202774172	SW-846:6020	Molybdenum	W	1.55	1.91	ug/L	Y	Y	20.6

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
MCOI-6	2013-267	CAMO-13-24239	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
MCOI-6	2013-267	CAMO-13-24239	REG	INIT	SVOC	SW-846:8270C	Benzidine	U	R	SV12	N
MCOI-6	2013-267	CAMO-13-24239	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
MCOI-6	2013-267	CAMO-13-24239	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
MCOI-6	2013-267	CAMO-13-24239	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
MCOI-6	2013-267	CAMO-13-24239	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
MCOI-6	2013-267	CAMO-13-24239	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
MCOI-6	2013-267	CAMO-13-24239	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
MCOI-6	2013-267	CAMO-13-24239	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
MCOI-6	2013-267	CAMO-13-24239	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
MCOI-6	2013-267	CAMO-13-24239	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
MCOI-6	2013-267	CAMO-13-24239	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
MCOI-6	2013-267	CAMO-13-24239	REG	INIT	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen		J-	I6a	Y
MCOI-6	2013-267	CAMO-13-24239	REG	INIT	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon		U	I4	N
MCOI-6	2013-267	CAMO-13-24239	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
MCOI-6	2013-267	CAMO-13-242S6	REG	INIT	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen		J+	I6b	Y
MCOI-6	2013-267	CAMO-13-24256	REG	INIT	INORGANIC	SW-846:6010B	Calcium		J-	I6a	Y
MCOI-6	2013-267	CAMO-13-24256	REG	INIT	INORGANIC	SW-846:6020	Molybdenum		J	I10a	Y

Reason Code Description

Data Validation Report for:

Chain Of Custody No. 2013-267

Upper Reject Limit	RPD	RPD Limit

RPD
Limit
20

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
0.00338	pCi/L	0.00338	pCi/L	0.0385	0.00756	W	11/2/2012		1261192	VAL	Y
3.06	ug/L	3.06	ug/L			W	11/2/2012		1261145	VAL	Y
0.31	pCi/L	0.31	pCi/L	5.73	1.62	W	11/2/2012		1261091	VAL	Y
-1.53	pCi/L	-1.53	pCi/L	4.46	1.31	W	11/2/2012		1261091	VAL	Y
0.198	pCi/L	0.198	pCi/L	2.74	0.645	W	11/2/2012		1260898	VAL	Y
1.92	pCi/L	1.92	pCi/L	3.08	0.954	W	11/2/2012		1260898	VAL	Y
3.59	pCi/L	3.59	pCi/L	10.7	2.91	W	11/2/2012		1261091	VAL	Y
-0.00181	pCi/L	-0.00181	pCi/L	0.0174	0.00542	W	11/2/2012		1261194	VAL	Y
0.00361	pCi/L	0.00361	pCi/L	0.0288	0.00722	W	11/2/2012		1261194	VAL	Y
-3.1	pCi/L	-3.1	pCi/L	55.2	15.1	W	11/2/2012		1261091	VAL	Y
0.0195	pCi/L	0.0195	pCi/L	4.65	1.2	W	11/2/2012		1261091	VAL	Y
0.146	pCi/L	0.146	pCi/L	0.462	0.133	W	11/2/2012		1260884	VAL	Y
0.163	mg/L	0.163	mg/L			W	11/2/2012		1261638	VAL	Y
1.09	mg/L	1.09	mg/L			W	11/2/2012		1260735	VAL	Y
0.0264	pCi/L	0.0264	pCi/L	0.0442	0.0125	W	11/2/2012		1261195	VAL	Y
0.0587	mg/L	0.0587	mg/L			W	11/2/2012		1261640	VAL	Y
71600	ug/L	71.6	mg/L			W	11/2/2012		1260872	VAL	Y
1.55	ug/L	1.55	ug/L			W	11/2/2012		1260875	VAL	Y

I10a	The sample and the duplicate sample results were >=5X the RL and the duplicate RPD was >20% for water samples and >35% for soil samples.
I4	the sample result is =<5x the concentration of related analyte in the method blank.
I6a	The associated matrix spike recovery was below the lower acceptance limit (LAL) but >10%. Follow the external laboratory limits located within the associated data package.
I6b	The associated matrix spike recovery was above the Upper Acceptance Limit (UAL). Follow the external laboratory limits located within the associated data package.
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.
SV12	The LCS percent recovery was <10%. Follow the external laboratory limits located within the associated data package.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24232	MCOI-6	FTB	SW-846:8260B	0	80
CAMO-13-24239	MCOI-6	REG	EPA:351.2	0	1
CAMO-13-24239	MCOI-6	REG	EPA:900	0	2
CAMO-13-24239	MCOI-6	REG	EPA:901.1	0	5
CAMO-13-24239	MCOI-6	REG	EPA:905.0	0	1
CAMO-13-24239	MCOI-6	REG	EPA:906.0	0	1
CAMO-13-24239	MCOI-6	REG	HASL-300:AM-241	0	1
CAMO-13-24239	MCOI-6	REG	HASL-300:ISOPU	0	2
CAMO-13-24239	MCOI-6	REG	HASL-300:ISOU	0	3
CAMO-13-24239	MCOI-6	REG	SW-846:8260B	0	80
CAMO-13-24239	MCOI-6	REG	SW-846:8270C	0	80
CAMO-13-24239	MCOI-6	REG	SW-846:9060	0	1
CAMO-13-24256	MCOI-6	REG	EPA:120.1	0	1
CAMO-13-24256	MCOI-6	REG	EPA:150.1	0	1
CAMO-13-24256	MCOI-6	REG	EPA:160.1	0	1
CAMO-13-24256	MCOI-6	REG	EPA:245.2	0	1
CAMO-13-24256	MCOI-6	REG	EPA:300.0	0	4
CAMO-13-24256	MCOI-6	REG	EPA:310.1	0	2
CAMO-13-24256	MCOI-6	REG	EPA:350.1	0	1
CAMO-13-24256	MCOI-6	REG	EPA:353.2	0	1
CAMO-13-24256	MCOI-6	REG	EPA:365.4	0	1
CAMO-13-24256	MCOI-6	REG	SM:A2340B	0	1
CAMO-13-24256	MCOI-6	REG	SW-846:6010B	0	17
CAMO-13-24256	MCOI-6	REG	SW-846:6020	0	11
CAMO-13-24256	MCOI-6	REG	SW-846:6850	0	1

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

November 29, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 314591
SDG: 2013-267

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 06, 2012, and analyzed for GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-267
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 314591
SDG: 2013-267

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....9

Volatile Analysis.....11

Case Narrative.....12

Sample Data Summary.....18

Quality Control Summary.....25

Quality Control Data.....47

Miscellaneous.....72

Semi-Volatile Analysis.....74

Case Narrative.....75

Sample Data Summary.....81

Quality Control Summary.....85

Quality Control Data.....100

Miscellaneous.....113

Perchlorates by LCMSMS Analysis.....115

Case Narrative.....116

Sample Data Summary.....122

Quality Control Summary.....124

Quality Control Data.....127

Metals Analysis.....133
Case Narrative.....134
Sample Data Summary.....140
Quality Control Summary.....144
General Chem Analysis.....158
Case Narrative.....159
Sample Data Summary.....187
Quality Control Summary.....192
Miscellaneous.....197
Radiological Analysis.....201
Sample Data Summary.....213
Quality Control Data.....216

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 314591
SDG # : 2013-267

November 29, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 06, 2012 for analysis. Please see attached email for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. The containers for Gross A/B were preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). The containers for radiochemistry analysis were received at a temperature of 19C. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
314591001	CAMO-13-24239
314591002	CAMO-13-24256
314591003	CAMO-13-24232

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Hope Taylor for
Valerie Davis
Project Manager

List of current GEL Certifications as of 29 November 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

314591

COC/Lab Request #: 2013-267

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-H-3	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAMO-13-24239	Nov 2 2012	12:03	W	2	3			1	1			1	1
CAMO-13-24256	Nov 2 2012	12:03	W			1	1			1	1		
CAMO-13-24232	Nov 2 2012	12:03	W	2									

Special Instructions:

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
Melissa Montoya		11/5/12 3:00		11/06/12 0920
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/AR/COC/Work Order:** 2013-267
Received By: H. Taylor	**Date Received:** 110612

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) 4 *all temperatures are recorded in Celsius 19
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: 61524646 Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			✓	Sample ID's, containers affected and observed pH: CAMO-13-24239 If Preservation added, Lot#: L03022
6	VOA vials free of headspace (defined as < 6mm bubble)?	✓			Sample ID's and containers affected:
7	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?			✓	Sample ID's affected: ID CAMO-13-24232 received one container for 8260 chain indicates 2 * see below
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			
14	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 5462 9832 4955-4 4944-19

Comments (Use Continuation Form if needed):
*WSTCO-13-24555 and WSTHO-13-24556 received one container each chain indicates 9

PM (or PMA) review: Initials P.D Date 11-8-12 Page 1 of 1

Subject: Sample Receipt for 110612
From: Hope Taylor <Hope.Taylor@gel.com>
Date: 11/6/2012 3:14 PM
To: "Keith R. Greene" <kgreene@lanl.gov>
CC: LANL@amrad.com, "team.davis" <team.davis@gel.com>

Good afternoon Keith,

The container for Gross A/B was preserved prior to analysis.

RN 2013-267 The lab received one container for ID CAMO-13-24232, chain indicates two.

RN 2013-266 The lab received one container each for IDs WSTCO-13-24555 and WSTHO-13-24556, chain indicates nine.

Thanks

--
Hope Taylor
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Direct: 843.769.7376 ext. 4778
Main: 843.556.8171
Fax: 843.766.1178
E-mail: hop01200@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 05NOV12
ACTWGT: 3.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

19

58DC1/8C50/10BC

FedEx Express

J111311060601 25

1 of 2

TRK# 0201 5462 9832 4944

TUE - 06 NOV A1
PRIORITY OVERNIGHT

MASTER

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 05NOV12
ACTWGT: 49.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

4

58DC1/8C50/10BC

FedEx Express

J111311060601 25

2 of 2

MPS# 0263 5462 9832 4955

Mstr# 5462 9832 4944

TUE - 06 NOV A1
PRIORITY OVERNIGHT

0201

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Volatile Analysis

Case Narrative

ChemStation Case Narrative
ARS International (ARSL)
SDG 2013-267

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 8260B DOE-AL
Analytical Batch Number:	1262779

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

Sample ID	Client ID
314591001	CAMO-13-24239
314591003	CAMO-13-24232
1202778860	Method Blank (MB)
1202778861	314528001(CAMO-13-24279) Post Spike (PS)
1202778862	314528001(CAMO-13-24279) Post Spike Duplicate (PSD)
1202778863	Laboratory Control Sample (LCS)
1202778864	Laboratory Control Sample (LCS)
1202780090	Method Blank (MB)
1202780091	Laboratory Control Sample (LCS)
1202780092	Laboratory Control Sample (LCS)

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 18.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 19.1.2. False positive analytes are designated on the quantitation report with a ’d’ qualifier.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the

Calibration History report located in the Standard Data section of the data package.

The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

Initial Calibration
At the request of the client, linear curve fits, for target analytes that did not meet the x-intercept criteria of less than or equal to 3 times the MDL and had %RSDs less than 60%, were set to use the average response factor to quantitate data in this SDG.

Continuing Calibration Verification Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement
Target analytes were detected in the blank 1202778860 (MB) below the reporting limit.

Surrogate Recoveries
Surrogate recoveries in all client and quality control samples were within the acceptance limits.

Laboratory Control Sample (LCS) Recovery
The LCS 1202778863 (LCS) recoveries were not all within the acceptance limits. The unacceptable recoveries were less than 5% of the requested analyte list. This satisfies the client criteria. The results are reported. See the Data Exception Report in the miscellaneous section of the data package.

QC Sample Designation
Sample 314528001 (CAMO-13-24279) was designated for spike analysis.

Matrix Spike (PS) Recovery Statement
The spike recoveries were within the required acceptance limits.

Matrix Spike Duplicate (PSD) Recovery Statement
The spike duplicate recoveries were within the required acceptance limits.

Relative Percent Difference (RPD) Statement
The RPDs between the matrix spike pair met the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Samples 1202778861 (CAMO-13-24279), 1202778862 (CAMO-13-24279) and 314591001 (CAMO-13-24239) were re-analyzed due to unacceptable surrogate or internal standard recoveries in the initial analysis.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER# 1141833.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) may be requested for this sample delivery group/work order. Please note that non-requested target analytes that are reported on the quantitation reports will be present on the Form I. These detected analytes are included in the calibrated method and as a result will be reported on the Sample Data Summary (Form I) or Certificate of Analysis (C of A). TIC data, if requested, are included on the Sample Data Summary (Form I) and are also included with the sample raw data.

Additional Comments
Additional comments were not required for this SDG.

Residual Chlorine
Residual Chlorine was not detected in any of the samples in this SDG.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOA9.I	Agilent 6890/5973 GC/MS w/ OI Eclipse/Archon Autosampler	HP6890/HP5973	DB-624	J&W, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-267 GEL Work Order: 314591

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Erin Haubert **Name: Erin Haubert**

Date: 28 NOV 2012 **Title: Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/02/2012 12:03**	**Matrix:**	**W**
Lab Sample ID:	**314591001**	**Date Received:**	**11/06/2012 09:20**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24239**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 15:17**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 15:17**				
Data File:	**111512V9\9M412.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	J	0.320	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/02/2012 12:03**	**Matrix:**	**W**
Lab Sample ID:	**314591001**	**Date Received:**	**11/06/2012 09:20**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24239**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 15:17**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 15:17**				
Data File:	**111512V9\9M412.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/02/2012 12:03**	**Matrix:**	**W**
Lab Sample ID:	**314591001**	**Date Received:**	**11/06/2012 09:20**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24239**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 15:17**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 15:17**				
Data File:	**111512V9\9M412.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	52.3	50.0	ug/L	105	(78%-124%)
Bromofluorobenzene	54.8	50.0	ug/L	110	(80%-120%)
Toluene-d8	49.7	50.0	ug/L	99.4	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.36	17.9	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/02/2012 12:03**	**Matrix:**	**W**
Lab Sample ID:	**314591003**	**Date Received:**	**11/06/2012 09:20**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24232**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 11:30**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 11:30**				
Data File:	**111312V9\9M210.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/02/2012 12:03**	**Matrix:**	**W**
Lab Sample ID:	**314591003**	**Date Received:**	**11/06/2012 09:20**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24232**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 11:30**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 11:30**				
Data File:	**111312V9\9M210.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/02/2012 12:03**	**Matrix:**	**W**
Lab Sample ID:	**314591003**	**Date Received:**	**11/06/2012 09:20**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24232**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 11:30**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 11:30**				
Data File:	**111312V9\9M210.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	59.8	50.0	ug/L	120	(78%-124%)
Bromofluorobenzene	49.7	50.0	ug/L	99.4	(80%-120%)
Toluene-d8	48.1	50.0	ug/L	96.3	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.36	11.6	ug/L	0	J

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2013-267

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1202778863	LCS for batch 1262779	121	96	102
1202778864	LCS for batch 1262779	112	94	98
1202778860	MB for batch 1262779	111	95	98
314591003	CAMO-13-24232	120	96	99
1202780091	LCS for batch 1262779	96	97	98
1202780092	LCS for batch 1262779	91	94	99
1202780090	MB for batch 1262779	99	97	103
314591001	CAMO-13-24239	105	99	110
1202778861	CAMO-13-24279PS	101	98	102
1202778862	CAMO-13-24279PSD	108	105	106

Surrogate		Acceptance Limits
DCED4	= 1,2-Dichloroethane-d4	(78%-124%)
TOL	= Toluene-d8	(80%-120%)
BFB	= Bromofluorobenzene	(80%-120%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **CAMO-13-24279PS**
Lab Sample ID: **1202778861**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/15/2012 17:05**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	PS	Dichlorodifluoromethane	50.0	0.00	U	43.8	88	36-123
74-87-3	PS	Chloromethane	50.0	0.00	U	45.3	91	47-134
75-01-4	PS	Vinyl chloride	50.0	0.00	U	43.0	86	49-129
74-83-9	PS	Bromomethane	50.0	0.00	U	45.5	91	56-127
75-00-3	PS	Chloroethane	50.0	0.00	U	47.0	94	67-122
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	U	46.2	92	60-123
60-29-7	PS	Ethyl ether	50.0	0.00	U	45.6	91	69-121
67-64-1	PS	Acetone	250	0.00	U	146	58	30-143
75-05-8	PS	Acetonitrile	1250	0.00	U	1230	99	60-133
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	U	49.2	98	67-132
74-88-4	PS	Iodomethane	250	0.00	U	257	103	69-147
75-09-2	PS	Methylene chloride	50.0	0.00	U	47.1	94	56-135
75-15-0	PS	Carbon disulfide	250	0.00	U	253	101	65-153
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	U	47.1	94	73-126
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	U	48.4	97	69-128
108-05-4	PS	Vinyl acetate	250	0.00	U	226	90	50-143
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	U	47.4	95	75-124
78-93-3	PS	2-Butanone	250	0.00	U	182	73	30-140
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	U	47.2	94	52-147
594-20-7	PS	2,2-Dichloropropane	50.0	0.00	U	49.8	100	67-143
67-66-3	PS	Chloroform	50.0	0.00	U	47.0	94	75-125
74-97-5	PS	Bromochloromethane	50.0	0.00	U	49.0	98	80-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267** **Sample Type:** **Post Spike**
Client ID: **CAMO-13-24279PS** **Matrix:** **W**
Lab Sample ID: **1202778861**
Instrument: **VOA9.I** **Analysis Date:** **11/15/2012 17:05** **Dilution: 1**
Analyst: **RXY1** **Prep Batch ID:** **1262779**
Purge Vol: **5 mL** **Batch ID:** **1262779**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	PS	1,1,1-Trichloroethane	50.0	0.00	U	50.2	100	69-140
563-58-6	PS	1,1-Dichloropropene	50.0	0.00	U	49.7	99	71-130
71-36-3	PS	n-Butyl alcohol	5000	0.00	U	5480	110	53-150
56-23-5	PS	Carbon tetrachloride	50.0	0.00	U	53.1	106	69-142
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	U	47.1	94	72-126
71-43-2	PS	Benzene	50.0	0.00	U	47.2	94	73-119
79-01-6	PS	Trichloroethylene	50.0	0.00	U	49.2	98	54-147
78-87-5	PS	1,2-Dichloropropane	50.0	0.00	U	47.8	96	78-123
75-27-4	PS	Bromodichloromethane	50.0	0.00	U	51.3	103	76-131
74-95-3	PS	Dibromomethane	50.0	0.00	U	49.2	98	79-120
108-10-1	PS	4-Methyl-2-pentanone	250	0.00	U	246	98	68-136
10061-01-5	PS	cis-1,3-Dichloropropylene	50.0	0.00	U	52.7	105	72-134
108-88-3	PS	Toluene	50.0	0.00	U	45.2	90	62-126
10061-02-6	PS	trans-1,3-Dichloropropylene	50.0	0.00	U	51.1	102	72-133
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	U	47.5	95	74-120
591-78-6	PS	2-Hexanone	250	0.00	U	191	76	31-132
142-28-9	PS	1,3-Dichloropropane	50.0	0.00	U	46.5	93	73-121
127-18-4	PS	Tetrachloroethylene	50.0	0.00	U	47.9	96	54-139
124-48-1	PS	Dibromochloromethane	50.0	0.00	U	52.6	105	74-128
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	U	51.6	103	80-120
108-90-7	PS	Chlorobenzene	50.0	0.00	U	46.3	93	73-119
100-41-4	PS	Ethylbenzene	50.0	0.00	U	46.3	93	66-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **CAMO-13-24279PS**
Lab Sample ID: **1202778861**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/15/2012 17:05**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	PS	m,p-Xylenes	100	0.00	U	97.2	97	56-134
95-47-6	PS	o-Xylene	50.0	0.00	U	47.8	96	68-126
100-42-5	PS	Styrene	50.0	0.00	U	50.0	100	57-138
75-25-2	PS	Bromoform	50.0	0.00	U	57.6	115	66-129
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	U	49.6	99	44-146
96-18-4	PS	1,2,3-Trichloropropane	50.0	0.00	U	48.9	98	68-129
108-86-1	PS	Bromobenzene	50.0	0.00	U	48.5	97	70-122
103-65-1	PS	n-Propylbenzene	50.0	0.00	U	46.6	93	61-131
95-49-8	PS	2-Chlorotoluene	50.0	0.00	U	48.0	96	66-126
98-82-8	PS	Isopropylbenzene	50.0	0.00	U	47.3	95	65-130
108-67-8	PS	1,3,5-Trimethylbenzene	50.0	0.00	U	47.7	95	58-134
106-43-4	PS	4-Chlorotoluene	50.0	0.00	U	46.8	94	63-125
98-06-6	PS	tert-Butylbenzene	50.0	0.00	U	48.3	97	66-129
95-63-6	PS	1,2,4-Trimethylbenzene	50.0	0.00	U	47.2	94	60-131
135-98-8	PS	sec-Butylbenzene	50.0	0.00	U	47.6	95	62-130
99-87-6	PS	4-Isopropyltoluene	50.0	0.00	U	47.7	95	62-132
541-73-1	PS	1,3-Dichlorobenzene	50.0	0.00	U	47.0	94	66-121
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	U	46.5	93	65-119
104-51-8	PS	n-Butylbenzene	50.0	0.00	U	47.4	95	55-134
96-12-8	PS	1,2-Dibromo-3-chloropropane	50.0	0.00	U	57.1	114	58-137
87-68-3	PS	Hexachlorobutadiene	50.0	0.00	U	48.5	97	49-139
91-20-3	PS	Naphthalene	50.0	0.00	U	48.0	96	46-145

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **CAMO-13-24279PS**
Lab Sample ID: **1202778861**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/15/2012 17:05**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	PS	1,2,3-Trichlorobenzene	50.0	0.00	U	45.5	91	54-134
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	U	47.0	94	79-128
120-82-1	PS	1,2,4-Trichlorobenzene	50.0	0.00	U	45.0	90	55-128
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	U	46.7	93	68-121

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **CAMO-13-24279PSD**
Lab Sample ID: **1202778862**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/15/2012 17:33**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
75-71-8	PSD	Dichlorodifluoromethane	50.0	0.00	U	43.7	87	36-123	0	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	U	42.9	86	47-134	5	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	U	41.0	82	49-129	5	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	U	43.6	87	56-127	4	0-20
75-00-3	PSD	Chloroethane	50.0	0.00	U	45.4	91	67-122	4	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	U	45.5	91	60-123	2	0-20
60-29-7	PSD	Ethyl ether	50.0	0.00	U	46.2	92	69-121	1	0-20
67-64-1	PSD	Acetone	250	0.00	U	142	57	30-143	3	0-20
75-05-8	PSD	Acetonitrile	1250	0.00	U	1180	94	60-133	4	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	U	48.6	97	67-132	1	0-20
74-88-4	PSD	Iodomethane	250	0.00	U	254	102	69-147	1	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	U	46.7	93	56-135	1	0-20
75-15-0	PSD	Carbon disulfide	250	0.00	U	248	99	65-153	2	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	U	45.8	92	73-126	3	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	U	47.6	95	69-128	2	0-20
108-05-4	PSD	Vinyl acetate	250	0.00	U	212	85	50-143	6	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	U	46.7	93	75-124	2	0-20
78-93-3	PSD	2-Butanone	250	0.00	U	175	70	30-140	4	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	U	46.1	92	52-147	2	0-20
594-20-7	PSD	2,2-Dichloropropane	50.0	0.00	U	48.0	96	67-143	4	0-20
67-66-3	PSD	Chloroform	50.0	0.00	U	46.0	92	75-125	2	0-20
74-97-5	PSD	Bromochloromethane	50.0	0.00	U	47.2	94	80-120	4	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Sample Type: **Post Spike Duplicate**
Client ID: **CAMO-13-24279PSD**
Matrix: **W**
Lab Sample ID: **1202778862**
Instrument: **VOA9.I**
Analysis Date: **11/15/2012 17:33**
Dilution: 1
Analyst: **RXY1**
Prep Batch ID: **1262779**
Purge Vol: **5 mL**
Batch ID: **1262779**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
71-55-6	PSD	1,1,1-Trichloroethane	50.0	0.00	U	48.9	98	69-140	3	0-20
563-58-6	PSD	1,1-Dichloropropene	50.0	0.00	U	48.8	98	71-130	2	0-20
71-36-3	PSD	n-Butyl alcohol	5000	0.00	U	5090	102	53-150	7	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	U	52.0	104	69-142	2	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	U	45.0	90	72-126	5	0-20
71-43-2	PSD	Benzene	50.0	0.00	U	45.7	91	73-119	3	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	U	47.7	95	54-147	3	0-20
78-87-5	PSD	1,2-Dichloropropane	50.0	0.00	U	45.9	92	78-123	4	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	U	49.5	99	76-131	4	0-20
74-95-3	PSD	Dibromomethane	50.0	0.00	U	47.2	94	79-120	4	0-20
108-10-1	PSD	4-Methyl-2-pentanone	250	0.00	U	249	100	68-136	1	0-20
10061-01-5	PSD	cis-1,3-Dichloropropylene	50.0	0.00	U	50.0	100	72-134	5	0-20
108-88-3	PSD	Toluene	50.0	0.00	U	44.8	90	62-126	1	0-20
10061-02-6	PSD	trans-1,3-Dichloropropylene	50.0	0.00	U	49.9	100	72-133	2	0-20
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	U	46.0	92	74-120	3	0-20
591-78-6	PSD	2-Hexanone	250	0.00	U	187	75	31-132	2	0-20
142-28-9	PSD	1,3-Dichloropropane	50.0	0.00	U	44.5	89	73-121	4	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	U	47.1	94	54-139	2	0-20
124-48-1	PSD	Dibromochloromethane	50.0	0.00	U	51.3	103	74-128	2	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	U	49.5	99	80-120	4	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.00	U	45.8	92	73-119	1	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	U	45.4	91	66-125	2	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **CAMO-13-24279PSD**
Lab Sample ID: **1202778862**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/15/2012 17:33**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	PSD	m,p-Xylenes	100	0.00	U	94.8	95	56-134	3	0-20
95-47-6	PSD	o-Xylene	50.0	0.00	U	47.1	94	68-126	2	0-20
100-42-5	PSD	Styrene	50.0	0.00	U	48.5	97	57-138	3	0-20
75-25-2	PSD	Bromoform	50.0	0.00	U	55.2	110	66-129	4	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	U	47.2	94	44-146	5	0-20
96-18-4	PSD	1,2,3-Trichloropropane	50.0	0.00	U	46.8	94	68-129	5	0-20
108-86-1	PSD	Bromobenzene	50.0	0.00	U	46.1	92	70-122	5	0-20
103-65-1	PSD	n-Propylbenzene	50.0	0.00	U	44.5	89	61-131	5	0-20
95-49-8	PSD	2-Chlorotoluene	50.0	0.00	U	45.5	91	66-126	5	0-20
98-82-8	PSD	Isopropylbenzene	50.0	0.00	U	46.2	92	65-130	2	0-20
108-67-8	PSD	1,3,5-Trimethylbenzene	50.0	0.00	U	45.5	91	58-134	5	0-20
106-43-4	PSD	4-Chlorotoluene	50.0	0.00	U	43.6	87	63-125	7	0-20
98-06-6	PSD	tert-Butylbenzene	50.0	0.00	U	47.9	96	66-129	1	0-20
95-63-6	PSD	1,2,4-Trimethylbenzene	50.0	0.00	U	45.0	90	60-131	5	0-20
135-98-8	PSD	sec-Butylbenzene	50.0	0.00	U	46.7	93	62-130	2	0-20
99-87-6	PSD	4-Isopropyltoluene	50.0	0.00	U	46.1	92	62-132	3	0-20
541-73-1	PSD	1,3-Dichlorobenzene	50.0	0.00	U	44.5	89	66-121	5	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	U	43.8	88	65-119	6	0-20
104-51-8	PSD	n-Butylbenzene	50.0	0.00	U	45.0	90	55-134	5	0-20
96-12-8	PSD	1,2-Dibromo-3-chloropropane	50.0	0.00	U	57.2	114	58-137	0	0-20
87-68-3	PSD	Hexachlorobutadiene	50.0	0.00	U	48.8	98	49-139	1	0-20
91-20-3	PSD	Naphthalene	50.0	0.00	U	48.5	97	46-145	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Sample Type: **Post Spike Duplicate**
Client ID: **CAMO-13-24279PSD**
Matrix: **W**
Lab Sample ID: **1202778862**
Instrument: **VOA9.I**
Analysis Date: **11/15/2012 17:33**
Dilution: 1
Analyst: **RXY1**
Prep Batch ID: **1262779**
Purge Vol: **5 mL**
Batch ID: **1262779**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
87-61-6	PSD	1,2,3-Trichlorobenzene	50.0	0.00	U	45.8	92	54-134	1	0-20
630-20-6	PSD	1,1,1,2-Tetrachloroethane	50.0	0.00	U	47.2	94	79-128	1	0-20
120-82-1	PSD	1,2,4-Trichlorobenzene	50.0	0.00	U	44.2	88	55-128	2	0-20
95-50-1	PSD	1,2-Dichlorobenzene	50.0	0.00	U	44.7	89	68-121	4	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202778863**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/13/2012 08:24**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	58.5	117	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	57.9	116	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	53.1	106	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	50.1	100	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	50.2	100	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	62.1	124 *	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	54.1	108	74-120
67-64-1	LCS	Acetone	250	0.0	354	141	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	1330	106	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	56.7	113	76-127
74-88-4	LCS	Iodomethane	250	0.0	273	109	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	46.9	94	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	239	96	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	55.9	112	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	54.1	108	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	305	122	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	52.1	104	79-120
78-93-3	LCS	2-Butanone	250	0.0	381	152	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	55.9	112	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	63.4	127	76-145
67-66-3	LCS	Chloroform	50.0	0.0	56.6	113	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	55.9	112	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202778863**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/13/2012 08:24**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	63.9	128	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	54.0	108	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	6690	134	66-138
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	68.8	138	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	59.6	119	75-121
71-43-2	LCS	Benzene	50.0	0.0	48.1	96	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	52.8	106	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	48.6	97	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	61.3	123	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	54.0	108	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	286	114	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	56.7	113	80-127
108-88-3	LCS	Toluene	50.0	0.0	45.9	92	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	56.7	113	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	47.1	94	79-120
591-78-6	LCS	2-Hexanone	250	0.0	362	145	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	44.7	89	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	50.4	101	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	61.0	122	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	52.3	105	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	47.6	95	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	46.4	93	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202778863**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/13/2012 08:24**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	96.6	97	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	48.0	96	80-120
100-42-5	LCS	Styrene	50.0	0.0	49.2	98	80-121
75-25-2	LCS	Bromoform	50.0	0.0	64.0	128 *	72-125
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	45.4	91	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	50.7	101	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	47.6	95	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	45.9	92	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	46.2	92	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	48.8	98	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	50.1	100	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	48.3	97	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	51.0	102	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	49.0	98	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	48.2	96	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	50.2	100	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	46.3	93	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	47.3	95	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	47.4	95	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	64.4	129 *	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	59.1	118	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	59.2	118	71-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202778863**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/13/2012 08:24**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	60.2	120	73-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	58.0	116	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	57.6	115	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	47.6	95	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202778864**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/13/2012 09:43**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS	Acrolein	250	0.0	279	111	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	302	121	65-157
107-05-1	LCS	Allyl chloride	250	0.0	267	107	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	267	107	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	65.9	132	45-159
107-12-0	LCS	Propionitrile	250	0.0	278	111	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	269	108	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2780	111	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	239	96	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	224	90	66-132

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202780091**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/15/2012 11:07**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	41.2	82	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	40.7	81	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	40.2	80	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	42.3	85	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	44.8	90	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	44.1	88	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	46.7	93	74-120
67-64-1	LCS	Acetone	250	0.0	222	89	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	1130	90	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	46.2	92	76-127
74-88-4	LCS	Iodomethane	250	0.0	254	101	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	44.5	89	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	230	92	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	46.7	93	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	45.7	91	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	242	97	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	45.2	90	79-120
78-93-3	LCS	2-Butanone	250	0.0	260	104	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	44.9	90	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	47.5	95	76-145
67-66-3	LCS	Chloroform	50.0	0.0	44.1	88	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	49.7	99	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202780091**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/15/2012 11:07**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	48.0	96	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	46.1	92	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	5280	106	66-138
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	50.6	101	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	45.4	91	75-121
71-43-2	LCS	Benzene	50.0	0.0	45.0	90	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	47.5	95	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	46.7	93	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	50.7	101	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	49.3	99	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	269	108	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	51.7	103	80-127
108-88-3	LCS	Toluene	50.0	0.0	43.8	88	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	50.8	102	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	46.2	92	79-120
591-78-6	LCS	2-Hexanone	250	0.0	279	112	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	43.8	88	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	48.5	97	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	53.1	106	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	50.5	101	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	45.8	92	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	44.0	88	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202780091**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/15/2012 11:07**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	94.5	95	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	46.6	93	80-120
100-42-5	LCS	Styrene	50.0	0.0	49.3	99	80-121
75-25-2	LCS	Bromoform	50.0	0.0	58.5	117	72-125
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	46.4	93	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	49.2	98	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	47.6	95	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	43.5	87	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	46.8	94	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	45.7	91	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	45.9	92	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	44.2	88	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	48.8	98	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	45.7	91	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	45.4	91	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	46.3	93	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	47.2	94	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	46.5	93	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	45.2	90	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	58.8	118	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	50.6	101	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	49.1	98	71-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202780091**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/15/2012 11:07**
Dilution: 1
Prep Batch ID: **1262779**
Batch ID: **1262779**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	48.3	97	73-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	49.0	98	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	49.6	99	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	47.0	94	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202780092**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/15/2012 14:23**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS	Acrolein	250	0.0	212	85	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	292	117	65-157
107-05-1	LCS	Allyl chloride	250	0.0	258	103	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	250	100	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	58.6	117	45-159
107-12-0	LCS	Propionitrile	250	0.0	258	103	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	242	97	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2290	92	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	247	99	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	243	97	66-132

Method Blank Summary

SDG Number:	**2013-267**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1262779**	**Instrument ID:**	**VOA9.I**	**Data File:**	**111312V9\9M207B3.D**
Lab Sample ID:	**1202778860**	**Prep Date:**	**11/13/2012 10:10**	**Analyzed:**	**11/13/12 10:10**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1262779	1202778863	111312V9\9M203L3.D	11/13/12	0824
02 LCS for batch 1262779	1202778864	111312V9\9M206L.D	11/13/12	0943
03 CAMO-13-24232	314591003	111312V9\9M210.D	11/13/12	1130

Method Blank Summary

SDG Number:	**2013-267**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1262779**	**Instrument ID:**	**VOA9.I**	**Data File:**	**111512V9\9M411B1.D**
Lab Sample ID:	**1202780090**	**Prep Date:**	**11/15/2012 14:49**	**Analyzed:**	**11/15/12 14:49**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
05 LCS for batch 1262779	1202780091	111512V9\9M403L1.D	11/15/12	1107
06 LCS for batch 1262779	1202780092	111512V9\9M410L.D	11/15/12	1423
07 CAMO-13-24239	314591001	111512V9\9M412.D	11/15/12	1517
08 CAMO-13-24279PS	1202778861	111512V9\9M416.D	11/15/12	1705
09 CAMO-13-24279PSD	1202778862	111512V9\9M417.D	11/15/12	1733

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778860**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 10:10**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 10:10**				
Data File:	**111312V9\9M207B3.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	J	0.390	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778860**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 10:10**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 10:10**				
Data File:	**111312V9\9M207B3.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778860**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 10:10**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 10:10**				
Data File:	**111312V9\9M207B3.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	55.5	50.0	ug/L	111	(78%-124%)
Bromofluorobenzene	49.1	50.0	ug/L	98.2	(80%-120%)
Toluene-d8	47.4	50.0	ug/L	94.8	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.286	6.46	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202778861**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 17:05**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 17:05**				
Data File:	**111512V9\9M416.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		43.8	ug/L	0.300	1.00
74-87-3	Chloromethane		45.3	ug/L	0.300	1.00
75-01-4	Vinyl chloride		43.0	ug/L	0.300	1.00
74-83-9	Bromomethane		45.5	ug/L	0.300	1.00
75-00-3	Chloroethane		47.0	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		46.2	ug/L	0.300	1.00
60-29-7	Ethyl ether		45.6	ug/L	0.300	1.00
67-64-1	Acetone		146	ug/L	3.00	10.0
75-05-8	Acetonitrile		1230	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		49.2	ug/L	0.300	1.00
74-88-4	Iodomethane		257	ug/L	1.50	5.00
75-09-2	Methylene chloride		47.1	ug/L	3.00	10.0
75-15-0	Carbon disulfide		253	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		47.1	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		48.4	ug/L	0.300	1.00
108-05-4	Vinyl acetate		226	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		47.4	ug/L	0.300	1.00
78-93-3	2-Butanone		182	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		47.2	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		49.8	ug/L	0.300	1.00
67-66-3	Chloroform		47.0	ug/L	0.300	1.00
74-97-5	Bromochloromethane		49.0	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		50.2	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		49.7	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5480	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		53.1	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		47.1	ug/L	0.300	1.00
71-43-2	Benzene		47.2	ug/L	0.300	1.00
79-01-6	Trichloroethylene		49.2	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		47.8	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		51.3	ug/L	0.300	1.00
74-95-3	Dibromomethane		49.2	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		246	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		52.7	ug/L	0.300	1.00
108-88-3	Toluene		45.2	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		51.1	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		47.5	ug/L	0.300	1.00
591-78-6	2-Hexanone		191	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202778861**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 17:05**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 17:05**				
Data File:	**111512V9\9M416.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		46.5	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		47.9	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		52.6	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		51.6	ug/L	0.300	1.00
108-90-7	Chlorobenzene		46.3	ug/L	0.300	1.00
100-41-4	Ethylbenzene		46.3	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		97.2	ug/L	0.300	2.00
95-47-6	o-Xylene		47.8	ug/L	0.300	1.00
100-42-5	Styrene		50.0	ug/L	0.300	1.00
75-25-2	Bromoform		57.6	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		49.6	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		48.9	ug/L	0.300	1.00
108-86-1	Bromobenzene		48.5	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		46.6	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		48.0	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		47.3	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		47.7	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		46.8	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		48.3	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		47.2	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		47.6	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		47.7	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		47.0	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		46.5	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		47.4	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		57.1	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		48.5	ug/L	0.300	1.00
91-20-3	Naphthalene		48.0	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		45.5	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202778861**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 17:05**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 17:05**				
Data File:	**111512V9\9M416.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		47.0	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		45.0	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		46.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	50.3	50.0	ug/L	101	(78%-124%)
Bromofluorobenzene	50.9	50.0	ug/L	102	(80%-120%)
Toluene-d8	48.8	50.0	ug/L	97.6	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202778862**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 17:33**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 17:33**				
Data File:	**111512V9\9M417.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		43.7	ug/L	0.300	1.00
74-87-3	Chloromethane		42.9	ug/L	0.300	1.00
75-01-4	Vinyl chloride		41.0	ug/L	0.300	1.00
74-83-9	Bromomethane		43.6	ug/L	0.300	1.00
75-00-3	Chloroethane		45.4	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		45.5	ug/L	0.300	1.00
60-29-7	Ethyl ether		46.2	ug/L	0.300	1.00
67-64-1	Acetone		142	ug/L	3.00	10.0
75-05-8	Acetonitrile		1180	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		48.6	ug/L	0.300	1.00
74-88-4	Iodomethane		254	ug/L	1.50	5.00
75-09-2	Methylene chloride		46.7	ug/L	3.00	10.0
75-15-0	Carbon disulfide		248	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		45.8	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		47.6	ug/L	0.300	1.00
108-05-4	Vinyl acetate		212	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		46.7	ug/L	0.300	1.00
78-93-3	2-Butanone		175	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		46.1	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		48.0	ug/L	0.300	1.00
67-66-3	Chloroform		46.0	ug/L	0.300	1.00
74-97-5	Bromochloromethane		47.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		48.9	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		48.8	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5090	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		52.0	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		45.0	ug/L	0.300	1.00
71-43-2	Benzene		45.7	ug/L	0.300	1.00
79-01-6	Trichloroethylene		47.7	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		45.9	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		49.5	ug/L	0.300	1.00
74-95-3	Dibromomethane		47.2	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		249	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		50.0	ug/L	0.300	1.00
108-88-3	Toluene		44.8	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		49.9	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		46.0	ug/L	0.300	1.00
591-78-6	2-Hexanone		187	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202778862**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 17:33**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 17:33**				
Data File:	**111512V9\9M417.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		44.5	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		47.1	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		51.3	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		49.5	ug/L	0.300	1.00
108-90-7	Chlorobenzene		45.8	ug/L	0.300	1.00
100-41-4	Ethylbenzene		45.4	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		94.8	ug/L	0.300	2.00
95-47-6	o-Xylene		47.1	ug/L	0.300	1.00
100-42-5	Styrene		48.5	ug/L	0.300	1.00
75-25-2	Bromoform		55.2	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		47.2	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		46.8	ug/L	0.300	1.00
108-86-1	Bromobenzene		46.1	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		44.5	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		45.5	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		46.2	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		45.5	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		43.6	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		47.9	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		45.0	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		46.7	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		46.1	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		44.5	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		43.8	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		45.0	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		57.2	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		48.8	ug/L	0.300	1.00
91-20-3	Naphthalene		48.5	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		45.8	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202778862**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 17:33**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 17:33**				
Data File:	**111512V9\9M417.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		47.2	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		44.2	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		44.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	53.9	50.0	ug/L	108	(78%-124%)
Bromofluorobenzene	53.0	50.0	ug/L	106	(80%-120%)
Toluene-d8	52.7	50.0	ug/L	105	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778863**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 08:24**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 08:24**				
Data File:	**111312V9\9M203L3.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		58.5	ug/L	0.300	1.00
74-87-3	Chloromethane		57.9	ug/L	0.300	1.00
75-01-4	Vinyl chloride		53.1	ug/L	0.300	1.00
74-83-9	Bromomethane		50.1	ug/L	0.300	1.00
75-00-3	Chloroethane		50.2	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		62.1	ug/L	0.300	1.00
60-29-7	Ethyl ether	B	54.1	ug/L	0.300	1.00
67-64-1	Acetone		354	ug/L	3.00	10.0
75-05-8	Acetonitrile		1330	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		56.7	ug/L	0.300	1.00
74-88-4	Iodomethane		273	ug/L	1.50	5.00
75-09-2	Methylene chloride		46.9	ug/L	3.00	10.0
75-15-0	Carbon disulfide		239	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		55.9	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		54.1	ug/L	0.300	1.00
108-05-4	Vinyl acetate		305	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		52.1	ug/L	0.300	1.00
78-93-3	2-Butanone		381	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		55.9	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		63.4	ug/L	0.300	1.00
67-66-3	Chloroform		56.6	ug/L	0.300	1.00
74-97-5	Bromochloromethane		55.9	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		63.9	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		54.0	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		6690	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		68.8	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		59.6	ug/L	0.300	1.00
71-43-2	Benzene		48.1	ug/L	0.300	1.00
79-01-6	Trichloroethylene		52.8	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.6	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		61.3	ug/L	0.300	1.00
74-95-3	Dibromomethane		54.0	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		286	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		56.7	ug/L	0.300	1.00
108-88-3	Toluene		45.9	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		56.7	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		47.1	ug/L	0.300	1.00
591-78-6	2-Hexanone		362	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778863**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 08:24**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 08:24**				
Data File:	**111312V9\9M203L3.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		44.7	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		50.4	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		61.0	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		52.3	ug/L	0.300	1.00
108-90-7	Chlorobenzene		47.6	ug/L	0.300	1.00
100-41-4	Ethylbenzene		46.4	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		96.6	ug/L	0.300	2.00
95-47-6	o-Xylene		48.0	ug/L	0.300	1.00
100-42-5	Styrene		49.2	ug/L	0.300	1.00
75-25-2	Bromoform		64.0	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		45.4	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		50.7	ug/L	0.300	1.00
108-86-1	Bromobenzene		47.6	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		45.9	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		46.2	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		48.8	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		50.1	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		48.3	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		51.0	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		49.0	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		48.2	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		50.2	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		46.3	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		47.3	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		47.4	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		64.4	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		59.1	ug/L	0.300	1.00
91-20-3	Naphthalene		59.2	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		60.2	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778863**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 08:24**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 08:24**				
Data File:	**111312V9\9M203L3.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		58.0	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		57.6	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		47.6	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	60.3	50.0	ug/L	121	(78%-124%)
Bromofluorobenzene	50.8	50.0	ug/L	102	(80%-120%)
Toluene-d8	48.1	50.0	ug/L	96.2	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778864**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 09:43**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 09:43**				
Data File:	**111312V9\9M206L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778864**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 09:43**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 09:43**				
Data File:	**111312V9\9M206L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein		279	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		302	ug/L	1.50	5.00
107-05-1	Allyl chloride		267	ug/L	1.50	5.00
107-13-1	Acrylonitrile		267	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		65.9	ug/L	0.300	1.00
107-12-0	Propionitrile		278	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		269	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2780	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		239	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778864**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 09:43**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 09:43**				
Data File:	**111312V9\9M206L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		224	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	56.0	50.0	ug/L	112	(78%-124%)
Bromofluorobenzene	49.0	50.0	ug/L	98.0	(80%-120%)
Toluene-d8	46.9	50.0	ug/L	93.8	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780090**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 14:49**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 14:49**				
Data File:	**111512V9\9M411B1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780090**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 14:49**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 14:49**				
Data File:	**111512V9\9M411B1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780090**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 14:49**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 14:49**				
Data File:	**111512V9\9M411B1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	49.7	50.0	ug/L	99.3	(78%-124%)
Bromofluorobenzene	51.4	50.0	ug/L	103	(80%-120%)
Toluene-d8	48.4	50.0	ug/L	96.8	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.286	6.07	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780091**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 11:07**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 11:07**				
Data File:	**111512V9\9M403L1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		41.2	ug/L	0.300	1.00
74-87-3	Chloromethane		40.7	ug/L	0.300	1.00
75-01-4	Vinyl chloride		40.2	ug/L	0.300	1.00
74-83-9	Bromomethane		42.3	ug/L	0.300	1.00
75-00-3	Chloroethane		44.8	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		44.1	ug/L	0.300	1.00
60-29-7	Ethyl ether		46.7	ug/L	0.300	1.00
67-64-1	Acetone		222	ug/L	3.00	10.0
75-05-8	Acetonitrile		1130	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		46.2	ug/L	0.300	1.00
74-88-4	Iodomethane		254	ug/L	1.50	5.00
75-09-2	Methylene chloride		44.5	ug/L	3.00	10.0
75-15-0	Carbon disulfide		230	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		46.7	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		45.7	ug/L	0.300	1.00
108-05-4	Vinyl acetate		242	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		45.2	ug/L	0.300	1.00
78-93-3	2-Butanone		260	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		44.9	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		47.5	ug/L	0.300	1.00
67-66-3	Chloroform		44.1	ug/L	0.300	1.00
74-97-5	Bromochloromethane		49.7	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		48.0	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		46.1	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5280	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		50.6	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		45.4	ug/L	0.300	1.00
71-43-2	Benzene		45.0	ug/L	0.300	1.00
79-01-6	Trichloroethylene		47.5	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		46.7	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		50.7	ug/L	0.300	1.00
74-95-3	Dibromomethane		49.3	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		269	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		51.7	ug/L	0.300	1.00
108-88-3	Toluene		43.8	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		50.8	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		46.2	ug/L	0.300	1.00
591-78-6	2-Hexanone		279	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780091**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 11:07**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 11:07**				
Data File:	**111512V9\9M403L1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		43.8	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		48.5	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		53.1	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		50.5	ug/L	0.300	1.00
108-90-7	Chlorobenzene		45.8	ug/L	0.300	1.00
100-41-4	Ethylbenzene		44.0	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		94.5	ug/L	0.300	2.00
95-47-6	o-Xylene		46.6	ug/L	0.300	1.00
100-42-5	Styrene		49.3	ug/L	0.300	1.00
75-25-2	Bromoform		58.5	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		46.4	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		49.2	ug/L	0.300	1.00
108-86-1	Bromobenzene		47.6	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		43.5	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		46.8	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		45.7	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		45.9	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		44.2	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		48.8	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		45.7	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		45.4	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		46.3	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		47.2	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		46.5	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		45.2	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		58.8	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		50.6	ug/L	0.300	1.00
91-20-3	Naphthalene		49.1	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		48.3	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780091**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 11:07**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 11:07**				
Data File:	**111512V9\9M403L1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		49.0	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		49.6	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		47.0	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.2	50.0	ug/L	96.3	(78%-124%)
Bromofluorobenzene	48.9	50.0	ug/L	97.8	(80%-120%)
Toluene-d8	48.6	50.0	ug/L	97.2	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780092**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 14:23**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 14:23**				
Data File:	**111512V9\9M410L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780092**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 14:23**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 14:23**				
Data File:	**111512V9\9M410L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein		212	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		292	ug/L	1.50	5.00
107-05-1	Allyl chloride		258	ug/L	1.50	5.00
107-13-1	Acrylonitrile		250	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		58.6	ug/L	0.300	1.00
107-12-0	Propionitrile		258	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		242	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2290	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		247	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780092**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 14:23**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 14:23**				
Data File:	**111512V9\9M410L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		243	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	45.3	50.0	ug/L	90.7	(78%-124%)
Bromofluorobenzene	49.5	50.0	ug/L	99.0	(80%-120%)
Toluene-d8	47.1	50.0	ug/L	94.3	(80%-120%)

Miscellaneous

DER Report No.: 1141833
Revision No.:

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
19-NOV-12	Federal	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
VOA GC/MS	SW846 8260B DOE-AL	Liquid	ESHL 314528, 314591
Batch ID:	**Sample Numbers:**		
1262779	1202778863		

Potentially affected work order(s)(SDG): 314528(2013-265),314591(2013-267)

Application Issues:

Failed Recovery for LCS/LCSD

Specification and Requirements Exception Description:	DER Disposition:
1. The LCS 1202778863 did not meet the acceptable recovery criteria for several of the compounds of interest.	1. The unacceptable recoveries were less than 5% of the required analyte list. This satified the client's criteria. The data were narrated and reported.

Originator's Name:

Ramona Yarbrough 19-NOV-12

Data Validator/Group Leader:

Kelle Bellamy 27-NOV-12

Semi-Volatile Analysis

Case Narrative

Semi-Volatile Case Narrative
ARS International (ARSL)
SDG 2013-267

Method/Analysis Information

Procedure:	**Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method:	SW846 8270C
Prep Method:	SW846 3510C
Analytical Batch Number:	1261145
Prep Batch Number:	1261144

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8270C:

Sample ID	Client ID
314591001	CAMO-13-24239
1202774963	Method Blank (MB)
1202774964	314528001(CAMO-13-24279) Matrix Spike (MS)
1202774965	314528001(CAMO-13-24279) Matrix Spike Duplicate (MSD)
1202774966	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 29.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 18.2.

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in

the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

CCV Requirements
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG in this batch met the acceptance criteria.

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria for this SDG in this batch.

Laboratory Control Sample (LCS) Recovery
The LCS(1202774966) recovered Benzidine at 6.32%. The limits are 19%-124%. Benzidine is identified as poor responding analyte in the analytical method (EPA 8270) and is subject to oxidative loss during extraction. This may account for the low recovery of the analyte. The data results have been reported.

QC Sample Designation
Sample 314528001 (CAMO-13-24279) was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The MS(1202774964)/MSD(1202774965) RPD value for Benzidine was outside of the acceptance limits. Please see the QC Summary report for specific failure. Since Benzidine was individually within the acceptance limits for the MS and MSD, the non-conformance had no adverse impact on the data and the results have been reported.

Internal Standard (ISTD) Acceptance
The internal standard responses used to quantitate the requested target analytes were within the required acceptance criteria for the SDG associated samples in this batch.

Technical Information:

Holding Time Specifications
All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

Sample Dilutions
The samples in this SDG in this batch did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG in this analytical batch unless confirmations or dilutions were required.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception report 1138269 was generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

TIC Comment
Tentatively identified compounds (TIC) may be requested for samples in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

Additional Comments
Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

System Configuration

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
MSD3.I	Agilent 7890A/5975C GC/MS w/ 7683 Autosampler	HP7890A/HP5975C	DB-5MS	25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-267 GEL Work Order: 314591

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Barbara Bailey **Name: Barbara Bailey**

Date: 27 NOV 2012 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/02/2012 12:03**	**Matrix:**	**W**
Lab Sample ID:	**314591001**	**Date Received:**	**11/06/2012 09:20**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24239**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 01:00**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**980 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0831.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.2	ug/L	3.06	10.2
110-86-1	Pyridine	U	10.2	ug/L	3.06	10.2
62-53-3	Aniline	U	10.2	ug/L	3.06	10.2
108-95-2	Phenol	U	10.2	ug/L	3.06	10.2
111-44-4	bis(2-Chloroethyl) ether	U	10.2	ug/L	3.06	10.2
95-57-8	2-Chlorophenol	U	10.2	ug/L	3.06	10.2
541-73-1	1,3-Dichlorobenzene	U	10.2	ug/L	3.06	10.2
106-46-7	1,4-Dichlorobenzene	U	10.2	ug/L	3.06	10.2
95-50-1	1,2-Dichlorobenzene	U	10.2	ug/L	3.06	10.2
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.2	ug/L	3.06	10.2
100-51-6	Benzyl alcohol	U	10.2	ug/L	3.06	10.2
95-48-7	o-Cresol	U	10.2	ug/L	3.06	10.2
65794-96-9	m,p-Cresols	U	10.2	ug/L	3.06	10.2
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.2	ug/L	3.06	10.2
67-72-1	Hexachloroethane	U	10.2	ug/L	3.06	10.2
98-95-3	Nitrobenzene	U	10.2	ug/L	3.06	10.2
78-59-1	Isophorone	U	10.2	ug/L	3.06	10.2
88-75-5	2-Nitrophenol	U	10.2	ug/L	3.06	10.2
105-67-9	2,4-Dimethylphenol	U	10.2	ug/L	3.06	10.2
111-91-1	bis(2-Chloroethoxy)methane	U	10.2	ug/L	3.06	10.2
120-83-2	2,4-Dichlorophenol	U	10.2	ug/L	3.06	10.2
65-85-0	Benzoic acid	U	20.4	ug/L	6.12	20.4
106-47-8	4-Chloroaniline	U	10.2	ug/L	3.37	10.2
87-68-3	Hexachlorobutadiene	U	10.2	ug/L	3.06	10.2
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.2	ug/L	3.06	10.2
91-57-6	2-Methylnaphthalene	U	1.02	ug/L	0.306	1.02
91-20-3	Naphthalene	U	1.02	ug/L	0.306	1.02
90-12-0	1-Methylnaphthalene	U	1.02	ug/L	0.306	1.02
77-47-4	Hexachlorocyclopentadiene	U	10.2	ug/L	3.06	10.2
88-06-2	2,4,6-Trichlorophenol	U	10.2	ug/L	3.06	10.2
95-95-4	2,4,5-Trichlorophenol	U	10.2	ug/L	3.06	10.2
91-58-7	2-Chloronaphthalene	U	1.02	ug/L	0.306	1.02
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.2	ug/L	3.06	10.2
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.2	ug/L	3.06	10.2
131-11-3	Dimethylphthalate	U	10.2	ug/L	3.06	10.2
606-20-2	2,6-Dinitrotoluene	U	10.2	ug/L	3.06	10.2

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/02/2012 12:03**	**Matrix:**	**W**
Lab Sample ID:	**314591001**	**Date Received:**	**11/06/2012 09:20**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24239**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 01:00**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**980 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0831.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.2	ug/L	3.06	10.2
208-96-8	Acenaphthylene	U	1.02	ug/L	0.306	1.02
83-32-9	Acenaphthene	U	1.02	ug/L	0.306	1.02
51-28-5	2,4-Dinitrophenol	U	20.4	ug/L	5.10	20.4
132-64-9	Dibenzofuran	U	10.2	ug/L	3.06	10.2
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.2	ug/L	3.06	10.2
84-66-2	Diethylphthalate	U	10.2	ug/L	3.06	10.2
100-02-7	4-Nitrophenol	U	10.2	ug/L	3.06	10.2
86-73-7	Fluorene	U	1.02	ug/L	0.306	1.02
7005-72-3	4-Chlorophenylphenylether	U	10.2	ug/L	3.06	10.2
100-01-6	4-Nitroaniline	U	10.2	ug/L	3.06	10.2
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.2	ug/L	3.06	10.2
122-39-4	Diphenylamine	U	10.2	ug/L	3.06	10.2
122-66-7	Azobenzene	U	10.2	ug/L	3.06	10.2
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.2	ug/L	3.06	10.2
118-74-1	Hexachlorobenzene	U	10.2	ug/L	3.06	10.2
87-86-5	Pentachlorophenol	U	10.2	ug/L	3.06	10.2
88-85-7	Dinoseb	U	10.2	ug/L	3.06	10.2
85-01-8	Phenanthrene	U	1.02	ug/L	0.306	1.02
120-12-7	Anthracene	U	1.02	ug/L	0.306	1.02
84-74-2	Di-n-butylphthalate	U	10.2	ug/L	3.06	10.2
206-44-0	Fluoranthene	U	1.02	ug/L	0.306	1.02
129-00-0	Pyrene	U	1.02	ug/L	0.306	1.02
85-68-7	Butylbenzylphthalate	U	10.2	ug/L	3.06	10.2
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.2	ug/L	3.06	10.2
56-55-3	Benzo(a)anthracene	U	1.02	ug/L	0.306	1.02
218-01-9	Chrysene	U	1.02	ug/L	0.306	1.02
117-84-0	Di-n-octylphthalate	U	10.2	ug/L	3.06	10.2
205-99-2	Benzo(b)fluoranthene	U	1.02	ug/L	0.306	1.02
207-08-9	Benzo(k)fluoranthene	U	1.02	ug/L	0.306	1.02
50-32-8	Benzo(a)pyrene	U	1.02	ug/L	0.449	1.02
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.02	ug/L	0.306	1.02
53-70-3	Dibenzo(a,h)anthracene	U	1.02	ug/L	0.306	1.02
191-24-2	Benzo(ghi)perylene	U	1.02	ug/L	0.306	1.02
123-91-1	1,4-Dioxane	J	9.69	ug/L	3.06	10.2
55-18-5	N-Nitrosodiethylamine	U	10.2	ug/L	3.06	10.2
930-55-2	N-Nitrosopyrrolidine	U	10.2	ug/L	3.06	10.2

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/02/2012 12:03**	**Matrix:**	**W**
Lab Sample ID:	**314591001**	**Date Received:**	**11/06/2012 09:20**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24239**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 01:00**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**980 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0831.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.2	ug/L	3.06	10.2
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.2	ug/L	3.06	10.2
608-93-5	Pentachlorobenzene	U	10.2	ug/L	3.06	10.2
1912-24-9	Atrazine	U	10.2	ug/L	3.06	10.2
92-87-5	Benzidine	U	10.2	ug/L	3.06	10.2
91-94-1	3,3'-Dichlorobenzidine	U	10.2	ug/L	3.06	10.2
120-82-1	1,2,4-Trichlorobenzene	U	10.2	ug/L	3.06	10.2

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	56.1	102	ug/L	54.9	(23%-130%)
2-Fluorobiphenyl	31.4	51.0	ug/L	61.6	(30%-104%)
2-Fluorophenol	44.1	102	ug/L	43.2	(14%-77%)
Nitrobenzene-d5	38.0	51.0	ug/L	74.5	(34%-125%)
Phenol-d5	27.7	102	ug/L	27.1	(10%-78%)
p-Terphenyl-d14	41.1	51.0	ug/L	80.6	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000067-66-3	Trichloromethane	1.9	5.17	ug/L	91	NJ
	unknown	2.068	39.9	ug/L	0	J
	unknown	2.162	10.9	ug/L	0	J
000110-83-8	Cyclohexene	2.196	17.9	ug/L	94	NJ

Quality Control Summary

Semi-Volatile

Surrogate Recovery Report

SDG Number: 2013-267

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1202774963	MB for batch 1261144	56	35	96	80	74	102
1202774966	LCS for batch 1261144	44	27	69	62	64	78
1202774964	CAMO-13-24279MS	64	50	75	62	63	74
1202774965	CAMO-13-24279MSD	62	48	73	64	58	73
314591001	CAMO-13-24239	43	27	75	62	55	81

Surrogate			Acceptance Limits
2FP	=	2-Fluorophenol	(14%-77%)
PHL	=	Phenol-d5	(10%-78%)
NBZ	=	Nitrobenzene-d5	(34%-125%)
FBP	=	2-Fluorobiphenyl	(30%-104%)
TBP	=	2,4,6-Tribromophenol	(23%-130%)
TPH	=	p-Terphenyl-d14	(33%-136%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267** **Sample Type:** **Matrix Spike**

Client ID: **CAMO-13-24279MS** **Matrix:** **W**

Lab Sample ID: **1202774964**

Instrument: **MSD3.I** **Analysis Date:** **11/09/2012 00:10** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1261144**

Inj. Vol: **1 uL** **Batch ID:** **1261145**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	MS	N-Methyl-N-nitrosomethylam	120	0.00	U	81.8	68	27-85
110-86-1	MS	Pyridine	120	0.00	U	85.1	71	21-93
62-53-3	MS	Aniline	120	0.00	U	109	90	28-108
108-95-2	MS	Phenol	120	0.00	U	65.5	54	15-100
111-44-4	MS	bis(2-Chloroethyl) ether	120	0.00	U	94.5	78	27-114
95-57-8	MS	2-Chlorophenol	120	0.00	U	94.0	78	32-103
541-73-1	MS	1,3-Dichlorobenzene	120	0.00	U	81.7	68	23-84
106-46-7	MS	1,4-Dichlorobenzene	120	0.00	U	81.1	67	23-88
95-50-1	MS	1,2-Dichlorobenzene	120	0.00	U	82.0	68	24-86
39638-32-9	MS	bis(2-Chloroisopropyl)ether	120	0.00	U	89.7	74	19-122
100-51-6	MS	Benzyl alcohol	120	0.00	U	92.1	76	34-98
95-48-7	MS	o-Cresol	120	0.00	U	93.2	77	29-96
65794-96-9	MS	m,p-Cresols	120	0.00	U	116	96	26-111
621-64-7	MS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	120	0.00	U	98.1	81	32-115
67-72-1	MS	Hexachloroethane	120	0.00	U	79.1	66	25-82
98-95-3	MS	Nitrobenzene	120	0.00	U	98.2	82	35-124
78-59-1	MS	Isophorone	120	0.00	U	101	84	37-140
88-75-5	MS	2-Nitrophenol	120	0.00	U	97.3	81	33-115
105-67-9	MS	2,4-Dimethylphenol	120	0.00	U	84.8	70	31-106
111-91-1	MS	bis(2-Chloroethoxy)methane	120	0.00	U	91.0	76	35-112
120-83-2	MS	2,4-Dichlorophenol	120	0.00	U	96.3	80	36-110
65-85-0	MS	Benzoic acid	241	0.00	U	147	61	12-108

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **CAMO-13-24279MS**
Lab Sample ID: **1202774964**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/09/2012 00:10**
Prep Batch ID: **1261144**
Batch ID: **1261145**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS	4-Chloroaniline	120	0.00	U	93.3	77	33-120
87-68-3	MS	Hexachlorobutadiene	120	0.00	U	90.8	75	19-96
59-50-7	MS	Parachlorometa cresol *4-Chloro-3-methylphenol*	120	0.00	U	96.4	80	36-116
91-57-6	MS	2-Methylnaphthalene	120	0.00	U	75.9	63	27-103
91-20-3	MS	Naphthalene	120	0.00	U	78.8	65	28-99
90-12-0	MS	1-Methylnaphthalene	120	0.00	U	80.5	67	29-107
77-47-4	MS	Hexachlorocyclopentadiene	120	0.00	U	55.1	46	25-75
88-06-2	MS	2,4,6-Trichlorophenol	120	0.00	U	94.3	78	36-111
95-95-4	MS	2,4,5-Trichlorophenol	120	0.00	U	94.6	79	34-115
91-58-7	MS	2-Chloronaphthalene	120	0.00	U	79.3	66	33-96
88-74-4	MS	2-Nitroaniline *o-Nitroaniline*	120	0.00	U	89.5	74	31-120
99-09-2	MS	3-Nitroaniline *m-Nitroaniline*	120	0.00	U	87.4	73	32-123
131-11-3	MS	Dimethylphthalate	120	0.00	U	103	85	43-115
606-20-2	MS	2,6-Dinitrotoluene	120	0.00	U	96.8	80	42-121
121-14-2	MS	2,4-Dinitrotoluene	120	0.00	U	97.6	81	37-125
208-96-8	MS	Acenaphthylene	120	0.00	U	80.6	67	34-103
83-32-9	MS	Acenaphthene	120	0.00	U	80.1	67	31-104
51-28-5	MS	2,4-Dinitrophenol	120	0.00	U	93.2	77	25-108
132-64-9	MS	Dibenzofuran	120	0.00	U	89.5	74	38-106
58-90-2	MS	2,3,4,6-Tetrachlorophenol	120	0.00	U	96.3	80	33-123
84-66-2	MS	Diethylphthalate	120	0.00	U	98.4	82	43-116
100-02-7	MS	4-Nitrophenol	120	0.00	U	53.3	44	26-72

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267** **Sample Type:** **Matrix Spike**

Client ID: **CAMO-13-24279MS** **Matrix:** **W**

Lab Sample ID: **1202774964**

Instrument: **MSD3.I** **Analysis Date:** **11/09/2012 00:10** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1261144**

Inj. Vol: **1 uL** **Batch ID:** **1261145**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	120	0.00	U	86.3	72	33-110
7005-72-3	MS	4-Chlorophenylphenylether	120	0.00	U	95.4	79	30-112
100-01-6	MS	4-Nitroaniline *p-Nitroaniline*	120	0.00	U	87.6	73	28-131
534-52-1	MS	2-Methyl-4,6-dinitrophenol	120	0.00	U	102	85	31-113
122-39-4	MS	Diphenylamine	120	0.00	U	86.8	72	36-110
122-66-7	MS	Azobenzene *1,2-Diphenylhydrazine*	120	0.00	U	91.1	76	33-110
101-55-3	MS	4-Bromophenylphenylether	120	0.00	U	99.9	83	33-111
118-74-1	MS	Hexachlorobenzene	120	0.00	U	86.4	72	36-113
87-86-5	MS	Pentachlorophenol	120	0.00	U	75.6	63	25-110
85-01-8	MS	Phenanthrene	120	0.00	U	88.5	73	36-111
120-12-7	MS	Anthracene	120	0.00	U	85.5	71	36-107
84-74-2	MS	Di-n-butylphthalate	120	0.00	U	94.5	78	38-116
206-44-0	MS	Fluoranthene	120	0.00	U	84.9	70	35-116
129-00-0	MS	Pyrene	120	0.00	U	106	88	28-126
85-68-7	MS	Butylbenzylphthalate	120	0.00	U	101	84	32-120
117-81-7	MS	bis(2-Ethylhexyl)phthalate	120	0.00	U	98.7	82	30-121
56-55-3	MS	Benzo(a)anthracene	120	0.00	U	96.7	80	38-110
218-01-9	MS	Chrysene	120	0.00	U	95.3	79	35-115
117-84-0	MS	Di-n-octylphthalate	120	0.00	U	86.4	72	30-115
205-99-2	MS	Benzo(b)fluoranthene	120	0.00	U	96.9	80	37-115
207-08-9	MS	Benzo(k)fluoranthene	120	0.00	U	96.3	80	36-118
50-32-8	MS	Benzo(a)pyrene	120	0.00	U	92.3	77	36-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **CAMO-13-24279MS**
Lab Sample ID: **1202774964**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/09/2012 00:10**
Prep Batch ID: **1261144**
Batch ID: **1261145**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	MS	Indeno(1,2,3-cd)pyrene	120	0.00	U	108	90	28-121
53-70-3	MS	Dibenzo(a,h)anthracene	120	0.00	U	113	94	26-124
191-24-2	MS	Benzo(ghi)perylene	120	0.00	U	106	88	25-122
123-91-1	MS	1,4-Dioxane	120	0.00	U	79.5	66	26-90
930-55-2	MS	N-Nitrosopyrrolidine	120	0.00	U	102	85	40-113
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	120	0.00	U	76.7	64	32-94
1912-24-9	MS	Atrazine	120	0.00	U	67.3	56	36-119
92-87-5	MS	Benzidine	241	0.00	U	120	50	10-125
91-94-1	MS	3,3'-Dichlorobenzidine	120	0.00	U	87.4	73	27-109
120-82-1	MS	1,2,4-Trichlorobenzene	120	0.00	U	80.1	66	23-90

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24279MSD** **Matrix:** **W**

Lab Sample ID: **1202774965**

Instrument: **MSD3.I** **Analysis Date:** **11/09/2012 00:35** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1261144**

Inj. Vol: **1 uL** **Batch ID:** **1261145**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
62-75-9	MSD	N-Methyl-N-nitrosomethylam	120	0.00	U	78.5	65	27-85	4	0-30
110-86-1	MSD	Pyridine	120	0.00	U	82.7	69	21-93	3	0-30
62-53-3	MSD	Aniline	120	0.00	U	104	86	28-108	5	0-30
108-95-2	MSD	Phenol	120	0.00	U	63.2	52	15-100	4	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	120	0.00	U	91.4	76	27-114	3	0-30
95-57-8	MSD	2-Chlorophenol	120	0.00	U	90.1	75	32-103	4	0-30
541-73-1	MSD	1,3-Dichlorobenzene	120	0.00	U	76.2	63	23-84	7	0-30
106-46-7	MSD	1,4-Dichlorobenzene	120	0.00	U	75.9	63	23-88	7	0-30
95-50-1	MSD	1,2-Dichlorobenzene	120	0.00	U	77.1	64	24-86	6	0-30
39638-32-9	MSD	bis(2-Chloroisopropyl)ether	120	0.00	U	87.1	72	19-122	3	0-30
100-51-6	MSD	Benzyl alcohol	120	0.00	U	88.7	74	34-98	4	0-30
95-48-7	MSD	o-Cresol	120	0.00	U	89.4	74	29-96	4	0-30
65794-96-9	MSD	m,p-Cresols	120	0.00	U	111	92	26-111	5	0-30
621-64-7	MSD	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	120	0.00	U	95.1	79	32-115	3	0-30
67-72-1	MSD	Hexachloroethane	120	0.00	U	72.5	60	25-82	9	0-30
98-95-3	MSD	Nitrobenzene	120	0.00	U	95.7	79	35-124	3	0-30
78-59-1	MSD	Isophorone	120	0.00	U	98.4	82	37-140	3	0-30
88-75-5	MSD	2-Nitrophenol	120	0.00	U	94.5	78	33-115	3	0-30
105-67-9	MSD	2,4-Dimethylphenol	120	0.00	U	83.1	69	31-106	2	0-30
111-91-1	MSD	bis(2-Chloroethoxy)methane	120	0.00	U	89.3	74	35-112	2	0-30
120-83-2	MSD	2,4-Dichlorophenol	120	0.00	U	92.1	76	36-110	4	0-30
65-85-0	MSD	Benzoic acid	241	0.00	U	134	55	12-108	10	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **CAMO-13-24279MSD**
Lab Sample ID: **1202774965**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/09/2012 00:35**
Prep Batch ID: **1261144**
Batch ID: **1261145**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
106-47-8	MSD	4-Chloroaniline	120	0.00	U	92.4	77	33-120	1	0-30
87-68-3	MSD	Hexachlorobutadiene	120	0.00	U	86.5	72	19-96	5	0-30
59-50-7	MSD	Parachlorometa cresol *4-Chloro-3-methylphenol*	120	0.00	U	93.2	77	36-116	3	0-30
91-57-6	MSD	2-Methylnaphthalene	120	0.00	U	73.9	61	27-103	3	0-30
91-20-3	MSD	Naphthalene	120	0.00	U	76.5	63	28-99	3	0-30
90-12-0	MSD	1-Methylnaphthalene	120	0.00	U	78.2	65	29-107	3	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	120	0.00	U	45.7	38	25-75	19	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	120	0.00	U	91.1	76	36-111	3	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	120	0.00	U	91.5	76	34-115	3	0-30
91-58-7	MSD	2-Chloronaphthalene	120	0.00	U	77.1	64	33-96	3	0-30
88-74-4	MSD	2-Nitroaniline *o-Nitroaniline*	120	0.00	U	84.0	70	31-120	6	0-30
99-09-2	MSD	3-Nitroaniline *m-Nitroaniline*	120	0.00	U	78.9	66	32-123	10	0-30
131-11-3	MSD	Dimethylphthalate	120	0.00	U	98.4	82	43-115	4	0-30
606-20-2	MSD	2,6-Dinitrotoluene	120	0.00	U	93.9	78	42-121	3	0-30
121-14-2	MSD	2,4-Dinitrotoluene	120	0.00	U	91.5	76	37-125	6	0-30
208-96-8	MSD	Acenaphthylene	120	0.00	U	78.2	65	34-103	3	0-30
83-32-9	MSD	Acenaphthene	120	0.00	U	76.9	64	31-104	4	0-30
51-28-5	MSD	2,4-Dinitrophenol	120	0.00	U	71.4	59	25-108	26	0-30
132-64-9	MSD	Dibenzofuran	120	0.00	U	86.5	72	38-106	3	0-30
58-90-2	MSD	2,3,4,6-Tetrachlorophenol	120	0.00	U	90.2	75	33-123	6	0-30
84-66-2	MSD	Diethylphthalate	120	0.00	U	95.2	79	43-116	3	0-30
100-02-7	MSD	4-Nitrophenol	120	0.00	U	44.4	37	26-72	18	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24279MSD** **Matrix:** **W**

Lab Sample ID: **1202774965**

Instrument: **MSD3.I** **Analysis Date:** **11/09/2012 00:35** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1261144**

Inj. Vol: **1 uL** **Batch ID:** **1261145**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
86-73-7	MSD	Fluorene	120	0.00	U	83.3	69	33-110	4	0-30
7005-72-3	MSD	4-Chlorophenylphenylether	120	0.00	U	93.0	77	30-112	3	0-30
100-01-6	MSD	4-Nitroaniline *p-Nitroaniline*	120	0.00	U	72.4	60	28-131	19	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	120	0.00	U	89.8	75	31-113	13	0-30
122-39-4	MSD	Diphenylamine	120	0.00	U	86.9	72	36-110	0	0-30
122-66-7	MSD	Azobenzene *1,2-Diphenylhydrazine*	120	0.00	U	91.4	76	33-110	0	0-30
101-55-3	MSD	4-Bromophenylphenylether	120	0.00	U	101	83	33-111	1	0-30
118-74-1	MSD	Hexachlorobenzene	120	0.00	U	87.7	73	36-113	1	0-30
87-86-5	MSD	Pentachlorophenol	120	0.00	U	67.6	56	25-110	11	0-30
85-01-8	MSD	Phenanthrene	120	0.00	U	86.2	72	36-111	3	0-30
120-12-7	MSD	Anthracene	120	0.00	U	82.5	69	36-107	4	0-30
84-74-2	MSD	Di-n-butylphthalate	120	0.00	U	95.1	79	38-116	1	0-30
206-44-0	MSD	Fluoranthene	120	0.00	U	79.4	66	35-116	7	0-30
129-00-0	MSD	Pyrene	120	0.00	U	104	86	28-126	2	0-30
85-68-7	MSD	Butylbenzylphthalate	120	0.00	U	100	83	32-120	1	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	120	0.00	U	97.0	81	30-121	2	0-30
56-55-3	MSD	Benzo(a)anthracene	120	0.00	U	91.5	76	38-110	6	0-30
218-01-9	MSD	Chrysene	120	0.00	U	89.1	74	35-115	7	0-30
117-84-0	MSD	Di-n-octylphthalate	120	0.00	U	82.4	68	30-115	5	0-30
205-99-2	MSD	Benzo(b)fluoranthene	120	0.00	U	93.5	78	37-115	4	0-30
207-08-9	MSD	Benzo(k)fluoranthene	120	0.00	U	95.5	79	36-118	1	0-30
50-32-8	MSD	Benzo(a)pyrene	120	0.00	U	87.4	73	36-109	5	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **CAMO-13-24279MSD**
Lab Sample ID: **1202774965**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/09/2012 00:35**
Prep Batch ID: **1261144**
Batch ID: **1261145**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
193-39-5	MSD	Indeno(1,2,3-cd)pyrene	120	0.00	U	86.8	72	28-121	22	0-30
53-70-3	MSD	Dibenzo(a,h)anthracene	120	0.00	U	90.1	75	26-124	22	0-30
191-24-2	MSD	Benzo(ghi)perylene	120	0.00	U	84.9	70	25-122	22	0-30
123-91-1	MSD	1,4-Dioxane	120	0.00	U	77.7	65	26-90	2	0-30
930-55-2	MSD	N-Nitrosopyrrolidine	120	0.00	U	98.7	82	40-113	3	0-30
95-94-3	MSD	1,2,4,5-Tetrachlorobenzene	120	0.00	U	74.7	62	32-94	3	0-30
1912-24-9	MSD	Atrazine	120	0.00	U	68.2	57	36-119	1	0-30
92-87-5	MSD	Benzidine	241	0.00	U	51.7	21	10-125	80 *	0-30
91-94-1	MSD	3,3'-Dichlorobenzidine	120	0.00	U	77.4	64	27-109	12	0-30
120-82-1	MSD	1,2,4-Trichlorobenzene	120	0.00	U	76.3	63	23-90	5	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **LCS for batch 1261144**
Lab Sample ID: **1202774966**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/08/2012 22:31**
Prep Batch ID: **1261144**
Batch ID: **1261145**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	LCS	N-Methyl-N-nitrosomethylam	50.0	0.0	24.4	49	29-86
110-86-1	LCS	Pyridine	50.0	0.0	15.6	31	25-96
62-53-3	LCS	Aniline	50.0	0.0	37.4	75	38-105
108-95-2	LCS	Phenol	50.0	0.0	14.3	29	13-137
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	34.8	70	37-110
95-57-8	LCS	2-Chlorophenol	50.0	0.0	35.0	70	41-98
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	29.7	59	33-86
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	29.8	60	33-87
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	30.2	60	34-86
39638-32-9	LCS	bis(2-Chloroisopropyl)ether	50.0	0.0	33.5	67	30-118
100-51-6	LCS	Benzyl alcohol	50.0	0.0	31.4	63	39-88
95-48-7	LCS	o-Cresol	50.0	0.0	31.2	62	37-89
65794-96-9	LCS	m,p-Cresols	50.0	0.0	35.8	72	33-99
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	35.8	72	40-112
67-72-1	LCS	Hexachloroethane	50.0	0.0	28.5	57	31-87
98-95-3	LCS	Nitrobenzene	50.0	0.0	36.7	73	42-118
78-59-1	LCS	Isophorone	50.0	0.0	38.4	77	50-132
88-75-5	LCS	2-Nitrophenol	50.0	0.0	36.4	73	45-109
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	29.2	58	44-98
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	34.0	68	45-109
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	36.0	72	46-106
65-85-0	LCS	Benzoic acid	100	0.0	34.2	34	4-134

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **LCS for batch 1261144**
Lab Sample ID: **1202774966**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/08/2012 22:31**
Prep Batch ID: **1261144**
Batch ID: **1261145**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	LCS	4-Chloroaniline	50.0	0.0	38.3	77	50-122
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	35.6	71	29-94
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	37.3	75	47-110
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	32.0	64	37-100
91-20-3	LCS	Naphthalene	50.0	0.0	31.9	64	35-97
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	33.6	67	38-105
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	23.3	47	38-79
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	37.5	75	43-108
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	38.7	77	43-110
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	33.6	67	40-96
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	37.0	74	45-116
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	37.0	74	46-123
131-11-3	LCS	Dimethylphthalate	50.0	0.0	42.7	85	53-111
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	39.9	80	52-117
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	40.6	81	46-124
208-96-8	LCS	Acenaphthylene	50.0	0.0	33.7	67	42-105
83-32-9	LCS	Acenaphthene	50.0	0.0	33.6	67	42-103
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	37.3	75	33-105
132-64-9	LCS	Dibenzofuran	50.0	0.0	37.7	75	46-106
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	39.5	79	46-119
84-66-2	LCS	Diethylphthalate	50.0	0.0	40.9	82	52-115
100-02-7	LCS	4-Nitrophenol	50.0	0.0	7.09	14	12-130

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **LCS for batch 1261144**
Lab Sample ID: **1202774966**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/08/2012 22:31**
Prep Batch ID: **1261144**
Batch ID: **1261145**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	LCS	Fluorene	50.0	0.0	35.9	72	44-110
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	40.1	80	41-113
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	36.1	72	39-132
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	43.1	86	39-111
122-39-4	LCS	Diphenylamine	50.0	0.0	37.7	75	47-111
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	39.0	78	41-111
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	42.8	86	42-113
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	36.9	74	44-115
87-86-5	LCS	Pentachlorophenol	50.0	0.0	32.0	64	36-99
85-01-8	LCS	Phenanthrene	50.0	0.0	37.9	76	47-111
120-12-7	LCS	Anthracene	50.0	0.0	36.4	73	46-109
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	39.6	79	49-115
206-44-0	LCS	Fluoranthene	50.0	0.0	35.7	71	45-118
129-00-0	LCS	Pyrene	50.0	0.0	47.7	95	39-126
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	44.6	89	41-121
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	42.2	84	38-124
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	40.4	81	49-110
218-01-9	LCS	Chrysene	50.0	0.0	39.6	79	45-117
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	35.3	71	34-121
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	42.2	84	47-116
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	44.2	88	47-119
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	39.8	80	48-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-267**
Client ID: **LCS for batch 1261144**
Lab Sample ID: **1202774966**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/08/2012 22:31**
Prep Batch ID: **1261144**
Batch ID: **1261145**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	LCS	Indeno(1,2,3-cd)pyrene	50.0	0.0	37.5	75	38-124
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	38.8	78	38-124
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	36.2	72	36-124
123-91-1	LCS	1,4-Dioxane	50.0	0.0	24.2	48	41-69
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	37.1	74	42-105
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	33.2	66	40-93
1912-24-9	LCS	Atrazine	50.0	0.0	29.1	58	47-115
92-87-5	LCS	Benzidine	100	0.0	6.32	6 *	19-124
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	32.2	64	36-111
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	32.5	65	32-92

Method Blank Summary

SDG Number:	**2013-267**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1261144**	**Instrument ID:**	**MSD3.I**	**Data File:**	**S110812a.B\s3k0824.D**
Lab Sample ID:	**1202774963**	**Prep Date:**	**11/08/2012 07:25**	**Analyzed:**	**11/08/12 22:06**
Column:	**DB-5ms**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1261144	1202774966	S110812a.B\s3k0825.D	11/08/12	2231
02 CAMO-13-24279MS	1202774964	S110812a.B\s3k0829.D	11/09/12	0010
03 CAMO-13-24279MSD	1202774965	S110812a.B\s3k0830.D	11/09/12	0035
04 CAMO-13-24239	314591001	S110812a.B\s3k0831.D	11/09/12	0100

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202774963**				
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1261144**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/08/2012 22:06**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0824.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
62-53-3	Aniline	U	10.0	ug/L	3.00	10.0
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
78-59-1	Isophorone	U	10.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
65-85-0	Benzoic acid	U	20.0	ug/L	6.00	20.0
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene	U	10.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	10.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202774963**				
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1261144**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/08/2012 22:06**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0824.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline	U	10.0	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene	U	10.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.0	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202774963**				
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1261144**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/08/2012 22:06**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0824.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	73.9	100	ug/L	73.9	(23%-130%)
2-Fluorobiphenyl	39.8	50.0	ug/L	79.7	(30%-104%)
2-Fluorophenol	55.7	100	ug/L	55.7	(14%-77%)
Nitrobenzene-d5	47.8	50.0	ug/L	95.7	(34%-125%)
Phenol-d5	34.5	100	ug/L	34.5	(10%-78%)
p-Terphenyl-d14	51.0	50.0	ug/L	102	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000067-66-3	Trichloromethane	1.895	7.24	ug/L	92	NJ
	unknown	2.068	63.7	ug/L	0	J
	unknown	2.105	6.46	ug/L	0	J
	unknown	2.159	22.1	ug/L	0	J
000110-83-8	Cyclohexene	2.193	26.5	ug/L	95	NJ
	unknown	2.972	5.24	ug/L	0	J

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202774964**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 00:10**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**415 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0829.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		81.8	ug/L	7.23	24.1
110-86-1	Pyridine		85.1	ug/L	7.23	24.1
62-53-3	Aniline		109	ug/L	7.23	24.1
108-95-2	Phenol		65.5	ug/L	7.23	24.1
111-44-4	bis(2-Chloroethyl) ether		94.5	ug/L	7.23	24.1
95-57-8	2-Chlorophenol		94.0	ug/L	7.23	24.1
541-73-1	1,3-Dichlorobenzene		81.7	ug/L	7.23	24.1
106-46-7	1,4-Dichlorobenzene		81.1	ug/L	7.23	24.1
95-50-1	1,2-Dichlorobenzene		82.0	ug/L	7.23	24.1
39638-32-9	bis(2-Chloroisopropyl)ether		89.7	ug/L	7.23	24.1
100-51-6	Benzyl alcohol		92.1	ug/L	7.23	24.1
95-48-7	o-Cresol		93.2	ug/L	7.23	24.1
65794-96-9	m,p-Cresols		116	ug/L	7.23	24.1
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		98.1	ug/L	7.23	24.1
67-72-1	Hexachloroethane		79.1	ug/L	7.23	24.1
98-95-3	Nitrobenzene		98.2	ug/L	7.23	24.1
78-59-1	Isophorone		101	ug/L	7.23	24.1
88-75-5	2-Nitrophenol		97.3	ug/L	7.23	24.1
105-67-9	2,4-Dimethylphenol		84.8	ug/L	7.23	24.1
111-91-1	bis(2-Chloroethoxy)methane		91.0	ug/L	7.23	24.1
120-83-2	2,4-Dichlorophenol		96.3	ug/L	7.23	24.1
65-85-0	Benzoic acid		147	ug/L	14.5	48.2
106-47-8	4-Chloroaniline		93.3	ug/L	7.95	24.1
87-68-3	Hexachlorobutadiene		90.8	ug/L	7.23	24.1
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		96.4	ug/L	7.23	24.1
91-57-6	2-Methylnaphthalene		75.9	ug/L	0.723	2.41
91-20-3	Naphthalene		78.8	ug/L	0.723	2.41
90-12-0	1-Methylnaphthalene		80.5	ug/L	0.723	2.41
77-47-4	Hexachlorocyclopentadiene		55.1	ug/L	7.23	24.1
88-06-2	2,4,6-Trichlorophenol		94.3	ug/L	7.23	24.1
95-95-4	2,4,5-Trichlorophenol		94.6	ug/L	7.23	24.1
91-58-7	2-Chloronaphthalene		79.3	ug/L	0.723	2.41
88-74-4	2-Nitroaniline *o-Nitroaniline*		89.5	ug/L	7.23	24.1
99-09-2	3-Nitroaniline *m-Nitroaniline*		87.4	ug/L	7.23	24.1
131-11-3	Dimethylphthalate		103	ug/L	7.23	24.1
606-20-2	2,6-Dinitrotoluene		96.8	ug/L	7.23	24.1

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202774964**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 00:10**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**415 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0829.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		97.6	ug/L	7.23	24.1
208-96-8	Acenaphthylene		80.6	ug/L	0.723	2.41
83-32-9	Acenaphthene		80.1	ug/L	0.723	2.41
51-28-5	2,4-Dinitrophenol		93.2	ug/L	12.0	48.2
132-64-9	Dibenzofuran		89.5	ug/L	7.23	24.1
58-90-2	2,3,4,6-Tetrachlorophenol		96.3	ug/L	7.23	24.1
84-66-2	Diethylphthalate		98.4	ug/L	7.23	24.1
100-02-7	4-Nitrophenol		53.3	ug/L	7.23	24.1
86-73-7	Fluorene		86.3	ug/L	0.723	2.41
7005-72-3	4-Chlorophenylphenylether		95.4	ug/L	7.23	24.1
100-01-6	4-Nitroaniline		87.6	ug/L	7.23	24.1
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		102	ug/L	7.23	24.1
122-39-4	Diphenylamine		86.8	ug/L	7.23	24.1
122-66-7	Azobenzene		91.1	ug/L	7.23	24.1
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		99.9	ug/L	7.23	24.1
118-74-1	Hexachlorobenzene		86.4	ug/L	7.23	24.1
87-86-5	Pentachlorophenol		75.6	ug/L	7.23	24.1
88-85-7	Dinoseb	U	24.1	ug/L	7.23	24.1
85-01-8	Phenanthrene		88.5	ug/L	0.723	2.41
120-12-7	Anthracene		85.5	ug/L	0.723	2.41
84-74-2	Di-n-butylphthalate		94.5	ug/L	7.23	24.1
206-44-0	Fluoranthene		84.9	ug/L	0.723	2.41
129-00-0	Pyrene		106	ug/L	0.723	2.41
85-68-7	Butylbenzylphthalate		101	ug/L	7.23	24.1
117-81-7	bis(2-Ethylhexyl)phthalate		98.7	ug/L	7.23	24.1
56-55-3	Benzo(a)anthracene		96.7	ug/L	0.723	2.41
218-01-9	Chrysene		95.3	ug/L	0.723	2.41
117-84-0	Di-n-octylphthalate		86.4	ug/L	7.23	24.1
205-99-2	Benzo(b)fluoranthene		96.9	ug/L	0.723	2.41
207-08-9	Benzo(k)fluoranthene		96.3	ug/L	0.723	2.41
50-32-8	Benzo(a)pyrene		92.3	ug/L	1.06	2.41
193-39-5	Indeno(1,2,3-cd)pyrene		108	ug/L	0.723	2.41
53-70-3	Dibenzo(a,h)anthracene		113	ug/L	0.723	2.41
191-24-2	Benzo(ghi)perylene		106	ug/L	0.723	2.41
123-91-1	1,4-Dioxane		79.5	ug/L	7.23	24.1
55-18-5	N-Nitrosodiethylamine	U	24.1	ug/L	7.23	24.1
930-55-2	N-Nitrosopyrrolidine		102	ug/L	7.23	24.1

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202774964**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 00:10**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**415 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0829.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	24.1	ug/L	7.23	24.1
95-94-3	1,2,4,5-Tetrachlorobenzene		76.7	ug/L	7.23	24.1
608-93-5	Pentachlorobenzene	U	24.1	ug/L	7.23	24.1
1912-24-9	Atrazine		67.3	ug/L	7.23	24.1
92-87-5	Benzidine		120	ug/L	7.23	24.1
91-94-1	3,3'-Dichlorobenzidine		87.4	ug/L	7.23	24.1
120-82-1	1,2,4-Trichlorobenzene		80.1	ug/L	7.23	24.1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	152	241	ug/L	63.1	(23%-130%)
2-Fluorobiphenyl	74.9	120	ug/L	62.2	(30%-104%)
2-Fluorophenol	154	241	ug/L	63.8	(14%-77%)
Nitrobenzene-d5	90.7	120	ug/L	75.3	(34%-125%)
Phenol-d5	121	241	ug/L	50.0	(10%-78%)
p-Terphenyl-d14	88.8	120	ug/L	73.7	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202774965**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 00:35**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**415 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0830.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		78.5	ug/L	7.23	24.1
110-86-1	Pyridine		82.7	ug/L	7.23	24.1
62-53-3	Aniline		104	ug/L	7.23	24.1
108-95-2	Phenol		63.2	ug/L	7.23	24.1
111-44-4	bis(2-Chloroethyl) ether		91.4	ug/L	7.23	24.1
95-57-8	2-Chlorophenol		90.1	ug/L	7.23	24.1
541-73-1	1,3-Dichlorobenzene		76.2	ug/L	7.23	24.1
106-46-7	1,4-Dichlorobenzene		75.9	ug/L	7.23	24.1
95-50-1	1,2-Dichlorobenzene		77.1	ug/L	7.23	24.1
39638-32-9	bis(2-Chloroisopropyl)ether		87.1	ug/L	7.23	24.1
100-51-6	Benzyl alcohol		88.7	ug/L	7.23	24.1
95-48-7	o-Cresol		89.4	ug/L	7.23	24.1
65794-96-9	m,p-Cresols		111	ug/L	7.23	24.1
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		95.1	ug/L	7.23	24.1
67-72-1	Hexachloroethane		72.5	ug/L	7.23	24.1
98-95-3	Nitrobenzene		95.7	ug/L	7.23	24.1
78-59-1	Isophorone		98.4	ug/L	7.23	24.1
88-75-5	2-Nitrophenol		94.5	ug/L	7.23	24.1
105-67-9	2,4-Dimethylphenol		83.1	ug/L	7.23	24.1
111-91-1	bis(2-Chloroethoxy)methane		89.3	ug/L	7.23	24.1
120-83-2	2,4-Dichlorophenol		92.1	ug/L	7.23	24.1
65-85-0	Benzoic acid		134	ug/L	14.5	48.2
106-47-8	4-Chloroaniline		92.4	ug/L	7.95	24.1
87-68-3	Hexachlorobutadiene		86.5	ug/L	7.23	24.1
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		93.2	ug/L	7.23	24.1
91-57-6	2-Methylnaphthalene		73.9	ug/L	0.723	2.41
91-20-3	Naphthalene		76.5	ug/L	0.723	2.41
90-12-0	1-Methylnaphthalene		78.2	ug/L	0.723	2.41
77-47-4	Hexachlorocyclopentadiene		45.7	ug/L	7.23	24.1
88-06-2	2,4,6-Trichlorophenol		91.1	ug/L	7.23	24.1
95-95-4	2,4,5-Trichlorophenol		91.5	ug/L	7.23	24.1
91-58-7	2-Chloronaphthalene		77.1	ug/L	0.723	2.41
88-74-4	2-Nitroaniline *o-Nitroaniline*		84.0	ug/L	7.23	24.1
99-09-2	3-Nitroaniline *m-Nitroaniline*		78.9	ug/L	7.23	24.1
131-11-3	Dimethylphthalate		98.4	ug/L	7.23	24.1
606-20-2	2,6-Dinitrotoluene		93.9	ug/L	7.23	24.1

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202774965**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 00:35**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**415 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0830.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		91.5	ug/L	7.23	24.1
208-96-8	Acenaphthylene		78.2	ug/L	0.723	2.41
83-32-9	Acenaphthene		76.9	ug/L	0.723	2.41
51-28-5	2,4-Dinitrophenol		71.4	ug/L	12.0	48.2
132-64-9	Dibenzofuran		86.5	ug/L	7.23	24.1
58-90-2	2,3,4,6-Tetrachlorophenol		90.2	ug/L	7.23	24.1
84-66-2	Diethylphthalate		95.2	ug/L	7.23	24.1
100-02-7	4-Nitrophenol		44.4	ug/L	7.23	24.1
86-73-7	Fluorene		83.3	ug/L	0.723	2.41
7005-72-3	4-Chlorophenylphenylether		93.0	ug/L	7.23	24.1
100-01-6	4-Nitroaniline		72.4	ug/L	7.23	24.1
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		89.8	ug/L	7.23	24.1
122-39-4	Diphenylamine		86.9	ug/L	7.23	24.1
122-66-7	Azobenzene		91.4	ug/L	7.23	24.1
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		101	ug/L	7.23	24.1
118-74-1	Hexachlorobenzene		87.7	ug/L	7.23	24.1
87-86-5	Pentachlorophenol		67.6	ug/L	7.23	24.1
88-85-7	Dinoseb	U	24.1	ug/L	7.23	24.1
85-01-8	Phenanthrene		86.2	ug/L	0.723	2.41
120-12-7	Anthracene		82.5	ug/L	0.723	2.41
84-74-2	Di-n-butylphthalate		95.1	ug/L	7.23	24.1
206-44-0	Fluoranthene		79.4	ug/L	0.723	2.41
129-00-0	Pyrene		104	ug/L	0.723	2.41
85-68-7	Butylbenzylphthalate		100	ug/L	7.23	24.1
117-81-7	bis(2-Ethylhexyl)phthalate		97.0	ug/L	7.23	24.1
56-55-3	Benzo(a)anthracene		91.5	ug/L	0.723	2.41
218-01-9	Chrysene		89.1	ug/L	0.723	2.41
117-84-0	Di-n-octylphthalate		82.4	ug/L	7.23	24.1
205-99-2	Benzo(b)fluoranthene		93.5	ug/L	0.723	2.41
207-08-9	Benzo(k)fluoranthene		95.5	ug/L	0.723	2.41
50-32-8	Benzo(a)pyrene		87.4	ug/L	1.06	2.41
193-39-5	Indeno(1,2,3-cd)pyrene		86.8	ug/L	0.723	2.41
53-70-3	Dibenzo(a,h)anthracene		90.1	ug/L	0.723	2.41
191-24-2	Benzo(ghi)perylene		84.9	ug/L	0.723	2.41
123-91-1	1,4-Dioxane		77.7	ug/L	7.23	24.1
55-18-5	N-Nitrosodiethylamine	U	24.1	ug/L	7.23	24.1
930-55-2	N-Nitrosopyrrolidine		98.7	ug/L	7.23	24.1

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202774965**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 00:35**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**415 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0830.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	24.1	ug/L	7.23	24.1
95-94-3	1,2,4,5-Tetrachlorobenzene		74.7	ug/L	7.23	24.1
608-93-5	Pentachlorobenzene	U	24.1	ug/L	7.23	24.1
1912-24-9	Atrazine		68.2	ug/L	7.23	24.1
92-87-5	Benzidine		51.7	ug/L	7.23	24.1
91-94-1	3,3'-Dichlorobenzidine		77.4	ug/L	7.23	24.1
120-82-1	1,2,4-Trichlorobenzene		76.3	ug/L	7.23	24.1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	141	241	ug/L	58.4	(23%-130%)
2-Fluorobiphenyl	76.8	120	ug/L	63.7	(30%-104%)
2-Fluorophenol	148	241	ug/L	61.6	(14%-77%)
Nitrobenzene-d5	88.4	120	ug/L	73.4	(34%-125%)
Phenol-d5	116	241	ug/L	48.2	(10%-78%)
p-Terphenyl-d14	87.6	120	ug/L	72.7	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202774966**				
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1261144**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/08/2012 22:31**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0825.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		24.4	ug/L	3.00	10.0
110-86-1	Pyridine		15.6	ug/L	3.00	10.0
62-53-3	Aniline		37.4	ug/L	3.00	10.0
108-95-2	Phenol		14.3	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		34.8	ug/L	3.00	10.0
95-57-8	2-Chlorophenol		35.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		29.7	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		29.8	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		30.2	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether		33.5	ug/L	3.00	10.0
100-51-6	Benzyl alcohol		31.4	ug/L	3.00	10.0
95-48-7	o-Cresol		31.2	ug/L	3.00	10.0
65794-96-9	m,p-Cresols		35.8	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		35.8	ug/L	3.00	10.0
67-72-1	Hexachloroethane		28.5	ug/L	3.00	10.0
98-95-3	Nitrobenzene		36.7	ug/L	3.00	10.0
78-59-1	Isophorone		38.4	ug/L	3.00	10.0
88-75-5	2-Nitrophenol		36.4	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		29.2	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		34.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		36.0	ug/L	3.00	10.0
65-85-0	Benzoic acid		34.2	ug/L	6.00	20.0
106-47-8	4-Chloroaniline		38.3	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene		35.6	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		37.3	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		32.0	ug/L	0.300	1.00
91-20-3	Naphthalene		31.9	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene		33.6	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene		23.3	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		37.5	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		38.7	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		33.6	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*		37.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		37.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		42.7	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		39.9	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202774966**				
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1261144**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/08/2012 22:31**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0825.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		40.6	ug/L	3.00	10.0
208-96-8	Acenaphthylene		33.7	ug/L	0.300	1.00
83-32-9	Acenaphthene		33.6	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol		37.3	ug/L	5.00	20.0
132-64-9	Dibenzofuran		37.7	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol		39.5	ug/L	3.00	10.0
84-66-2	Diethylphthalate		40.9	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	J	7.09	ug/L	3.00	10.0
86-73-7	Fluorene		35.9	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether		40.1	ug/L	3.00	10.0
100-01-6	4-Nitroaniline		36.1	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		43.1	ug/L	3.00	10.0
122-39-4	Diphenylamine		37.7	ug/L	3.00	10.0
122-66-7	Azobenzene		39.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		42.8	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene		36.9	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		32.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene		37.9	ug/L	0.300	1.00
120-12-7	Anthracene		36.4	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		39.6	ug/L	3.00	10.0
206-44-0	Fluoranthene		35.7	ug/L	0.300	1.00
129-00-0	Pyrene		47.7	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate		44.6	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		42.2	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene		40.4	ug/L	0.300	1.00
218-01-9	Chrysene		39.6	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate		35.3	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene		42.2	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		44.2	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		39.8	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene		37.5	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene		38.8	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		36.2	ug/L	0.300	1.00
123-91-1	1,4-Dioxane		24.2	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		37.1	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-267**			**Matrix:**	**WATER**
Lab Sample ID:	**1202774966**				
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1261144**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/08/2012 22:31**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0825.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene		33.2	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine		29.1	ug/L	3.00	10.0
92-87-5	Benzidine	J	6.32	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		32.2	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		32.5	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	64.1	100	ug/L	64.1	(23%-130%)
2-Fluorobiphenyl	31.2	50.0	ug/L	62.4	(30%-104%)
2-Fluorophenol	44.2	100	ug/L	44.2	(14%-77%)
Nitrobenzene-d5	34.7	50.0	ug/L	69.4	(34%-125%)
Phenol-d5	26.6	100	ug/L	26.6	(10%-78%)
p-Terphenyl-d14	39.2	50.0	ug/L	78.4	(33%-136%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
09-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 8270C	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1261145	See Below		

Potentially affected work order(s)(SDG): 314137(2013-235),314528(2013-265),314591(2013-267)

Application Issues:

Failed RPD for MS/MSD, or PS/PSD

Failed Recovery for LCS/LCSD

Specification and Requirements Exception Description:	DER Disposition:
1. The LCS(1202774966) recovered Benzidine at 6.32%. The limits are 19%-124%.	1. Benzidine is identified as poor responding analyte in the analytical method (EPA 8270) and is subject to oxidative loss during extraction. This may account for the low recovery of the analyte. The data results have been reported.
2. The MS(1202774964)/MSD(1202774965) RPD value for Benzidine was outside of the acceptance limits. Please see the QC Summary report for specific failure.	2. Since Benzidine was individually within the acceptance limits for the MS and MSD, the non-conformance had no adverse impact on the data and the results have been reported.

Originator's Name:

Jennifer Dunagan Jones 09-NOV-12

Data Validator/Group Leader:

Barbara Bailey 12-NOV-12

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC/MSMS
ARS International (ARSL)
SDG 2013-267

Method/Analysis Information

Procedure:	**Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method:	SW846 6850 Modified
Prep Method:	SW846 6850 Modified
Analytical Batch Number:	1262376
Prep Batch Number:	1262373

Sample Analysis

Sample ID	Client ID
314591002	CAMO-13-24256
1202777953	Interference Check Sample (ICS)
1202777944	Method Blank (MB)
1202777945	Laboratory Control Sample (LCS)
1202777946	314639003(CASA-13-24224) Matrix Spike (MS)
1202777947	314639003(CASA-13-24224) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 9.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

ICV Requirements
The initial calibration verification standards (ICV) met the acceptance criteria.

CCB Requirements
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

CCV Requirements
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

Low Level Standard (CRI) Requirements
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Interference Check Sample (ICS)
The interference check sample (ICS) met all recovery acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Client sample 314639003 (CASA-13-24224) from SDG 2013-270 was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits.

Retention Time Standard Area Acceptance
The retention time standard areas were within the required acceptance criteria for all samples and QC.

Retention Time
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Sample314591002 (CAMO-13-24256) was diluted to bring the over range concentration within the calibration range.

Parmname	**314591 002**
All	100X

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG except for dilutions.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

A data exception report (DER) was not generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

Additional Comments
The concentration observed in each matrix spike was above the calibration range. This was due to the background concentration present in the parent sample, 314639003 (CASA-13-24224). Re-analysis at a dilution was not necessary since the parent sample did not require a dilution.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples.

Please see the isotope ratio criteria in the Miscellaneous Section.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-267 GEL Work Order: 314591

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 20 NOV 2012 **Title: Group Leader**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24256

Date Received: 06-NOV-12

GEL Job No (SDG): 2013-267

GEL Sample ID: 314591002

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	5	20	63.5	ug/L		100	13-NOV-12 17:10	per1113031a
	Perchlorate Isotope Ratio			3.13			100	13-NOV-12 17:10	per1113031a
14797-73-0	Perchlorate-101	5	20	64.7	ug/L		100	13-NOV-12 17:10	per1113031a
	Perchlorate-O(18)			50.1	ug/L		100	13-NOV-12 17:10	per1113031a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2013-267

Extract Batch Code: 1262373

Date Filtered: 13-NOV-12

Matrix: WATER

Sample ID: 1202777945

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.202	ug/L	101		85 - 115
Perchlorate Isotope Ratio		2.92				-
Perchlorate-101	0.200	.22	ug/L	110		85 - 115
Perchlorate-O(18)		.486	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2013-267

Extract Batch Code: 1262373

Date Extracted: 13-NOV-12

GEL MS/PS ID: 1202777946

Client ID: CASA-13-24224

GEL MSD/PSD ID: 1202777947

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec #	MSD Conc	MSD Rec #	RPD #	RPD Limit	Recovery Limit
Perchlorate	0.200	0.942	ug/L	1.14	100	1.17	114	2.41	30	75 - 125
Perchlorate Isotope Ratio	0	3.08		3.19		3.09		3.03		-
Perchlorate-101	0.200	0.974	ug/L	1.14	84.3	1.21	116	5.44	30	75 - 125
Perchlorate-O(18)	0	0.515	ug/L	0.490		.502		2.49		-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 13-NOV-12

GEL Job No (SDG): 2013-267

GEL Sample ID: 1202777944

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	13-NOV-12 14:37	per1113012a
	Perchlorate Isotope Ratio						1	13-NOV-12 14:37	per1113012a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	13-NOV-12 14:37	per1113012a
	Perchlorate-O(18)			0.496	ug/L		1	13-NOV-12 14:37	per1113012a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 13-NOV-12

GEL Job No (SDG): 2013-267

GEL Sample ID: 1202777945

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.202	ug/L		1	13-NOV-12 14:45	per1113013a
	Perchlorate Isotope Ratio			2.92			1	13-NOV-12 14:45	per1113013a
14797-73-0	Perchlorate-101	.05	.2	0.220	ug/L		1	13-NOV-12 14:45	per1113013a
	Perchlorate-O(18)			0.486	ug/L		1	13-NOV-12 14:45	per1113013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2013-267

GEL Sample ID: 1202777953

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.198	ug/L	J	1	13-NOV-12 14:53	per1113014a
	Perchlorate Isotope Ratio			3.06			1	13-NOV-12 14:53	per1113014a
14797-73-0	Perchlorate-101	.05	.2	0.206	ug/L		1	13-NOV-12 14:53	per1113014a
	Perchlorate-O(18)			0.489	ug/L		1	13-NOV-12 14:53	per1113014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24224MS

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-267

GEL Sample ID: 1202777946

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	1.14	ug/L		1	13-NOV-12 15:25	per1113018a
	Perchlorate Isotope Ratio			3.19			1	13-NOV-12 15:25	per1113018a
14797-73-0	Perchlorate-101	.05	.2	1.14	ug/L		1	13-NOV-12 15:25	per1113018a
	Perchlorate-O(18)			0.490	ug/L		1	13-NOV-12 15:25	per1113018a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1262373

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24224MSD

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-267

GEL Sample ID: 1202777947

Date Filtered: 13-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	1.17	ug/L		1	13-NOV-12 15:33	per1113019a
	Perchlorate Isotope Ratio			3.09			1	13-NOV-12 15:33	per1113019a
14797-73-0	Perchlorate-101	.05	.2	1.21	ug/L		1	13-NOV-12 15:33	per1113019a
	Perchlorate-O(18)			0.502	ug/L		1	13-NOV-12 15:33	per1113019a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-267

Sample Analysis

Sample ID	Client ID
314591002	CAMO-13-24256
1202774165	Method Blank (MB) **ICP**
1202774166	Laboratory Control Sample (LCS)
1202774169	314591002(CAMO-13-24256L) Serial Dilution (SD)
1202774167	314591002(CAMO-13-24256D) Sample Duplicate (DUP)
1202774168	314591002(CAMO-13-24256S) Matrix Spike (MS)
1202774170	Method Blank (MB) **ICP-MS**
1202774171	Laboratory Control Sample (LCS)
1202774174	314591002(CAMO-13-24256L) Serial Dilution (SD)
1202774172	314591002(CAMO-13-24256D) Sample Duplicate (DUP)
1202774173	314591002(CAMO-13-24256S) Matrix Spike (MS)
1202783062	Method Blank (MB) **CVAA**
1202783069	Laboratory Control Sample (LCS)
1202783066	314445002(CAMO-13-24258L) Serial Dilution (SD)
1202783064	314445002(CAMO-13-24258D) Sample Duplicate (DUP)
1202783068	314445002(CAMO-13-24258S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1260872, 1260875, 1264600 and 1267632
Prep Batch :	1260871, 1260874 and 1264596
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 7
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B
Prep Method :	SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 6100E inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 314591002 (CAMO-13-24256)-ICP and ICP-MS and 314445002 (CAMO-13-24258)-CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the

IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instruments. Dilutions were required for this SDG in order to minimize tin suppression due to matrix interferences.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total

Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 12.03.12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-267 GEL Work Order: 314591

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 12.03.12

Quality Control Summary

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-267 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314591002 **BASIS:** As Received **DATE COLLECTED** 02-NOV-12

CLIENT ID: CAMO-13-24256 **LEVEL:** Low **DATE RECEIVED** 06-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/20/12 09:50	112012W1-7	1264600

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-267 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314591002 **BASIS:** As Received **DATE COLLECTED** 02-NOV-12

CLIENT ID: CAMO-13-24256 **LEVEL:** Low **DATE RECEIVED** 06-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/17/12 15:23	111712-1	1260872
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	SKJ	11/21/12 01:08	121120-5	1260875
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	SKJ	11/21/12 01:08	121120-5	1260875
7440-39-3	Barium	46.9	ug/L		1	5	5	1	P	HSC	11/17/12 15:23	111712-1	1260872
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 15:23	111712-1	1260872
7440-42-8	Boron	50.4	ug/L		15	50	50	1	P	HSC	11/17/12 15:23	111712-1	1260872
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	SKJ	11/21/12 01:08	121120-5	1260875
7440-70-2	Calcium	71600	ug/L		50	200	200	1	P	HSC	11/17/12 15:23	111712-1	1260872
7440-47-3	Chromium	61.6	ug/L		2	10	10	1	MS	SKJ	11/21/12 01:08	121120-5	1260875
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 15:23	111712-1	1260872
7440-50-8	Copper	13.1	ug/L		3	10	10	1	P	HSC	11/19/12 08:16	111912-3	1260872
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/17/12 15:23	111712-1	1260872
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	SKJ	11/21/12 01:08	121120-5	1260875
7439-95-4	Magnesium	15000	ug/L		110	300	300	1	P	HSC	11/17/12 15:23	111712-1	1260872
7439-96-5	Manganese	3.88	ug/L	J	2	10	10	1	P	HSC	11/17/12 15:23	111712-1	1260872
7439-98-7	Molybdenum	1.55	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/27/12 09:56	121126-4	1260875
7440-02-0	Nickel	38.1	ug/L		0.5	2	2	1	MS	SKJ	11/21/12 01:08	121120-5	1260875
7440-09-7	Potassium	1060	ug/L		50	150	150	1	P	HSC	11/19/12 08:16	111912-3	1260872
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	SKJ	11/21/12 01:08	121120-5	1260875
7631-86-9	Silica	74900	ug/L		53	213	213	1	P	HSC	11/17/12 15:23	111712-1	1260872
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	SKJ	11/21/12 01:08	121120-5	1260875
7440-23-5	Sodium	28800	ug/L		100	300	300	1	P	HSC	11/17/12 15:23	111712-1	1260872
7440-24-6	Strontium	325	ug/L		1	5	5	1	P	HSC	11/17/12 15:23	111712-1	1260872
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	SKJ	11/21/12 01:08	121120-5	1260875
7440-31-5	Tin	100	ug/L	U	25	100	100	10	P	HSC	11/19/12 08:50	111912-3	1260872
7440-61-1	Uranium	1.26	ug/L		0.067	0.2	0.2	1	MS	SKJ	11/21/12 01:08	121120-5	1260875
7440-62-2	Vanadium	1.33	ug/L	J	1	5	5	1	P	HSC	11/17/12 15:23	111712-1	1260872
7440-66-6	Zinc	24.8	ug/L		3.3	10	10	1	P	HSC	11/17/12 15:23	111712-1	1260872

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-267 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314591002 **BASIS:** As Received **DATE COLLECTED** 02-NOV-12

CLIENT ID: CAMO-13-24256 **LEVEL:** Low **DATE RECEIVED** 06-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	240	mg/L		0.453	1.24	1.24	1		JJ2	12/03/12 11:12		1267632

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1260872	1260871	SW846 3005A	50	mL	50	mL	11/15/12	AXG2
1260875	1260874	SW846 3005A	50	mL	50	mL	11/15/12	AXG2
1264600	1264596	EPA 245.1/245.2 Prep	20	mL	20	mL	11/19/12	AXS5

***Analytical Methods:**

MS	**SW846 3005/6020 DOE-AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−267

Contract: ESHL00210

Matrix: WW

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202774165								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	125	ug/L	+/−150	J	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202774170								
	Antimony	1.06	ug/L	+/−3	J	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202783062								
	Mercury	0.067	ug/L	+/−0.2	U	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−267 **Client ID** CAMO−13−24256S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314591002 **Spike ID:** 1202774168

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5020		68	U	5000	100		P
Barium	ug/L	75−125	542		46.9		500	99.1		P
Beryllium	ug/L	75−125	509		1	U	500	102		P
Boron	ug/L	75−125	565		50.4		500	103		P
Calcium	ug/L		74200		71600		5000	52.6	N/A	P
Cobalt	ug/L	75−125	488		1	U	500	97.5		P
Copper	ug/L	75−125	523		13.1		500	102		P
Iron	ug/L	75−125	5000		30	U	5000	99.6		P
Magnesium	ug/L	75−125	19300		15000		5000	86.9		P
Manganese	ug/L	75−125	506		3.88	J	500	100		P
Potassium	ug/L	75−125	5820		1060		5000	95.3		P
Silica	ug/L		83900		74900		10700	83.8	N/A	P
Sodium	ug/L		33100		28800		5000	87.2	N/A	P
Strontium	ug/L	75−125	796		325		500	94.2		P
Tin	ug/L	75−125	479		25	U	500	95.8		P
Vanadium	ug/L	75−125	520		1.33	J	500	104		P
Zinc	ug/L	75−125	521		24.8		500	99.2		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−267 **Client ID** CAMO−13−24256S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314591002 **Spike ID:** 1202774173

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	202		1	U	200	101		MS
Arsenic	ug/L	75−125	82.1		1.7	U	80	102		MS
Cadmium	ug/L	75−125	10.7		0.11	U	10	107		MS
Chromium	ug/L	75−125	107		61.6		50	90.7		MS
Lead	ug/L	75−125	41		0.5	U	40	102		MS
Molybdenum	ug/L	75−125	52.9		1.55		50	103		MS
Nickel	ug/L	75−125	81.3		38.1		50	86.5		MS
Selenium	ug/L	75−125	21.9		1.5	U	20	106		MS
Silver	ug/L	75−125	47.9		0.2	U	50	95.7		MS
Thallium	ug/L	75−125	93.9		0.45	U	100	93.8		MS
Uranium	ug/L	75−125	54		1.26		50	105		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−267 **Client ID** CAMO−13−24258S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314445002 **Spike ID:** 1202783068

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	1.95		0.067	U	2	97.3		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−267 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24256D

Matrix: LIQUID **Level:** Low

Sample ID: 314591002 **Duplicate ID:** 1202774167 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−20%	46.9		45.4		3.27		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L	+/−50	50.4		48.7	J	3.43		P
Calcium	ug/L	+/−20%	71600		68900		3.89		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L	+/−10	13.1		12.6		3.77		P
Iron	ug/L		30	U	30	U			P
Magnesium	ug/L	+/−20%	15000		14300		4.48		P
Manganese	ug/L	+/−10	3.88	J	4.14	J	6.39		P
Potassium	ug/L	+/−20%	1060		1030		2.46		P
Silica	ug/L	+/−20%	74900		72000		3.99		P
Sodium	ug/L	+/−20%	28800		28100		2.41		P
Strontium	ug/L	+/−20%	325		312		4		P
Tin	ug/L		25	U	25	U			P
Vanadium	ug/L		1.33	J	1	U	200		P
Zinc	ug/L	+/−10	24.8		23.9		3.82		P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−267 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24256D

Matrix: LIQUID **Level:** Low

Sample ID: 314591002 **Duplicate ID:** 1202774172 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−20%	61.6		62.8		2		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.55		1.91		20.6		MS
Nickel	ug/L	+/−20%	38.1		38.1		.0709		MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−20%	1.26		1.29		2.74		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−267 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24258D

Matrix: LIQUID **Level:** Low

Sample ID: 314445002 **Duplicate ID:** 1202783064 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−267

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202774166								
	Aluminum	ug/L	5000	5160		103	80−120	P
	Barium	ug/L	500	513		103	80−120	P
	Beryllium	ug/L	500	516		103	80−120	P
	Boron	ug/L	500	512		102	80−120	P
	Calcium	ug/L	5000	5180		104	80−120	P
	Cobalt	ug/L	500	508		102	80−120	P
	Copper	ug/L	500	514		103	80−120	P
	Iron	ug/L	5000	5150		103	80−120	P
	Magnesium	ug/L	5000	5270		105	80−120	P
	Manganese	ug/L	500	521		104	80−120	P
	Potassium	ug/L	5000	5130		103	80−120	P
	Silica	ug/L	10700	11000		103	80−120	P
	Sodium	ug/L	5000	5470		109	80−120	P
	Strontium	ug/L	500	512		102	80−120	P
	Tin	ug/L	500	513		103	80−120	P
	Vanadium	ug/L	500	524		105	80−120	P
	Zinc	ug/L	500	504		101	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−267

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202774171								
	Antimony	ug/L	50	46.5		93.1	80−120	MS
	Arsenic	ug/L	50	50.7		101	80−120	MS
	Cadmium	ug/L	50	51.5		103	80−120	MS
	Chromium	ug/L	50	49.7		99.4	80−120	MS
	Lead	ug/L	50	51.2		102	80−120	MS
	Molybdenum	ug/L	50	49.2		98.5	80−120	MS
	Nickel	ug/L	50	50.5		101	80−120	MS
	Selenium	ug/L	50	53.3		107	80−120	MS
	Silver	ug/L	50	46.6		93.2	80−120	MS
	Thallium	ug/L	50	46.6		93.1	80−120	MS
	Uranium	ug/L	50	51.3		103	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−267

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783069								
	Mercury	ug/L	2	2.08		104	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−267 **Client ID** CAMO−13−24256L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314591002 **Serial Dilution ID:** 1202774169

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	46.9		46.8		.248			P
Beryllium	1	U	5	U				P
Boron	50.4		75	U	100			P
Calcium	71600		73200		2.21		10	P
Cobalt	1	U	5	U				P
Copper	13.1		15	U	100			P
Iron	30	U	150	U				P
Magnesium	15000		15300		2.25		10	P
Manganese	3.88	J	10	U	100			P
Potassium	1060		1410		33.4			P
Silica	74900		73800		1.49		10	P
Sodium	28800		30100		4.79		10	P
Strontium	325		325		.234		10	P
Tin	2.5	U	12.5	U				P
Vanadium	1.33	J	5	U	100			P
Zinc	24.8		16.5	U	100			P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−267 **Client ID** CAMO−13−24256L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314591002 **Serial Dilution ID:** 1202774174

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	61.6		62		.684			MS
Lead	.5	U	2.5	U				MS
Molybdenum	1.55		2.13	J	37.4			MS
Nickel	38.1		37.2		2.35			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	3.21	J				MS
Uranium	1.26		1.13		10.6			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−267 **Client ID** CAMO−13−24258L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314445002 **Serial Dilution ID:** 1202783066

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-267

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1260735 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
314591001	CAMO-13-24239
1202773871	Method Blank (MB)
1202773872	314445001(CAMO-13-24241) Sample Duplicate (DUP)
1202773874	314445001(CAMO-13-24241) Post Spike (PS)
1202773876	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314445001 (CAMO-13-24241).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following sample was re-analyzed due to CCV failure: 314591001 (CAMO-13-24239).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1265081	**Method:**	EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
314591002	CAMO-13-24256
1202784135	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202784136	314445002(CAMO-13-24258) Sample Duplicate (DUP)
1202784137	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314340002 (CAMO-13-24255) and 314445002 (CAMO-13-24258).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1261157 **Method:** SW9040C pH and EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
314456004	Filtration Blank (FLTB)
314591002	CAMO-13-24256
1202774988	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202774989	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following samples from this sample group were received by the lab outside of the method specified holding time: 314456004 (FLTB) and 314591002 (CAMO-13-24256).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1140186 314456004 (FLTB) and 314591002 (CAMO-13-24256).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1261315	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
314591002	CAMO-13-24256
1202775358	Method Blank (MB)
1202775359	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202775360	314591002(CAMO-13-24256) Post Spike (PS)
1202775361	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202775359 (CAMO-13-24256), 1202775360 (CAMO-13-24256) and 314591002 (CAMO-13-24256).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202775359 (CAMO-13-24256), 1202775360 (CAMO-13-24256) and 314591002 (CAMO-13-24256).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1261640	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1261639	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
314591002	CAMO-13-24256
1202776122	Method Blank (MB)
1202776123	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202776124	314591002(CAMO-13-24256) Matrix Spike (MS)
1202776125	314591002(CAMO-13-24256) Matrix Spike Duplicate (MSD)
1202776126	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference and/or sample matrix non-homogeneity: 1202776124 (CAMO-13-24256).

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The Relative Percent Difference (RPD) between the MS and MSD falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202776125 (CAMO-13-24256).

Duplicate Relative Percent Difference (RPD) Statement
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202776123 (CAMO-13-24256).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

The following DER was generated for this SDG: 1139508 1202776124 (CAMO-13-24256) and 1202776125 (CAMO-13-24256).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1261638	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1261637	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
314591001	CAMO-13-24239
1202776117	Method Blank (MB)
1202776118	314591001(CAMO-13-24239) Sample Duplicate (DUP)
1202776119	314591001(CAMO-13-24239) Matrix Spike (MS)
1202776120	314591001(CAMO-13-24239) Matrix Spike Duplicate (MSD)
1202776121	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591001 (CAMO-13-24239).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits. Since both the spike duplicate recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported. 1202776119 (CAMO-13-24239).

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202776118 (CAMO-13-24239).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1139938 1202776119 (CAMO-13-24239).

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1261528	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
314591002	CAMO-13-24256
1202775880	Method Blank (MB)
1202775881	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202775883	314591002(CAMO-13-24256) Post Spike (PS)
1202775885	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202775881 (CAMO-13-24256), 1202775883 (CAMO-13-24256) and 314591002 (CAMO-13-24256).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1261643	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1261641	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
314591002	CAMO-13-24256
1202776127	Method Blank (MB)
1202776128	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202776130	314591002(CAMO-13-24256) Matrix Spike (MS)
1202776132	314591002(CAMO-13-24256) Matrix Spike Duplicate (MSD)
1202776134	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following sample was re-analyzed due to CCV failure: 1202776132 (CAMO-13-24256).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Solids, Total Dissolved**		
Analytical Batch:	1261079	**Method:**	EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
314591002	CAMO-13-24256
1202774820	Method Blank (MB)
1202774823	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202774824	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Alkalinity**

Analytical Batch: 1262945 **Method:** EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
314591002	CAMO-13-24256
1202779299	Laboratory Control Sample (LCS)
1202779306	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202779307	314591002(CAMO-13-24256) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____30Nov12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-267 GEL Work Order: 314591

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

H Analytical holding time was exceeded

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 30, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-267

Client Sample ID:	CAMO-13-24239	Project:	ESHL00210
Sample ID:	314591001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	02-NOV-12 12:03		
Receive Date:	06-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average		1.09	0.330	1.00	mg/L	1	TSM	11/09/12	1111	1260735	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl		0.163	0.035	0.100	mg/L	1	KLP1	11/14/12	1043	1261638	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/13/12	1700	1261637

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 30, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-267

Client Sample ID:	CAMO-13-24256	Project:	ESHL00210
Sample ID:	314591002	Client ID:	ARSL001
Matrix:	W		
Collect Date:	02-NOV-12 12:03		
Receive Date:	06-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		591	1.00	1.00	umhos/cm	1	TXT1	11/20/12	1132	1265081	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 17.1C	H	7.38	0.010	0.100	SU	1	LYG1	11/07/12	1330	1261157	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide		0.702	0.067	0.200	mg/L	1	VH1	11/09/12	0258	1261315	3
Fluoride		0.563	0.033	0.100	mg/L	1					
Chloride		58.6	0.670	2.00	mg/L	10	VH1	11/12/12	1845	1261315	4
Sulfate		66.1	1.33	4.00	mg/L	10					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.0587	0.017	0.050	mg/L	1	KLP1	11/13/12	1245	1261640	5
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		8.50	0.425	1.25	mg/L	25	AXH3	11/09/12	1016	1261528	6
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.0976	0.017	0.050	mg/L	1	KLP1	11/14/12	1300	1261643	7
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		390	3.40	14.3	mg/L		LYG1	11/07/12	0831	1261079	8
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		96.0	0.725	1.00	mg/L		LXA1	11/14/12	1527	1262945	9
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/12/12	1500	1261639
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/13/12	1700	1261641

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 30, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-267
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24256	Project:	ESHL00210
Sample ID:	314591002	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 300.0	
5	EPA 350.1	
6	EPA 353.2	
7	EPA 365.4	
8	EPA 160.1	
9	EPA 310.1	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 30, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **314591**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis											
Batch 1260735											
QC1202773872 314445001 DUP											
Total Organic Carbon Average		J	0.680	J	0.815	mg/L	18.1 ^		(+/-1.00)	TSM	11/08/12 23:32
QC1202773876 LCS											
Total Organic Carbon Average	10.0				9.75	mg/L		97.5	(85%-115%)		11/08/12 18:41
QC1202773871 MB											
Total Organic Carbon Average				J	0.488	mg/L					11/08/12 18:32
QC1202773874 314445001 PS											
Total Organic Carbon Average	10.0	J	0.680		10.4	mg/L		97.7	(65%-120%)		11/08/12 23:52
Conductivity Analysis											
Batch 1265081											
QC1202784135 314340002 DUP											
Conductivity			195		196	umhos/cm	0.307		(0%-10%)	TXT1	11/20/12 11:15
QC1202784136 314445002 DUP											
Conductivity			141		140	umhos/cm	0.142		(0%-10%)		11/20/12 11:23
QC1202784137 LCS											
Conductivity	1410				1420	umhos/cm		101	(95%-105%)		11/20/12 10:55
Electrode Analysis											
Batch 1261157											
QC1202774988 314591002 DUP											
pH		H	7.38	H	7.35	SU	0.407		(0%-10%)	LYG1	11/07/12 13:31
QC314456004 FLTB											
pH				H	6.95	SU					11/07/12 13:26
QC1202774989 LCS											
pH	7.00				7.01	SU		100	(99%-101%)		11/07/12 13:12
Ion Chromatography											
Batch 1261315											
QC1202775359 314591002 DUP											
Bromide			0.702		0.653	mg/L	7.21 ^		(+/-0.200)	VH1	11/09/12 03:29
Chloride			58.6		58.7	mg/L	0.167		(0%-20%)		11/12/12 19:16
Fluoride			0.563		0.561	mg/L	0.374		(0%-20%)		11/09/12 03:29
Sulfate			66.1		65.2	mg/L	1.35		(0%-20%)		11/12/12 19:16
QC1202775361 LCS											
Bromide	2.50				2.76	mg/L		110	(90%-110%)		11/09/12 02:26
Chloride	10.0				9.95	mg/L		99.5	(90%-110%)		
Fluoride	5.00				5.42	mg/L		108	(90%-110%)		
Sulfate	20.0				20.6	mg/L		103	(90%-110%)		
QC1202775358 MB											
Bromide				U	ND	mg/L					11/09/12 01:55
Chloride				U	ND	mg/L					
Fluoride				U	ND	mg/L					

QC Summary

Workorder: 314591

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 1261315										
Sulfate			U	ND	mg/L					
QC1202775360 314591002 PS										
Bromide	2.50	0.702		3.31	mg/L		104	(90%-110%)	VH1	11/09/12 04:00
Chloride	10.0	5.86		16.8	mg/L		109	(90%-110%)		11/12/12 19:48
Fluoride	5.00	0.563		5.61	mg/L		101	(90%-110%)		11/09/12 04:00
Sulfate	20.0	6.61		27.2	mg/L		103	(90%-110%)		11/12/12 19:48
Nutrient Analysis										
Batch 1261528										
QC1202775881 314591002 DUP										
Nitrogen, Nitrate/Nitrite		8.50		8.20	mg/L	3.59		(0%-20%)	AXH3	11/09/12 10:17
QC1202775885 LCS										
Nitrogen, Nitrate/Nitrite	1.00			1.02	mg/L		102	(90%-110%)		11/09/12 10:14
QC1202775880 MB										
Nitrogen, Nitrate/Nitrite			U	ND	mg/L					11/09/12 10:13
QC1202775883 314591002 PS										
Nitrogen, Nitrate/Nitrite	1.00	0.340		1.41	mg/L		107	(90%-110%)		11/09/12 10:18
Batch 1261638										
QC1202776118 314591001 DUP										
Nitrogen, Total Kjeldahl		0.163	J	0.0865	mg/L	61.3 ^		(+/-0.100)	KLP1	11/14/12 10:44
QC1202776121 LCS										
Nitrogen, Total Kjeldahl	1.00			1.00	mg/L		100	(90%-110%)		11/14/12 10:42
QC1202776117 MB										
Nitrogen, Total Kjeldahl			U	ND	mg/L					11/14/12 10:42
QC1202776119 314591001 MS										
Nitrogen, Total Kjeldahl	1.00	0.163		1.06	mg/L		89.7 *	(90%-110%)		11/14/12 10:45
QC1202776120 314591001 MSD										
Nitrogen, Total Kjeldahl	1.00	0.163		1.07	mg/L	0.939	90.7	(0%-20%)		11/14/12 10:46
Batch 1261640										
QC1202776123 314591002 DUP										
Nitrogen, Ammonia		0.0587	J	0.0276	mg/L	72.1 ^		(+/-0.050)	KLP1	11/13/12 12:46
QC1202776126 LCS										
Nitrogen, Ammonia	1.00			1.06	mg/L		106	(90%-110%)		11/13/12 12:45
QC1202776122 MB										
Nitrogen, Ammonia			U	ND	mg/L					11/13/12 12:44
QC1202776124 314591002 MS										
Nitrogen, Ammonia	1.00	0.0587		1.20	mg/L		114 *	(90%-110%)		11/13/12 12:47
QC1202776125 314591002 MSD										
Nitrogen, Ammonia	1.00	0.0587		1.01	mg/L	17.2*	95.1	(0%-15%)		11/13/12 12:48
Batch 1261643										
QC1202776128 314591002 DUP										
Phosphorus, Total as P		0.0976		0.0915	mg/L	6.45 ^		(+/-0.050)	KLP1	11/14/12 13:01
QC1202776134 LCS										
Phosphorus, Total as P	1.00			1.08	mg/L		108	(76%-120%)		11/14/12 12:55
QC1202776127 MB										
Phosphorus, Total as P			U	ND	mg/L					11/14/12 12:54
QC1202776130 314591002 MS										

QC Summary

Workorder: 314591

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis										
Batch 1261643										
Phosphorus, Total as P	1.00	0.0976		1.17	mg/L		107	(62%-139%)		11/14/12 13:02
QC1202776132 314591002 MSD										
Phosphorus, Total as P	1.00	0.0976		0.986	mg/L	17.1	88.8	(0%-20%)	KLP1	11/14/12 13:22
Solids Analysis										
Batch 1261079										
QC1202774823 314591002 DUP										
Total Dissolved Solids		390		390	mg/L	0.00		(0%-10%)	LYG1	11/07/12 08:31
QC1202774824 LCS										
Total Dissolved Solids	300			294	mg/L		98.1	(95%-105%)		11/07/12 08:31
QC1202774820 MB										
Total Dissolved Solids			U	ND	mg/L					11/07/12 08:31
Titration Analysis										
Batch 1262945										
QC1202779306 314591002 DUP										
Alkalinity, Total as CaCO3		96.0		97.1	mg/L	1.11		(0%-20%)	LXA1	11/14/12 15:32
Carbonate alkalinity (CaCO3)	U	ND	U	ND	mg/L	N/A				
QC1202779299 LCS										
Alkalinity, Total as CaCO3	50.0			52.6	mg/L		105	(90%-110%)		11/14/12 10:29
QC1202779307 314591002 MS										
Alkalinity, Total as CaCO3	50.0	96.0		145	mg/L		98.7	(80%-120%)		11/14/12 15:37

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E Organics--Concentration of the target analyte exceeds the instrument calibration range
- F Estimated Value
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded
- J Value is estimated
- JNX Non Calibrated Compound

QC Summary

Workorder: **314591**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
13-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1261640	See below.		

Potentially affected work order(s)(SDG): **314591(2013-267),314637(2013-271),314639(2013-270),314696,314749(2013-276),314750(2013-277),314773,314848(2013-285),314849(2013-286),314945,314987(2013-297)**

Application Issues:

Failed Recovery for MS/PS

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS: QC 1202776124MS 2. Failed RPD for MS/MSD: QC 1202776125MSD	1. The spike recovery falls outside of the established acceptance limits due to matrix interference and/or sample matrix non-homogeneity. 2. The Relative Percent Difference (RPD) between the MS and MSD falls outside of the established acceptance limits because of the heterogeneous matrix of the sample.

Originator's Name:

Kristen Parson 13-NOV-12

Data Validator/Group Leader:

Julia Hamilton 13-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
14-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1261638	See below.		

Potentially affected work order(s)(SDG): **314591(2013-267),314637(2013-271),314639(2013-270),314749(2013-276),314750(2013-277),314773,314848(2013-285),314849(2013-286),314945,314987(2013-297)**

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS: QC 1202776119MS	1. The spike recovery falls outside of the established acceptance limits. Since both the spike duplicate recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported.

Originator's Name:

Kristen Parson 14-NOV-12

Data Validator/Group Leader:

Julia Hamilton 14-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
14-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	DMAX, ESHL
Batch ID:	**Sample Numbers:**		
1261157	See below.		

Potentially affected work order(s)(SDG): 314456,314591(2013-267)

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 314456 001,002,003,004 314591 002	1. Samples were received out of holding.

Originator's Name:

Lisa Gregory 16-NOV-12

Data Validator/Group Leader:

Julia Hamilton 20-NOV-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-267
Work Order 314591

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1261192

Sample ID	Client ID
314591001	CAMO-13-24239
1202775075	Method Blank (MB)
1202775076	314639001(CASA-13-24209) Sample Duplicate (DUP)
1202775077	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202775075 (MB) and 1202775077 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314639001 (CASA-13-24209). The QC was from ARSL work order 314639.

QC Information

All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Samples 1202775077 (LCS) and 314591001 (CAMO-13-24239) were recounted due to poor resolution. The recounts are reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1261194

Sample ID	Client ID
314591001	CAMO-13-24239
1202775078	Method Blank (MB)
1202775079	314639001(CASA-13-24209) Sample Duplicate (DUP)
1202775080	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202775078 (MB) and 1202775080 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314639001 (CASA-13-24209). The QC was from ARSL work order 314639.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202775078 (MB) was recounted due to a peak shift. The recount is reported. Sample 1202775080 (LCS) was recounted due to poor resolution. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1261195

Sample ID	Client ID
314591001	CAMO-13-24239
1202775081	Method Blank (MB)
1202775082	314639001(CASA-13-24209) Sample Duplicate (DUP)
1202775083	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202775081 (MB) and 1202775083 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314639001 (CASA-13-24209). The QC was from ARSL work order 314639.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 314591001 (CAMO-13-24239) was recounted due to detector error. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1261091

Sample ID	Client ID
314591001	CAMO-13-24239
1202774851	Method Blank (MB)
1202774852	314637001(CAMO-13-24276) Sample Duplicate (DUP)
1202774853	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in June 2012, July 2012, August 2012 and October 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314637001 (CAMO-13-24276). The QC was from ARSL work order 314637.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1260884

Sample ID	Client ID
314591001	CAMO-13-24239
1202774230	Method Blank (MB)
1202774231	314445001(CAMO-13-24241) Sample Duplicate (DUP)
1202774232	314445001(CAMO-13-24241) Matrix Spike (MS)
1202774233	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202774230 (MB) and 1202774233 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314445001 (CAMO-13-24241). The QC was from ARSL work order 314445.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202774231 (CAMO-13-24241) was recounted due to high MDC. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202774232 (CAMO-13-24241), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1260898

Sample ID	Client ID
314591001	CAMO-13-24239
1202774275	Method Blank (MB)
1202774276	314136001(CAPA-12-23808) Sample Duplicate (DUP)
1202774277	314136001(CAPA-12-23808) Matrix Spike (MS)
1202774278	314136001(CAPA-12-23808) Matrix Spike Duplicate (MSD)
1202774279	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in September 2011. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha

crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202774275 (MB) and 1202774279 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314136001 (CAPA-12-23808). The QC was from ARSL work order 314136.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202774276 (CAPA-12-23808) was recounted due to high MDC. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike and matrix spike duplicate, 1202774277 (CAPA-12-23808) and 1202774278 (CAPA-12-23808), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-H-3**
Analytical Method:	EPA 906.0 Modified
Analytical Batch Number:	1261839

Sample ID	Client ID
314591001	CAMO-13-24239
1202776611	Method Blank (MB)
1202776612	314639004(CASA-13-24216) Sample Duplicate (DUP)
1202776613	314639004(CASA-13-24216) Matrix Spike (MS)
1202776614	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-002 REV# 20.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in August 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314639004 (CASA-13-24216). The QC was from ARSL work order 314639.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 314591001 (CAMO-13-24239) was recounted to verify sample results. The recount was similar to the original count. The original count is being reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 28, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24239
Sample ID: 314591001
Matrix: W
Collect Date: 02-NOV-12
Receive Date: 06-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.00338	+/-0.00756	0.0385	+/-0.00757	0.050	pCi/L		LYS1	11/26/12	1603	1261192	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	-0.00181	+/-0.00542	0.0174	+/-0.00542	0.050	pCi/L		LYS1	11/21/12	1140	1261194	2
Plutonium-239/240	U	0.00361	+/-0.00722	0.0288	+/-0.00722	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.617	+/-0.0441	0.0708	+/-0.0603	1.00	pCi/L		LYS1	11/26/12	1233	1261195	3
Uranium-235/236	U	0.0264	+/-0.0125	0.0442	+/-0.0126	1.00	pCi/L						
Uranium-238		0.281	+/-0.0302	0.0481	+/-0.0354	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	0.310	+/-1.62	5.73	+/-1.62	8.00	pCi/L		KXG3	11/08/12	1218	1261091	4
Cobalt-60	U	-1.53	+/-1.31	4.46	+/-1.31	8.00	pCi/L						
Neptunium-237	U	3.59	+/-2.91	10.7	+/-2.91	10.0	pCi/L						
Potassium-40	U	-3.1	+/-15.1	55.2	+/-15.1	10.0	pCi/L						
Sodium-22	U	0.0195	+/-1.20	4.65	+/-1.20	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.146	+/-0.133	0.462	+/-0.134	0.500	pCi/L		VXC2	11/21/12	1702	1260884	5
WSP-GrossA/B "As Received"													
Beta	U	1.92	+/-0.954	3.08	+/-0.968	3.00	pCi/L		BXF1	11/15/12	1318	1260898	6
Alpha	U	0.198	+/-0.645	2.74	+/-0.645	3.00	pCi/L		BXF1	11/17/12	1641	1260898	7
Rad Liquid Scintillation Analysis													
WSP-H-3 "As Received"													
Tritium		3720	+/-117	110	+/-385	200	pCi/L		BYS1	11/19/12	0551	1261839	8

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310
8	EPA 906.0 Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1261192	67.6	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1261194	85.9	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 28, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24239
Sample ID: 314591001

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1261195	70.6	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1260884	93.5	(50%-105%)

Notes:
TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

QC Summary

Report Date: November 28, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico
Contact: **Keith Greene**

Workorder: **314591**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1261192										
QC1202775076 314639001 DUP										
Americium-241	U	0.0123	U	0.0045	pCi/L	0.245		(0-1)	LYS1	11/21/1211:40
	Uncert:	+/-0.00867		+/-0.00712						
	TPU:	+/-0.00869		+/-0.00712						
**Americium-243 Tracer	2.60	2.09		2.05	pCi/L		78.7	(50%-105%)		
	Uncert:	+/-0.0889		+/-0.0767						
	TPU:	+/-0.147		+/-0.132						
QC1202775077 LCS										
Americium-241	1.41			1.42	pCi/L		100	(80%-120%)	LYS1	11/26/1216:03
	Uncert:			+/-0.0543						
	TPU:			+/-0.0816						
**Americium-243 Tracer	2.08			1.78	pCi/L		85.2	(50%-105%)		
	Uncert:			+/-0.0652						
	TPU:			+/-0.111						
QC1202775075 MB										
Americium-241			U	-0.00174	pCi/L				LYS1	11/21/1211:40
	Uncert:			+/-0.00627						
	TPU:			+/-0.00627						
**Americium-243 Tracer	2.08			1.61	pCi/L		77.4	(50%-105%)		
	Uncert:			+/-0.060						
	TPU:			+/-0.104						
Batch 1261194										
QC1202775079 314639001 DUP										
Plutonium-238	U	-0.0105	U	-0.00459	pCi/L	0.230		(0-1)	LYS1	11/21/1211:40
	Uncert:	+/-0.00628		+/-0.0065						
	TPU:	+/-0.00628		+/-0.0065						
Plutonium-239/240	U	0.00837	U	0.00919	pCi/L	0.0332		(0-1)		
	Uncert:	+/-0.00662		+/-0.00563						
	TPU:	+/-0.00663		+/-0.00564						
**Plutonium-242 Tracer	2.43	1.99		1.89	pCi/L		77.9	(50%-105%)		
	Uncert:	+/-0.0722		+/-0.0757						
	TPU:	+/-0.124		+/-0.128						
QC1202775080 LCS										
Plutonium-238				0.0208	pCi/L			(80%-120%)	LYS1	11/26/1215:37
	Uncert:			+/-0.00779						
	TPU:			+/-0.00784						
Plutonium-239/240	2.03			2.23	pCi/L		110	(80%-120%)		
	Uncert:			+/-0.0683						
	TPU:			+/-0.119						
**Plutonium-242 Tracer	1.94			1.65	pCi/L		84.6	(50%-105%)		
	Uncert:			+/-0.0638						
	TPU:			+/-0.106						
QC1202775078 MB										

QC Summary

Workorder: 314591

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1261194										
Plutonium-238			U	0.00	pCi/L				LYS1	11/26/1215:37
	Uncert:			+/-0.0049						
	TPU:			+/-0.0049						
Plutonium-239/240			U	0.00	pCi/L					
	Uncert:			+/-0.00566						
	TPU:			+/-0.00566						
**Plutonium-242 Tracer	1.94			1.80	pCi/L		92.7	(50%-105%)		
	Uncert:			+/-0.0626						
	TPU:			+/-0.105						
Batch 1261195										
QC1202775082 314639001 DUP										
Uranium-234		0.516		0.547	pCi/L	0.144		(0-1)	LYS1	11/21/1211:36
	Uncert:	+/-0.039		+/-0.0427						
	TPU:	+/-0.0516		+/-0.056						
Uranium-235/236	U	0.0132	U	0.00722	pCi/L	0.129		(0-1)		
	Uncert:	+/-0.0104		+/-0.0125						
	TPU:	+/-0.0104		+/-0.0125						
Uranium-238		0.218		0.231	pCi/L	0.105		(0-1)		
	Uncert:	+/-0.0258		+/-0.0272						
	TPU:	+/-0.0294		+/-0.0311						
**Uranium-232 Tracer	2.73	2.23		2.14	pCi/L		78.4	(50%-105%)		
	Uncert:	+/-0.0859		+/-0.0899						
	TPU:	+/-0.196		+/-0.200						
QC1202775083 LCS										
Uranium-234				2.68	pCi/L				LYS1	11/21/1211:34
	Uncert:			+/-0.074						
	TPU:			+/-0.188						
Uranium-235/236				0.134	pCi/L					
	Uncert:			+/-0.0192						
	TPU:			+/-0.021						
Uranium-238	2.70			2.75	pCi/L		102	(80%-120%)		
	Uncert:			+/-0.0745						
	TPU:			+/-0.192						
**Uranium-232 Tracer	2.19			1.93	pCi/L		88.2	(50%-105%)		
	Uncert:			+/-0.0672						
	TPU:			+/-0.156						
QC1202775081 MB										
Uranium-234			U	-0.0048	pCi/L				LYS1	11/21/1211:36
	Uncert:			+/-0.0085						
	TPU:			+/-0.0085						
Uranium-235/236			U	-0.00241	pCi/L					
	Uncert:			+/-0.00539						
	TPU:			+/-0.00539						
Uranium-238			U	0.00195	pCi/L					
	Uncert:			+/-0.00338						
	TPU:			+/-0.00338						
**Uranium-232 Tracer	2.19			1.94	pCi/L		89	(50%-105%)		
	Uncert:			+/-0.0657						

QC Summary

Workorder: 314591

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1261195										
	TPU:			+/-0.154						
Rad Gamma Spec										
Batch 1261091										
QC1202774852 314637001 DUP										
Cesium-137	U	-2.29	U	-1.95	pCi/L	0.053		(0-1)	KXG3	11/09/1208:43
	Uncert:	+/-1.46		+/-1.74						
	TPU:	+/-1.46		+/-1.74						
Cobalt-60	U	-1.01	U	-0.983	pCi/L	0.00507		(0-1)		
	Uncert:	+/-1.43		+/-1.43						
	TPU:	+/-1.43		+/-1.43						
Neptunium-237	U	-2.08	U	-4.08	pCi/L	0.160		(0-1)		
	Uncert:	+/-2.92		+/-3.32						
	TPU:	+/-2.92		+/-3.32						
Potassium-40	U	-17.6	U	2.23	pCi/L	0.298		(0-1)		
	Uncert:	+/-15.8		+/-17.3						
	TPU:	+/-15.8		+/-17.3						
Sodium-22	U	-0.457	U	-0.731	pCi/L	0.0504		(0-1)		
	Uncert:	+/-1.03		+/-1.68						
	TPU:	+/-1.03		+/-1.68						
QC1202774853 LCS										
Americium-241	2780			2640	pCi/L		95	(80%-120%)	KXG3	11/09/1211:44
	Uncert:			+/-191						
	TPU:			+/-191						
Cesium-137	6090			6090	pCi/L		99.9	(80%-120%)		
	Uncert:			+/-257						
	TPU:			+/-257						
Cobalt-60	5660			5620	pCi/L		99.2	(80%-120%)		
	Uncert:			+/-235						
	TPU:			+/-235						
Neptunium-237			U	8.55	pCi/L					
	Uncert:			+/-21.9						
	TPU:			+/-21.9						
Potassium-40			U	-57.9	pCi/L					
	Uncert:			+/-50.4						
	TPU:			+/-50.4						
Sodium-22			U	4.78	pCi/L					
	Uncert:			+/-7.41						
	TPU:			+/-7.41						
QC1202774851 MB										
Cesium-137			U	0.997	pCi/L				KXG3	11/08/1212:23
	Uncert:			+/-1.34						
	TPU:			+/-1.34						
Cobalt-60			U	-2.32	pCi/L					
	Uncert:			+/-1.41						
	TPU:			+/-1.41						
Neptunium-237			U	-1.66	pCi/L					
	Uncert:			+/-2.58						
	TPU:			+/-2.58						

QC Summary

Workorder: 314591

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1261091										
Potassium-40			U	-6.49	pCi/L					
Uncert:				+/-14.7						
TPU:				+/-14.7						
Sodium-22			U	-1.17	pCi/L					
Uncert:				+/-0.991						
TPU:				+/-0.991						
Rad Gas Flow										
Batch 1260884										
QC1202774231 314445001 DUP										
Strontium-90	U	0.224	U	-0.222	pCi/L	0.800		(0-1)	VXC2	11/24/1211:55
Uncert:		+/-0.147		+/-0.130						
TPU:		+/-0.148		+/-0.130						
**Strontium Carrier	7.17	6.40		6.20	mg		86.5	(50%-105%)		
QC1202774233 LCS										
Strontium-90	24.8			24.1	pCi/L		96.9	(80%-120%)	VXC2	11/21/1217:03
Uncert:				+/-0.597						
TPU:				+/-2.04						
**Strontium Carrier	7.17			6.00	mg		83.7	(50%-105%)		
QC1202774230 MB										
Strontium-90			U	-0.0606	pCi/L				VXC2	11/21/1217:02
Uncert:				+/-0.0614						
TPU:				+/-0.0614						
**Strontium Carrier	7.17			6.60	mg		92.1	(50%-105%)		
QC1202774232 314445001 MS										
Strontium-90	124 U	0.224		126	pCi/L		101	(75%-125%)	VXC2	11/21/1217:03
Uncert:		+/-0.147		+/-2.95						
TPU:		+/-0.148		+/-10.4						
**Strontium Carrier	7.17	6.40		6.40	mg		89.3	(50%-105%)		
Batch 1260898										
QC1202774276 314136001 DUP										
Alpha	U	0.899	U	0.189	pCi/L	0.288		(0-1)	BXF1	11/17/1216:40
Uncert:		+/-0.682		+/-0.545						
TPU:		+/-0.686		+/-0.545						
Beta	U	0.924	U	-1.31	pCi/L	0.667		(0-1)		11/16/1208:56
Uncert:		+/-0.855		+/-0.816						
TPU:		+/-0.859		+/-0.816						
QC1202774279 LCS										
Alpha	12.0			11.5	pCi/L		96	(80%-120%)	BXF1	11/18/1219:49
Uncert:				+/-0.620						
TPU:				+/-1.15						
Beta	49.7			45.8	pCi/L		92.2	(80%-120%)		11/15/1213:21
Uncert:				+/-0.882						
TPU:				+/-3.90						
QC1202774275 MB										
Alpha			U	0.00668	pCi/L				BXF1	11/17/1216:41
Uncert:				+/-0.0924						
TPU:				+/-0.0925						
Beta			U	0.0423	pCi/L					11/15/1213:19

QC Summary

Workorder: 314591

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1260898										
	Uncert:			+/-0.096						
	TPU:			+/-0.0961						
QC1202774277 314136001 MS										
Alpha	481 U	0.899		408	pCi/L		84.7	(75%-125%)	BXF1	11/17/1216:40
	Uncert:	+/-0.682		+/-23.0						
	TPU:	+/-0.686		+/-41.4						
Beta	1990 U	0.924		1730	pCi/L		87.2	(75%-125%)		11/15/1213:20
	Uncert:	+/-0.855		+/-34.2						
	TPU:	+/-0.859		+/-151						
QC1202774278 314136001 MSD										
Alpha	481 U	0.899		370	pCi/L	0.236	76.9	(0-1)	BXF1	11/17/1216:40
	Uncert:	+/-0.682		+/-21.5						
	TPU:	+/-0.686		+/-37.6						
Beta	1990 U	0.924		1850	pCi/L	0.193	93.2	(0-1)		11/15/1213:21
	Uncert:	+/-0.855		+/-36.3						
	TPU:	+/-0.859		+/-158						
Rad Liquid Scintillation										
Batch 1261839										
QC1202776612 314639004 DUP										
Tritium		398		464	pCi/L	0.253		(0-1)	BYS1	11/19/1208:28
	Uncert:	+/-48.1		+/-50.8						
	TPU:	+/-62.1		+/-68.4						
QC1202776614 LCS										
Tritium	2010			1650	pCi/L		82.4	(80%-120%)	BYS1	11/19/1209:38
	Uncert:			+/-146						
	TPU:			+/-219						
QC1202776611 MB										
Tritium			U	46.8	pCi/L				BYS1	11/19/1207:36
	Uncert:			+/-33.3						
	TPU:			+/-33.6						
QC1202776613 314639004 MS										
Tritium	2010	398		2460	pCi/L		103	(75%-125%)	BYS1	11/19/1209:21
	Uncert:	+/-48.1		+/-174						
	TPU:	+/-62.1		+/-299						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample

QC Summary

Workorder: 314591

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-264

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8082-PCB	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-H-3	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CASA-13-24215	Nov 2 2012	10:45	W	3			1	1			1	1
CASA-13-24223	Nov 2 2012	10:45	W		1	1			1	1		

Special Instructions:

Special Instructions:

Relinquished by:		Date/Time:	Received by:
Shen Sherwood	S. Sherwood	11/2/12 3pm	
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24215 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/02/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1045	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	RSP
LOCATION ID:	SCI-1	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	2 ~~3~~	ICE	Y	NA
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-H-3	250 ML AMBER GLASS	1	ICE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS:
NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 8.96 mg/L Oxidation-Reduction Potential 165.3 MV pH 7.09 SU

Specific Conductance 695 uS/cm Temperature 10.28 deg C Turbidity 3.47 NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
William Shaw	11/2/2012 1140	K. Greene	~~11/02/12~~ 11:40 11/2/12
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4029 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_SANDIA

SAMPLE ID: CASA-13-24223 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/02/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1045	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	RSP
LOCATION ID:	SCI-1	↓	FIELD PREP:	F	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
↓	WSP-GENINORG	1 LITER POLY	1	ICE	↓	↓
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS:

LOCATION COMMENTS: See CASA-13-24215

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
William Shaw	11/2/2012 1140	K. Greene	11/2/12 11:40
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-264

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
314529	EPA:120.1	1				
314529	EPA:150.1	1				
314529	EPA:160.1	1				
314529	EPA:245.2	1				
314529	EPA:300.0	1				
314529	EPA:310.1	1				
314529	EPA:350.1	1				
314529	EPA:351.2	1				
314529	EPA:353.2	1				
314529	EPA:365.4	1				
314529	EPA:900	1				
314529	EPA:901.1	1				
314529	EPA:905.0	1				
314529	EPA:906.0	1				
314529	HASL-300:AM-241	1				
314529	HASL-300:ISOPU	1				
314529	HASL-300:ISOU	1				
314529	SM:A2340B	1				
314529	SW-846:6010B	1				
314529	SW-846:6020	1				
314529	SW-846:6850	1				
314529	SW-846:8082	1				
314529	SW-846:9060	1				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
314529	EPA:120.1	1265081	1265081	1							
314529	EPA:150.1	1260327	1260327	1							
314529	EPA:160.1	1260149	1260149	1					1		
314529	EPA:245.2	1264600	1264596	1					1	2	
314529	EPA:300.0	1259659	1259659	1					1		
314529	EPA:310.1	1262945	1262945	1					1	1	
314529	EPA:350.1	1260275	1260272	1					1	2	2
314529	EPA:351.2	1260284	1260283	1					1	1	1
314529	EPA:353.2	1260242	1260242	1					1		
314529	EPA:365.4	1260281	1260280	1					1	1	1
314529	EPA:900	1260898	1260898	1					1	1	1
314529	EPA:901.1	1260199	1260199	1					1		
314529	EPA:905.0	1260884	1260884	1					1	1	
314529	EPA:906.0	1260474	1260474	1					1	1	
314529	HASL-300:AM-241	1259852	1259852	1					1		
314529	HASL-300:ISOPU	1259851	1259851	1					1		
314529	HASL-300:ISOU	1259850	1259850	1					1		
314529	SM:A2340B	1266665	1266665	1							
314529	SW-846:6010B	1260610	1260609	1					1	1	
314529	SW-846:6020	1260607	1260605	1					1	1	
314529	SW-846:6850	1260140	1260138	1					1	1	1

Data Validation Report for:

Chain Of Custody No. 2013-264

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				2			
		1				1			
		1				2			
		1				2			
		1				1			
		1				1			
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1							

314529	SW-846:8082	1262673	1262672	1					1	1	1
314529	SW-846:9060	1260735	1260735	1					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24255	1202784135	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24258	1202784136	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CASA-13-24223	314529002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202784137	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24258	1202772818	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24223	314529002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202772819	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24260	1202772397	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CASA-13-24223	1202772398	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CASA-13-24223	314529002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202772399	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202772396	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783063	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783067	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783064	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783068	MS	0	0	1	0
EPA:245.2	INORGANIC	CASA-13-24223	314529002	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202783069	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202783062	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24255	1202771232	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CASA-13-24223	314529002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202771234	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202771231	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24256	1202779306	DUP	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24256	1202779307	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CASA-13-24223	314529002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202779299	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202779298	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	1202772677	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	1202772679	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	1202772681	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	1202772678	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	1202772680	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	1202772682	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24223	314529002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202772683	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202772676	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	1202772708	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	1202772709	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	1202772710	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24215	314529001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202772711	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202772707	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24283	1202772623	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CASA-13-24223	314529002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202772626	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202772621	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	1202772696	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	1202772698	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	1202772700	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24223	314529002	REG	1	0	0	0

		1							
		1				1			

EPA:365.4	GENERAL CHEMISTRY	LCS	1202772701	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202772694	MB	1	0	0	0
EPA:900	RAD	CAPA-12-23808	1202774276	DUP	2	0	0	0
EPA:900	RAD	CAPA-12-23808	1202774277	MS	0	0	2	0
EPA:900	RAD	CAPA-12-23808	1202774278	MSD	0	0	2	0
EPA:900	RAD	CASA-13-24215	314529001	REG	2	0	0	0
EPA:900	RAD	LCS	1202774279	LCS	0	0	2	0
EPA:900	RAD	MB	1202774275	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24279	1202772495	DUP	6	0	0	0
EPA:901.1	RAD	CASA-13-24215	314529001	REG	5	0	0	0
EPA:901.1	RAD	LCS	1202772496	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202772494	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24241	1202774231	DUP	1	0	0	0
EPA:905.0	RAD	CAMO-13-24241	1202774232	MS	0	0	1	0
EPA:905.0	RAD	CASA-13-24215	314529001	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202774233	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202774230	MB	1	0	0	0
EPA:906.0	RAD	CASA-13-24215	1202773258	DUP	1	0	0	0
EPA:906.0	RAD	CASA-13-24215	1202773259	MS	0	0	1	0
EPA:906.0	RAD	CASA-13-24215	314529001	REG	1	0	0	0
EPA:906.0	RAD	LCS	1202773260	LCS	0	0	1	0
EPA:906.0	RAD	MB	1202773257	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24225	1202771691	DUP	1	0	0	0
HASL-300:AM-241	RAD	CASA-13-24215	314529001	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202771693	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202771689	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24225	1202771686	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CASA-13-24215	314529001	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202771688	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202771684	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24225	1202771682	DUP	3	0	0	0
HASL-300:ISOU	RAD	CASA-13-24215	314529001	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202771683	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202771681	MB	3	0	0	0
SM:A2340B	INORGANIC	CASA-13-24223	314529002	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24283	1202773562	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24283	1202773563	MS	0	0	17	0
SW-846:6010B	INORGANIC	CASA-13-24223	314529002	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202773561	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202773560	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24283	1202773554	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24283	1202773555	MS	0	0	11	0
SW-846:6020	INORGANIC	CASA-13-24223	314529002	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202773553	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202773552	MB	11	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24259	1202772360	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24259	1202772361	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CASA-13-24223	314529002	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202772359	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202772358	MB	1	0	0	0
SW-846:8082	PESTPCB	CASA-13-24215	314529001	REG	8	2	0	0
SW-846:8082	PESTPCB	LCS	1202778593	LCS	0	2	2	0

SW-846:8082	PESTPCB	MB	1202778592	MB	8	2	0	0
SW-846:8082	PESTPCB	WST05-12-23548	1202778594	MS	0	2	2	0
SW-846:8082	PESTPCB	WST05-12-23548	1202778595	MSD	0	2	2	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24241	1202773872	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CASA-13-24215	314529001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202773876	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202773871	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202772694	METHOD BLANK	EPA:365.4	W	Total Phosphate as Phosphorus	0.0459	J	mg/L	0.05
MB	1202772707	METHOD BLANK	EPA:351.2	W	Total Kjeldahl Nitrogen	0.0602	J	mg/L	0.1
MB	1202773560	METHOD BLANK	SW-846:6010B	W	Sodium	236	J	ug/L	300
MB	1202773560	METHOD BLANK	SW-846:6010B	W	Strontium	1.55	J	ug/L	5
MB	1202773871	METHOD BLANK	SW-846:9060	W	Total Organic Carbon	0.488	J	mg/L	1

Any samples affected by the presence of contaminants in blanks?

Field Sample ID	Blank Field Sample ID	Blank Lab Sample ID	Blank Type	Analytical Method	Parameter Name	Units	Blank Result	Sample Result	Lab Qualifier	Detect Limit	Detected
CASA-13-24215	MB	1202773871	METHOD BLANK	SW-846:9060	Total Organic Carbon	mg/L	0.488	1.2		1	Y

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CAMO-13-24238	1202772709	1202772710	EPA:351.2	Total Kjeldahl Nitrogen	1260283	11/6/2012	W	84.8	96	110	90

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

Data Validation Report for:

Chain Of Custody No. 2013-264

Correction Factor (ND)	Correction Factor (J)	Use Factors
5		Y

Rejection Limit	RPD	RPD Limit
10	11.6	20

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
SCI-1	2013-264	CASA-13-24215	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
SCI-1	2013-264	CASA-13-24215	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
SCI-1	2013-264	CASA-13-24215	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
SCI-1	2013-264	CASA-13-24215	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
SCI-1	2013-264	CASA-13-24215	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
SCI-1	2013-264	CASA-13-24215	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
SCI-1	2013-264	CASA-13-24215	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
SCI-1	2013-264	CASA-13-24215	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
SCI-1	2013-264	CASA-13-24215	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
SCI-1	2013-264	CASA-13-24215	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
SCI-1	2013-264	CASA-13-24215	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
SCI-1	2013-264	CASA-13-24215	REG	INIT	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon		U	I4	N
SCI-1	2013-264	CASA-13-24215	REG	INIT	RAD	EPA:906.0	Tritium	U	U	R5	N
SCI-1	2013-264	CASA-13-24215	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N

Reason Code	Description
I4	the sample result is =<5x the concentration of related analyte in the method blank.
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CASA-13-24215	SCI-1	REG	EPA:351.2	0	1
CASA-13-24215	SCI-1	REG	EPA:900	0	2
CASA-13-24215	SCI-1	REG	EPA:901.1	0	5
CASA-13-24215	SCI-1	REG	EPA:905.0	0	1
CASA-13-24215	SCI-1	REG	EPA:906.0	0	1
CASA-13-24215	SCI-1	REG	HASL-300:AM-241	0	1
CASA-13-24215	SCI-1	REG	HASL-300:ISOPU	0	2
CASA-13-24215	SCI-1	REG	HASL-300:ISOU	0	3
CASA-13-24215	SCI-1	REG	SW-846:8082	0	8
CASA-13-24215	SCI-1	REG	SW-846:9060	0	1
CASA-13-24223	SCI-1	REG	EPA:120.1	0	1
CASA-13-24223	SCI-1	REG	EPA:150.1	0	1

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
0	pCi/L	0	pCi/L	0.051	0.011	W	11/2/2012		1259852	VAL	Y
-0.0752	pCi/L	-0.0752	pCi/L	4.55	1.24	W	11/2/2012		1260199	VAL	Y
-0.337	pCi/L	-0.337	pCi/L	4.37	1.16	W	11/2/2012		1260199	VAL	Y
1.88	pCi/L	1.88	pCi/L	2.93	0.99	W	11/2/2012		1260898	VAL	Y
0.474	pCi/L	0.474	pCi/L	2.7	0.751	W	11/2/2012		1260898	VAL	Y
1.3	pCi/L	1.3	pCi/L	9.02	2.51	W	11/2/2012		1260199	VAL	Y
-0.007	pCi/L	-0.007	pCi/L	0.0336	0.007	W	11/2/2012		1259851	VAL	Y
0.007	pCi/L	0.007	pCi/L	0.0559	0.007	W	11/2/2012		1259851	VAL	Y
2.49	pCi/L	2.49	pCi/L	56.3	15.7	W	11/2/2012		1260199	VAL	Y
-0.755	pCi/L	-0.755	pCi/L	4.19	1.2	W	11/2/2012		1260199	VAL	Y
0.0567	pCi/L	0.0567	pCi/L	0.485	0.131	W	11/2/2012		1260884	VAL	Y
1.2	mg/L	1.2	mg/L			W	11/2/2012		1260735	VAL	Y
56.6	pCi/L	56.6	pCi/L	152	45.7	W	11/2/2012		1260474	VAL	Y
0.0352	pCi/L	0.0352	pCi/L	0.0459	0.0141	W	11/2/2012		1259850	VAL	Y

CASA-13-24223	SCI-1	REG	EPA:160.1	0	1
CASA-13-24223	SCI-1	REG	EPA:245.2	0	1
CASA-13-24223	SCI-1	REG	EPA:300.0	0	4
CASA-13-24223	SCI-1	REG	EPA:310.1	0	2
CASA-13-24223	SCI-1	REG	EPA:350.1	0	1
CASA-13-24223	SCI-1	REG	EPA:353.2	0	1
CASA-13-24223	SCI-1	REG	EPA:365.4	0	1
CASA-13-24223	SCI-1	REG	SM:A2340B	0	1
CASA-13-24223	SCI-1	REG	SW-846:6010B	0	17
CASA-13-24223	SCI-1	REG	SW-846:6020	0	11
CASA-13-24223	SCI-1	REG	SW-846:6850	0	1

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

November 29, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 314529
SDG: 2013-264

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 03, 2012, and analyzed for GC Semivolatile PCB, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-264
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 314529
SDG: 2013-264

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....9

Perchlorates by LCMSMS Analysis.....11

Case Narrative.....12

Sample Data Summary.....18

Quality Control Summary.....20

Quality Control Data.....23

Miscellaneous.....29

PCB Analysis.....31

Case Narrative.....32

Sample Data Summary.....37

Quality Control Summary.....39

Quality Control Data.....45

Metals Analysis.....48

Case Narrative.....49

Sample Data Summary.....55

Quality Control Summary.....59

General Chem Analysis.....73

Case Narrative.....74

Sample Data Summary.....102

Quality Control Summary.....107

Miscellaneous.....112

Radiological Analysis.....115

Sample Data Summary.....129

Quality Control Data.....132

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 314529
SDG # : 2013-264

November 29, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 03, 2012 for analysis. Please see attached email for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
314529001	CASA-13-24215
314529002	CASA-13-24223

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC Semivolatile PCB, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Hope Taylor for
Valerie Davis
Project Manager

List of current GEL Certifications as of 29 November 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.
2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

314529

COC/Lab Request #: 2013-264

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8082-PCB	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-H-3	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CASA-13-24215	Nov 2 2012	10:45	W	3			1	1			1	1
CASA-13-24223	Nov 2 2012	10:45	W		1	1			1	1		

Special Instructions:

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
S. Sherwood	S. Sherwood	11/2/12 3pm	[illegible]	11-3-12 0930
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	SDG/AR/COC/Work Order: 2013-264 2013-265
Received By: MK	Date Received: 11-3-12

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): cpm 0
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Ice bags (Blue ice) Dry ice None Other (describe) *all temperatures are recorded in Celsius 4c
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: 41502182 Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	✓			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?	✓			Sample ID's and containers affected:
7	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?			✓	Sample ID's affected: * see Below
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			
14	Carrier and tracking number.	✓			Circle Applicable: (FedEx Air) FedEx Ground UPS Field Services Courier Other 5462 9832 4911 4c 4922 18c No ice

Comments (Use Continuation Form if needed):

* MISSING 1 VIAL FOR CAMO-13-24274
MISSING 1 PCB Bottle FOR CASA-13-24215

PM (or PMA) review: Initials HH Date 11/05/12 Page 1 of 1

Subject: Sample Receipt for 110212 and 110312
From: Hope Taylor <Hope.Taylor@gel.com>
Date: 11/5/2012 11:00 AM
To: "Keith R. Greene" <kgreene@lanl.gov>, LANL@amrad.com, "team.davis" <team.davis@gel.com>

Good morning Keith,

The containers for Gross A/B were preserved prior to analysis.

RN 2013-259 The lab received one container each for HEXP, SVOA and PCB for ID CAMO-13-24225, chain indicates three.
Received a broken vial(8260) for ID CAMO-13-24225.

RN 2013-263 The lab received one container for ID WST55-13-24513, chain indicates six.

RN 2013-265 The lab received one container for 8260 for ID CAMO-13-24274, chain indicates two

RN 2013-264 The lab received two containers for PCB for ID CASA-13-24215, chain indicates three.

Thanks

--
Hope Taylor
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Direct: 843.769.7376 ext. 4778
Main: 843.556.8171
Fax: 843.766.1178
E-mail: hop01200@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 02NOV12
ACTWGT: 51.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MRIA015AGWL0

4c

50DC1/9CCB/18BC

FedEx Express

J1113110606 0125

1 of 2

TRK# 0201 5462 9832 4911

SATURDAY ### A1
PRIORITY OVERNIGHT

MASTER

X0 CHSA

29407
SC-US CHS

Part # 156149-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 02NOV12
ACTWGT: 29.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MRIA015AGWL0

18c
No ice

FedEx Express

2 of 2

MPS# 0263 5462 9832 4922

Mstr# 5462 9832 4911

SATURDAY ### A1
PRIORITY OVERNIGHT

0201

X0 CHSA

29407
SC-US CHS

Part # 156149-434 RIT2 08/10

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC/MSMS
ARS International (ARSL)
SDG 2013-264

Method/Analysis Information

Procedure:	**Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method:	SW846 6850 Modified
Prep Method:	SW846 6850 Modified
Analytical Batch Number:	1260140
Prep Batch Number:	1260138

Sample Analysis

Sample ID	Client ID
314529002	CASA-13-24223
1202772362	Interference Check Sample (ICS)
1202772358	Method Blank (MB)
1202772359	Laboratory Control Sample (LCS)
1202772360	314443002(CAMO-13-24259) Matrix Spike (MS)
1202772361	314443002(CAMO-13-24259) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 9.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

ICV Requirements
All associated initial calibration verification standards (ICV) met the acceptance criteria.

CCB Requirements
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

CCV Requirements
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

Low Level Standard (CRI) Requirements
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Interference Check Sample (ICS)
The interference check sample (ICS) met all recovery acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Client sample 314443002 (CAMO-13-24259) from SDG 2013-259 was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
A negative recovery of -28.4% was observed for Perchlorate-101 in MS (1202772360). The acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

Matrix Spike Duplicate (MSD) Recovery Statement
Low recoveries were observed for Perchlorate and Perchlorate-101 in MSD (1202772361). The recoveries were 63% and 3.9% respectively and the acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits.

Retention Time Standard Area Acceptance
The retention time standard areas were within the required acceptance criteria for all samples and QC.

Retention Time
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
QC samples 1202772360 (CAMO-13-24259MS) and 1202772361 (CAMO-13-24259MSD) were diluted to bring the over range concentrations within the calibration range.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG.

Miscellaneous Information

Data Exception (DER) Documentation
Data Exception Report 1138672 was generated for this SDG.

A negative recovery of -28.4% was observed for Perchlorate-101 in MS (1202772360). The acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

Low recoveries were observed for Perchlorate and Perchlorate-101 in MSD (1202772361). The recoveries were 63% and 3.9% respectively and the acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

Additional Comments
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples.

Please see the isotope ratio criteria in the Miscellaneous Section.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-264 GEL Work Order: 314529

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 12 NOV 2012 **Title: Group Leader**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CASA-13-24223

Date Received: 03-NOV-12

GEL Job No (SDG): 2013-264

GEL Sample ID: 314529002

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.774	ug/L		1	08-NOV-12 18:17	per1108027a
	Perchlorate Isotope Ratio			3.24			1	08-NOV-12 18:17	per1108027a
14797-73-0	Perchlorate-101	.05	.2	0.774	ug/L		1	08-NOV-12 18:17	per1108027a
	Perchlorate-O(18)			0.509	ug/L		1	08-NOV-12 18:17	per1108027a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2013-264

Extract Batch Code: 1260138

Date Filtered: 07-NOV-12

Matrix: WATER

Sample ID: 1202772359

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.213	ug/L	107		85 - 115
Perchlorate Isotope Ratio		3.25				-
Perchlorate-101	0.200	.212	ug/L	106		85 - 115
Perchlorate-O(18)		.479	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2013-264

Extract Batch Code: 1260138

Date Extracted: 07-NOV-12

GEL MS/PS ID: 1202772360

Client ID: CAMO-13-24259

GEL MSD/PSD ID: 1202772361

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Recovery Limit
Perchlorate	0.200	7.86	ug/L	8.04	93.3		7.98	62.6	*	.766		30	75 - 125
Perchlorate Isotope Ratio	0	3.18		3.28			3.23			1.57			-
Perchlorate-101	0.200	8.09	ug/L	8.03	-28.4	*	8.09	3.89	*	.802		30	75 - 125
Perchlorate-O(18)	0	4.99	ug/L	4.97			4.95			.302			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-264

GEL Sample ID: 1202772358

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	08-NOV-12 16:16	per1108012a
	Perchlorate Isotope Ratio						1	08-NOV-12 16:16	per1108012a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	08-NOV-12 16:16	per1108012a
	Perchlorate-O(18)			0.471	ug/L		1	08-NOV-12 16:16	per1108012a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-264

GEL Sample ID: 1202772359

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.213	ug/L		1	08-NOV-12 16:24	per1108013a
	Perchlorate Isotope Ratio			3.25			1	08-NOV-12 16:24	per1108013a
14797-73-0	Perchlorate-101	.05	.2	0.212	ug/L		1	08-NOV-12 16:24	per1108013a
	Perchlorate-O(18)			0.479	ug/L		1	08-NOV-12 16:24	per1108013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2013-264

GEL Sample ID: 1202772362

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.202	ug/L		1	08-NOV-12 16:33	per1108014a
	Perchlorate Isotope Ratio			3.12			1	08-NOV-12 16:33	per1108014a
14797-73-0	Perchlorate-101	.05	.2	0.209	ug/L		1	08-NOV-12 16:33	per1108014a
	Perchlorate-O(18)			0.502	ug/L		1	08-NOV-12 16:33	per1108014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24259MS

Date Received: 02-NOV-12

GEL Job No (SDG): 2013-264

GEL Sample ID: 1202772360

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	8.04	ug/L		10	09-NOV-12 13:31	per1109015a
	Perchlorate Isotope Ratio			3.28			10	09-NOV-12 13:31	per1109015a
14797-73-0	Perchlorate-101	.5	2	8.03	ug/L		10	09-NOV-12 13:31	per1109015a
	Perchlorate-O(18)			4.97	ug/L		10	09-NOV-12 13:31	per1109015a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24259MSD

Date Received: 02-NOV-12

GEL Job No (SDG): 2013-264

GEL Sample ID: 1202772361

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	7.98	ug/L		10	09-NOV-12 13:39	per1109016a
	Perchlorate Isotope Ratio			3.23			10	09-NOV-12 13:39	per1109016a
14797-73-0	Perchlorate-101	.5	2	8.09	ug/L		10	09-NOV-12 13:39	per1109016a
	Perchlorate-O(18)			4.95	ug/L		10	09-NOV-12 13:39	per1109016a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
10-NOV-12	Federal	Others	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LC-MS/MS	SW846-6850 Modified	Liquid	ARSL001
Batch ID:	**Sample Numbers:**		
1260140	See below		

Potentially affected work order(s)(SDG): 314340(2013-246),314341(2013-247),314443(2013-259),314445(2013-258),314529(2013-264)

Application Issues:

Failed Recovery for MS/PS

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. A negative recovery was observed for Perchlorate-101 at -28.4% in the MS (1202772360). The acceptance range is 75-125%. 2. Low recoveries were observed for Perchlorate and Perchlorate-101 in the MSD (1202772361). The recoveries were 63% and 3.9% respectively and the acceptance range is 75-125% for both.	1. & 2. The low and negative recoveries observed in the matrix spikes may be the result of the background concentration present in the parent sample, 314443002, and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER.

Originator's Name:

Charles Wilson 10-NOV-12

Data Validator/Group Leader:

Michael Penny 10-NOV-12

PCB Analysis

Case Narrative

PCB Case Narrative
ARS International (ARSL)
SDG 2013-264

Method/Analysis Information

Procedure:	**Analysis of Polychlorinated Biphenyls by ECD**
Analytical Method:	SW846 3535A/8082
Prep Method:	SW846 3535A
Analytical Batch Number:	1262673
Prep Batch Number:	1262672

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3535A/8082:

Sample ID	Client ID
314529001	CASA-13-24215
1202778592	Method Blank (MB)
1202778593	Laboratory Control Sample (LCS)
1202778594	314048005(WST05-12-23548) Matrix Spike (MS)
1202778595	314048005(WST05-12-23548) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-040 REV# 19.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 23.0.

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standards (ICV or CCV) met the acceptance criteria. All analytes were within the established retention time windows for this method.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
An ARSL sample of similar matrix in SDG 2013-225 was selected for the matrix spike and matrix spike duplicate analysis for this batch of the samples.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the MS and MSD met the acceptance limits.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns. All sample extracts were cleaned using alumina.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not performed in this SDG.

Miscellaneous Information

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception report (DER) is generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A DER was not required for this SDG.

Manual Integrations
Certain standards and samples may have required manual integration to correctly position the baseline as set in the calibration standard injections. If manual integration was performed, copies of all manual integration peak profiles are included in the raw data section of this PCB fraction.

Additional Comments
The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

The higher results from either column have been chosen and reported in the data package for the client samples, MB and LCS. The data reported for the MS and MSD are from the same analytical column as the parent sample.

Due to software issue, the surrogate recovery range was not indicated or possibly indicated incorrectly in Quantitation Report. Please see Surrogate Recovery Report for correct surrogate acceptance limits.

Due to rounding differences in the calculation between the forms, the data reported in Sample Summary (form 1) and Spike Recovery Report (form 3) may differ slightly from the data reported in Identification Summary (form 10).

Aroclors quantitated on the raw data report by ChemStation data system do not necessarily represent positive Aroclor identification. In order for positive identification to be made, the Aroclor must match in pattern and retention time; as well as quantitate relatively close between the primary and confirmation columns, as specified in SW846 method 8000. When these conditions are not met, the Aroclor is reported as a non-detect on the data report.

System Configuration

The Semi-Volatiles-PCB analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
ECD8A.I_1	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP I	30m x 0.25mm, 0.25um (Rtx-CLPesticide I)
ECD8A.I_2	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP II	30m x 0.25mm, 0.20um (Rtx-CLPesticide II)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-264 GEL Work Order: 314529

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Jimin Cao **Name: Jimin Cao**

Date: 27 NOV 2012 **Title: Data Validator**

Sample Data Summary

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-264**	**Date Collected:**	**11/02/2012 10:45**	**Matrix:**	**W**
Lab Sample ID:	**314529001**	**Date Received:**	**11/03/2012 09:30**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CASA-13-24215**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1262673**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 15:34**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/14/2012 08:57**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**111512.B\e8k1542.D**	**Column:**	**1 RTX-CLPEST1**		
	111512.B\e8k1542.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.100	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260	U	0.100	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.133	0.200	ug/L	66.3	(42%-120%)
Decachlorobiphenyl	0.160	0.200	ug/L	79.9	(41%-120%)

Quality Control Summary

PCB

Surrogate Recovery Report

SDG Number: 2013-264

Matrix Type: LIQUID

Sample ID	Client ID	4CMX 1 %REC #	4CMX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #
1202778592	MB for batch 1262672	54	55	72	72
1202778593	LCS for batch 1262672	69	70	79	79
1202778594	WST05-12-23548MS	67	69	89	86
1202778595	WST05-12-23548MSD	66	67	81	81
314529001	CASA-13-24215	65	66	79	80

Surrogate			Acceptance Limits
4CMX	=	4cmx	(42%-120%)
DCB	=	Decachlorobiphenyl	(41%-120%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-264**
Client ID: **LCS for batch 1262672**
Lab Sample ID: **1202778593**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/15/2012 13:19**
Prep Batch ID: **1262672**
Batch ID: **1262673**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	LCS	Aroclor-1016	1.00	0.0	0.728	73	47-115
11096-82-5	LCS	Aroclor-1260	1.00	0.0	0.797	80	42-115

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-264**
Client ID: **WST05-12-23548MS**
Lab Sample ID: **1202778594**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/15/2012 13:44**
Prep Batch ID: **1262672**
Batch ID: **1262673**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	MS	Aroclor-1016	1.00	0.00	U	0.762	76	34-123
11096-82-5	MS	Aroclor-1260	1.00	0.00	U	0.809	81	30-127

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-264**
Sample Type: **Matrix Spike Duplicate**
Client ID: **WST05-12-23548MSD**
Matrix: **W**
Lab Sample ID: **1202778595**
Instrument: **ECD8A.I**
Analysis Date: **11/15/2012 13:56**
Dilution: 1
Analyst: **JXM**
Prep Batch ID: **1262672**
Inj. Vol: **1 uL**
Batch ID: **1262673**

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
12674-11-2	MSD Aroclor-1016	1.00	0.00	U	0.703	70	34-123	8	0-30
11096-82-5	MSD Aroclor-1260	1.00	0.00	U	0.811	81	30-127	0	0-30

Method Blank Summary

SDG Number:	**2013-264**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1262672**	**Instrument ID:**	**ECD8A.I_1** **ECD8A.I_2**	**Data File:**	**111512.B\e8k1530.D** **111512.B\e8k1530.D**
Lab Sample ID:	**1202778592**				
Column:	**RTX-CLPEST1** **RTX-CLPEST2**	**Prep Date:**	**11/14/2012 08:57**	**Analyzed:**	**11/15/12 13:07**

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1262672	**1202778593**	**111512.B\e8k1531.D** **111512.B\e8k1531.D**	**11/15/12**	**1319**
02 WST05-12-23548MS	**1202778594**	**111512.B\e8k1533.D** **111512.B\e8k1533.D**	**11/15/12**	**1344**
03 WST05-12-23548MSD	**1202778595**	**111512.B\e8k1534.D** **111512.B\e8k1534.D**	**11/15/12**	**1356**
04 CASA-13-24215	**314529001**	**111512.B\e8k1542.D** **111512.B\e8k1542.D**	**11/15/12**	**1534**

Quality Control Data

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-264**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778592**				
Client Sample:	**QC for batch 1262672**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262672**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1262673**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 13:07**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/14/2012 08:57**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**111512.B\e8k1530.D**	**Column:**	**1 RTX-CLPEST1**		
	111512.B\e8k1530.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.100	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260	U	0.100	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.109	0.200	ug/L	54.5	(42%-120%)
Decachlorobiphenyl	0.145	0.200	ug/L	72.5	(41%-120%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-264**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778593**				
Client Sample:	**QC for batch 1262672**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262672**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1262673**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 13:19**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/14/2012 08:57**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**111512.B\e8k1531.D**	**Column:**	**1 RTX-CLPEST1**		
	111512.B\e8k1531.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		0.728	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260		0.797	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
Decachlorobiphenyl	0.158	0.200	ug/L	79.0	(41%-120%)
4cmx	0.140	0.200	ug/L	69.9	(42%-120%)

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-264

Sample Analysis

Sample ID	Client ID
314529002	CASA-13-24223
1202773560	Method Blank (MB) **ICP**
1202773561	Laboratory Control Sample (LCS)
1202773564	314528002(CAMO-13-24283L) Serial Dilution (SD)
1202773562	314528002(CAMO-13-24283D) Sample Duplicate (DUP)
1202773563	314528002(CAMO-13-24283S) Matrix Spike (MS)
1202773552	Method Blank (MB) **ICP-MS**
1202773553	Laboratory Control Sample (LCS)
1202773556	314528002(CAMO-13-24283L) Serial Dilution (SD)
1202773554	314528002(CAMO-13-24283D) Sample Duplicate (DUP)
1202773555	314528002(CAMO-13-24283S) Matrix Spike (MS)
1202783062	Method Blank (MB) **CVAA**
1202783069	Laboratory Control Sample (LCS)
1202783066	314445002(CAMO-13-24258L) Serial Dilution (SD)
1202783064	314445002(CAMO-13-24258D) Sample Duplicate (DUP)
1202783068	314445002(CAMO-13-24258S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1260610, 1260607, 1264600 and 1266665
Prep Batch :	1260609, 1260605 and 1264596
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 7
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B
Prep Method :	SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standards met the advisory control limits with the exception of potassium that recovered outside of the advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance

criteria for all applicable analytes with the exception of sodium. The CCB recovered high for sodium but samples were 10x greater than the PQL.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 314528002 (CAMO-13-24283)-ICP and ICP-MS and 314445002 (CAMO-13-24258)-CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations 25x the IDL/MDL for CVAA, 50X the IDL/MDL for ICP and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the established criteria of less than 10% difference (%D) with the exceptions of sodium and strontium.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instruments. Dilutions were required for this SDG in order to minimize tin suppression due to matrix interferences on sample 314529002.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case

narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 11-28-12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-264 GEL Work Order: 314529

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 11-28-12

Quality Control Summary

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-264 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314529002 **BASIS:** As Received **DATE COLLECTED** 02-NOV-12

CLIENT ID: CASA-13-24223 **LEVEL:** Low **DATE RECEIVED** 03-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/20/12 09:49	112012W1-9	1264600

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-264 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314529002 **BASIS:** As Received **DATE COLLECTED** 02-NOV-12

CLIENT ID: CASA-13-24223 **LEVEL:** Low **DATE RECEIVED** 03-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/15/12 23:42	111512-1	1260610
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/15/12 20:03	121115-3	1260607
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/15/12 20:03	121115-3	1260607
7440-39-3	Barium	33.7	ug/L		1	5	5	1	P	HSC	11/15/12 23:42	111512-1	1260610
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/15/12 23:42	111512-1	1260610
7440-42-8	Boron	85.8	ug/L		15	50	50	1	P	HSC	11/15/12 23:42	111512-1	1260610
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/16/12 09:39	121115-8	1260607
7440-70-2	Calcium	64200	ug/L		50	200	200	1	P	HSC	11/15/12 23:42	111512-1	1260610
7440-47-3	Chromium	10.1	ug/L		2	10	10	1	MS	BAJ	11/16/12 09:39	121115-8	1260607
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/15/12 23:42	111512-1	1260610
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/15/12 23:42	111512-1	1260610
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/15/12 23:42	111512-1	1260610
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/16/12 09:39	121115-8	1260607
7439-95-4	Magnesium	9860	ug/L		110	300	300	1	P	HSC	11/15/12 23:42	111512-1	1260610
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/15/12 23:42	111512-1	1260610
7439-98-7	Molybdenum	86.9	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/16/12 09:39	121115-8	1260607
7440-02-0	Nickel	4.02	ug/L		0.5	2	2	1	MS	BAJ	11/16/12 09:39	121115-8	1260607
7440-09-7	Potassium	1400	ug/L		50	150	150	1	P	HSC	11/15/12 23:42	111512-1	1260610
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/15/12 20:03	121115-3	1260607
7631-86-9	Silica	64900	ug/L		53	213	213	1	P	HSC	11/15/12 23:42	111512-1	1260610
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/16/12 09:39	121115-8	1260607
7440-23-5	Sodium	57800	ug/L		100	300	300	1	P	HSC	11/15/12 23:42	111512-1	1260610
7440-24-6	Strontium	280	ug/L		1	5	5	1	P	HSC	11/15/12 23:42	111512-1	1260610
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/15/12 20:03	121115-3	1260607
7440-31-5	Tin	100	ug/L	U	25	100	100	10	P	HSC	11/21/12 10:37	112112-2	1260610
7440-61-1	Uranium	2.32	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/16/12 09:39	121115-8	1260607
7440-62-2	Vanadium	2.17	ug/L	J	1	5	5	1	P	HSC	11/15/12 23:42	111512-1	1260610
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	11/15/12 23:42	111512-1	1260610

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-264 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314529002 **BASIS:** As Received **DATE COLLECTED** 02-NOV-12

CLIENT ID: CASA-13-24223 **LEVEL:** Low **DATE RECEIVED** 03-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	201	mg/L		0.453	1.24	1.24	1		JJ2	11/28/12 14:20		1266665

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1260607	1260605	SW846 3005A	50	mL	50	mL	11/09/12	MTM1
1260610	1260609	SW846 3005A	50	mL	50	mL	11/09/12	MTM1
1264600	1264596	EPA 245.1/245.2 Prep	20	mL	20	mL	11/19/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−264

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202773552								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
1202773560								
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Potassium	50	ug/L	+/−150	U	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	236	ug/L	+/−300	J	P	100	300
	Strontium	1.55	ug/L	+/−5	J	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202783062								
	Mercury	0.067	ug/L	+/−0.2	U	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−264 **Client ID** CAMO−13−24283S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314528002 **Spike ID:** 1202773555

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	223		1	U	200	111		MS
Arsenic	ug/L	75−125	77.7		1.7	U	80	95.8		MS
Cadmium	ug/L	75−125	9.86		0.11	U	10	98.6		MS
Chromium	ug/L	75−125	50.1		5.44	J	50	89.3		MS
Lead	ug/L	75−125	38.7		0.5	U	40	96.8		MS
Molybdenum	ug/L	75−125	54.6		1.2		50	107		MS
Nickel	ug/L	75−125	45.7		1.11	J	50	89.2		MS
Selenium	ug/L	75−125	20.1		1.5	U	20	99.1		MS
Silver	ug/L	75−125	55.2		0.2	U	50	110		MS
Thallium	ug/L	75−125	100		0.45	U	100	99.8		MS
Uranium	ug/L	75−125	51.9		0.582		50	103		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−264 **Client ID** CAMO−13−24283S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314528002 **Spike ID:** 1202773563

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	4970		68	U	5000	99		P
Barium	ug/L	75−125	513		25.8		500	97.5		P
Beryllium	ug/L	75−125	504		1	U	500	101		P
Boron	ug/L	75−125	502		15	U	500	98.4		P
Calcium	ug/L	75−125	15800		11000		5000	97.2		P
Cobalt	ug/L	75−125	493		1	U	500	98.4		P
Copper	ug/L	75−125	512		3	U	500	102		P
Iron	ug/L	75−125	5020		30	U	5000	100		P
Magnesium	ug/L	75−125	8870		3840		5000	101		P
Manganese	ug/L	75−125	495		2	U	500	99		P
Potassium	ug/L	75−125	6340		1690		5000	93		P
Silica	ug/L		85700		74500		10700	105	N/A	P
Sodium	ug/L	75−125	14900		9960		5000	99.5		P
Strontium	ug/L	75−125	529		50.3		500	95.7		P
Tin	ug/L	75−125	498		2.5	U	500	99.6		P
Vanadium	ug/L	75−125	517		8.72		500	102		P
Zinc	ug/L	75−125	492		3.3	U	500	98.2		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−264 **Client ID:** CAMO−13−24258S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314445002 **Spike ID:** 1202783068

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	1.95		0.067	U	2	97.3		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−264 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24283D

Matrix: LIQUID **Level:** Low

Sample ID: 314528002 **Duplicate ID:** 1202773554 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	5.44	J	4.83	J	11.8		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.2		1.1		9.23		MS
Nickel	ug/L	+/−2	1.11	J	1.06	J	4.15		MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.582		0.576		1.04		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−264 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24283D

Matrix: LIQUID **Level:** Low

Sample ID: 314528002 **Duplicate ID:** 1202773562 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−20%	25.8		25		3.09		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	15	U			P
Calcium	ug/L	+/−20%	11000		10600		3.28		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L		3	U	3	U			P
Iron	ug/L		30	U	30	U			P
Magnesium	ug/L	+/−20%	3840		3560		7.62		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	1690		1660		2.19		P
Silica	ug/L	+/−20%	74500		71900		3.46		P
Sodium	ug/L	+/−20%	9960		9630		3.31		P
Strontium	ug/L	+/−20%	50.3		48.6		3.27		P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L	+/−5	8.72		8.25		5.44		P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−264 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24258D

Matrix: LIQUID **Level:** Low

Sample ID: 314445002 **Duplicate ID:** 1202783064 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−264

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202773553								
	Antimony	ug/L	50	58.9		118	80−120	MS
	Arsenic	ug/L	50	58.2		116	80−120	MS
	Cadmium	ug/L	50	54.8		110	80−120	MS
	Chromium	ug/L	50	54.8		110	80−120	MS
	Lead	ug/L	50	55.8		112	80−120	MS
	Molybdenum	ug/L	50	54.3		109	80−120	MS
	Nickel	ug/L	50	56.5		113	80−120	MS
	Selenium	ug/L	50	58.8		118	80−120	MS
	Silver	ug/L	50	57.7		115	80−120	MS
	Thallium	ug/L	50	59.7		119	80−120	MS
	Uranium	ug/L	50	56.3		113	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−264

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202773561								
	Aluminum	ug/L	5000	4910		98.1	80−120	P
	Barium	ug/L	500	479		95.8	80−120	P
	Beryllium	ug/L	500	487		97.5	80−120	P
	Boron	ug/L	500	476		95.2	80−120	P
	Calcium	ug/L	5000	4900		98.1	80−120	P
	Cobalt	ug/L	500	486		97.3	80−120	P
	Copper	ug/L	500	488		97.7	80−120	P
	Iron	ug/L	5000	4910		98.2	80−120	P
	Magnesium	ug/L	5000	5030		101	80−120	P
	Manganese	ug/L	500	488		97.6	80−120	P
	Potassium	ug/L	5000	4640		92.8	80−120	P
	Silica	ug/L	10700	10300		96.5	80−120	P
	Sodium	ug/L	5000	5070		101	80−120	P
	Strontium	ug/L	500	476		95.1	80−120	P
	Tin	ug/L	500	496		99.3	80−120	P
	Vanadium	ug/L	500	496		99.2	80−120	P
	Zinc	ug/L	500	477		95.5	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−264

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783069								
	Mercury	ug/L	2	2.08		104	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−264 **Client ID** CAMO−13−24283L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314528002 **Serial Dilution ID:** 1202773556

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	5.44	J	10	U	100			MS
Lead	.5	U	2.5	U				MS
Molybdenum	1.2		1.29	J	6.99			MS
Nickel	1.11	J	2.5	U	100			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.582		.535	J	8.08			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−264 **Client ID** CAMO−13−24283L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314528002 **Serial Dilution ID:** 1202773564

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	25.8		27.5		6.33			P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	11000		11100		.743		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	3840		3840		.095			P
Manganese	2	U	10	U				P
Potassium	1690		1740		2.67			P
Silica	74500		76100		2.23		10	P
Sodium	9960		11100		11.2	E	10	P
Strontium	50.3		57		13.5	E	10	P
Tin	2.5	U	12.5	U				P
Vanadium	8.72		11	J	26.5			P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−264 **Client ID** CAMO−13−24258L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314445002 **Serial Dilution ID:** 1202783066

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-264

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1260735 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
314529001	CASA-13-24215
1202773871	Method Blank (MB)
1202773872	314445001(CAMO-13-24241) Sample Duplicate (DUP)
1202773874	314445001(CAMO-13-24241) Post Spike (PS)
1202773876	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314445001 (CAMO-13-24241).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following sample was re-analyzed due to CCV failure: 314529001 (CASA-13-24215).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1265081	**Method:**	EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
314529002	CASA-13-24223
1202784135	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202784136	314445002(CAMO-13-24258) Sample Duplicate (DUP)
1202784137	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314340002 (CAMO-13-24255) and 314445002 (CAMO-13-24258).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1260327 **Method:** EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
314529002	CASA-13-24223
1202772818	314445002(CAMO-13-24258) Sample Duplicate (DUP)
1202772819	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

The following sample was selected for QC analysis: 314445002 (CAMO-13-24258).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following sample from this sample group was received by the lab outside of the method specified holding time: 314529002 (CASA-13-24223).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1140480 314529002 (CASA-13-24223).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1259659	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
314529002	CASA-13-24223
1202771231	Method Blank (MB)
1202771232	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202771233	314340002(CAMO-13-24255) Post Spike (PS)
1202771234	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The following sample in this sample group was diluted due to high concentration: 314529002 (CASA-13-24223).

Sample Re-analysis
The following samples were re-analyzed due to CCV failure: 1202771231 (MB), 1202771232 (CAMO-13-24255), 1202771233 (CAMO-13-24255), 1202771234 (LCS) and 314529002 (CASA-13-24223).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202771232 (CAMO-13-24255), 1202771233 (CAMO-13-24255) and 314529002 (CASA-13-24223).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1260275	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1260272	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
314529002	CASA-13-24223
1202772676	Method Blank (MB)
1202772677	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202772678	314341002(CAMO-13-24257) Sample Duplicate (DUP)
1202772679	314340002(CAMO-13-24255) Matrix Spike (MS)
1202772680	314341002(CAMO-13-24257) Matrix Spike (MS)
1202772681	314340002(CAMO-13-24255) Matrix Spike Duplicate (MSD)
1202772682	314341002(CAMO-13-24257) Matrix Spike Duplicate (MSD)
1202772683	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314340002 (CAMO-13-24255) and 314341002 (CAMO-13-24257).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries for this sample set were within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202772677 (CAMO-13-24255).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1260284	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1260283	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
314529001	CASA-13-24215
1202772707	Method Blank (MB)
1202772708	314340001(CAMO-13-24238) Sample Duplicate (DUP)
1202772709	314340001(CAMO-13-24238) Matrix Spike (MS)
1202772710	314340001(CAMO-13-24238) Matrix Spike Duplicate (MSD)
1202772711	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340001 (CAMO-13-24238).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1202772709 (CAMO-13-24238).

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202772708 (CAMO-13-24238).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following sample was re-analyzed due to CCV failure: 314529001 (CASA-13-24215).

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1137073 1202772709 (CAMO-13-24238).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1260242	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
314529002	CASA-13-24223
1202772621	Method Blank (MB)
1202772623	314528002(CAMO-13-24283) Sample Duplicate (DUP)
1202772625	314528002(CAMO-13-24283) Post Spike (PS)
1202772626	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314528002 (CAMO-13-24283).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following sample in this sample group was diluted due to high concentration: 314529002 (CASA-13-24223).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1260281	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1260280	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
314529002	CASA-13-24223
1202772694	Method Blank (MB)
1202772696	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202772698	314340002(CAMO-13-24255) Matrix Spike (MS)
1202772700	314340002(CAMO-13-24255) Matrix Spike Duplicate (MSD)
1202772701	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Solids, Total Dissolved**		
Analytical Batch:	1260149	**Method:**	EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
314529002	CASA-13-24223
1202772396	Method Blank (MB)
1202772397	314445004(CAMO-13-24260) Sample Duplicate (DUP)
1202772398	314529002(CASA-13-24223) Sample Duplicate (DUP)
1202772399	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314445004 (CAMO-13-24260) and 314529002 (CASA-13-24223).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Alkalinity**

Analytical Batch: 1262945 **Method:** EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
314529002	CASA-13-24223
1202779299	Laboratory Control Sample (LCS)
1202779306	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202779307	314591002(CAMO-13-24256) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____29Nov12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-264 GEL Work Order: 314529

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-264

Client Sample ID:	CASA-13-24215	Project:	ESHL00210
Sample ID:	314529001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	02-NOV-12 10:45		
Receive Date:	03-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average		1.20	0.330	1.00	mg/L	1	TSM	11/09/12	1038	1260735	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl		0.341	0.035	0.100	mg/L	1	KLP1	11/06/12	1441	1260284	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/05/12	1700	1260283

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-264

Client Sample ID:	CASA-13-24223	Project:	ESHL00210
Sample ID:	314529002	Client ID:	ARSL001
Matrix:	W		
Collect Date:	02-NOV-12 10:45		
Receive Date:	03-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		696	1.00	1.00	umhos/cm	1	TXT1	11/20/12	1127	1265081	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 14.6C	H	7.84	0.010	0.100	SU	1	LXA1	11/06/12	0845	1260327	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Fluoride		0.202	0.033	0.100	mg/L	1	MAR1	11/13/12	0418	1259659	3
Chloride		97.2	0.670	2.00	mg/L	10	MAR1	11/14/12	0112	1259659	4
Sulfate		67.3	1.33	4.00	mg/L	10					
Bromide		0.781	0.067	0.200	mg/L	1	MAR1	11/14/12	0141	1259659	5
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	J	0.0197	0.017	0.050	mg/L	1	KLP1	11/06/12	0949	1260275	6
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		2.89	0.085	0.250	mg/L	5	AXH3	11/05/12	1430	1260242	7
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		1.01	0.017	0.050	mg/L	1	KLP1	11/06/12	1645	1260281	8
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		456	3.40	14.3	mg/L		LYG1	11/05/12	0758	1260149	9
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		105	0.725	1.00	mg/L		LXA1	11/14/12	1520	1262945	10
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/05/12	1600	1260272
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/05/12	1700	1260280

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-264
Project:	LANL-WQH Water Samples		

Client Sample ID:	CASA-13-24223	Project:	ESHL00210
Sample ID:	314529002	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 300.0	
5	EPA 300.0	
6	EPA 350.1	
7	EPA 353.2	
8	EPA 365.4	
9	EPA 160.1	
10	EPA 310.1	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 28, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **314529**

Parmname	NOM		Sample	Qual	QC	Units	RPD%		REC%	Range	Anlst	Date Time
Carbon Analysis												
Batch 1260735												
QC1202773872 314445001 DUP												
Total Organic Carbon Average		J	0.680	J	0.815	mg/L	18.1	^		(+/-1.00)	TSM	11/08/12 23:32
QC1202773876 LCS												
Total Organic Carbon Average	10.0				9.75	mg/L			97.5	(85%-115%)		11/08/12 18:41
QC1202773871 MB												
Total Organic Carbon Average				J	0.488	mg/L						11/08/12 18:32
QC1202773874 314445001 PS												
Total Organic Carbon Average	10.0	J	0.680		10.4	mg/L			97.7	(65%-120%)		11/08/12 23:52
Conductivity Analysis												
Batch 1265081												
QC1202784135 314340002 DUP												
Conductivity			195		196	umhos/cm	0.307			(0%-10%)	TXT1	11/20/12 11:15
QC1202784136 314445002 DUP												
Conductivity			141		140	umhos/cm	0.142			(0%-10%)		11/20/12 11:23
QC1202784137 LCS												
Conductivity	1410				1420	umhos/cm			101	(95%-105%)		11/20/12 10:55
Electrode Analysis												
Batch 1260327												
QC1202772818 314445002 DUP												
pH		H	8.06	H	8.04	SU	0.248			(0%-10%)	LXA1	11/06/12 08:30
QC1202772819 LCS												
pH	7.00				7.03	SU			100	(99%-101%)		11/06/12 08:15
Ion Chromatography												
Batch 1259659												
QC1202771232 314340002 DUP												
Bromide		J	0.143	J	0.143	mg/L	0.00	^		(+/-0.200)	MAR1	11/13/12 18:56
Chloride			7.86		7.94	mg/L	1.03			(0%-20%)		11/12/12 23:00
Fluoride			0.224		0.220	mg/L	1.44	^		(+/-0.100)		
Sulfate			13.3		13.2	mg/L	0.107			(0%-20%)		
QC1202771234 LCS												
Bromide	2.50				2.47	mg/L			98.8	(90%-110%)		11/13/12 17:58
Chloride	10.0				9.24	mg/L			92.4	(90%-110%)		11/12/12 22:02
Fluoride	5.00				4.82	mg/L			96.5	(90%-110%)		
Sulfate	20.0				18.9	mg/L			94.7	(90%-110%)		
QC1202771231 MB												
Bromide				U	ND	mg/L						11/13/12 17:29
Chloride				U	ND	mg/L						11/12/12 21:33
Fluoride				U	ND	mg/L						
Sulfate				U	ND	mg/L						
QC1202771233 314340002 PS												

QC Summary

Workorder: 314529

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1259659											
Bromide	2.50	J	0.143		2.68	mg/L		101	(90%-110%)		11/13/12 19:25
Chloride	10.0		7.86		18.5	mg/L		107	(90%-110%)	MAR1	11/12/12 23:29
Fluoride	5.00		0.224		5.11	mg/L		97.7	(90%-110%)		
Sulfate	20.0		13.3		34.1	mg/L		104	(90%-110%)		
Nutrient Analysis											
Batch 1260242											
QC1202772623 314528002 DUP											
Nitrogen, Nitrate/Nitrite			0.394		0.389	mg/L	1.28		(0%-20%)	AXH3	11/05/12 14:18
QC1202772626 LCS											
Nitrogen, Nitrate/Nitrite	1.00				1.02	mg/L		102	(90%-110%)		11/05/12 13:50
QC1202772621 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					11/05/12 13:48
QC1202772625 314528002 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.394		1.42	mg/L		103	(90%-110%)		11/05/12 14:19
Batch 1260275											
QC1202772677 314340002 DUP											
Nitrogen, Ammonia		U	ND	U	ND	mg/L	N/A			KLP1	11/06/12 09:34
QC1202772678 314341002 DUP											
Nitrogen, Ammonia		U	ND	U	ND	mg/L	N/A				11/06/12 09:37
QC1202772683 LCS											
Nitrogen, Ammonia	1.00				1.06	mg/L		106	(90%-110%)		11/06/12 09:30
QC1202772676 MB											
Nitrogen, Ammonia				U	ND	mg/L					11/06/12 09:29
QC1202772679 314340002 MS											
Nitrogen, Ammonia	1.00	U	ND		1.09	mg/L		108	(90%-110%)		11/06/12 09:34
QC1202772680 314341002 MS											
Nitrogen, Ammonia	1.00	U	ND		1.02	mg/L		101	(90%-110%)		11/06/12 09:42
QC1202772681 314340002 MSD											
Nitrogen, Ammonia	1.00	U	ND		1.08	mg/L	0.922	107	(0%-15%)		11/06/12 09:35
QC1202772682 314341002 MSD											
Nitrogen, Ammonia	1.00	U	ND		0.980	mg/L	4.00	97.4	(0%-15%)		11/06/12 09:43
Batch 1260281											
QC1202772696 314340002 DUP											
Phosphorus, Total as P			0.327		0.331	mg/L	1.22		(0%-31%)	KLP1	11/06/12 16:31
QC1202772701 LCS											
Phosphorus, Total as P	1.00				1.07	mg/L		107	(76%-120%)		11/06/12 16:21
QC1202772694 MB											
Phosphorus, Total as P				J	0.0459	mg/L					11/06/12 16:20
QC1202772698 314340002 MS											
Phosphorus, Total as P	1.00		0.327		1.20	mg/L		87.3	(62%-139%)		11/06/12 16:32
QC1202772700 314340002 MSD											
Phosphorus, Total as P	1.00		0.327		1.18	mg/L	1.68	85.3	(0%-20%)		11/06/12 16:33
Batch 1260284											
QC1202772708 314340001 DUP											
Nitrogen, Total Kjeldahl		J	0.0596	J	0.0894	mg/L	40.0 ^		(+/-0.100)	KLP1	11/06/12 14:13
QC1202772711 LCS											

QC Summary

Workorder: 314529

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis											
Batch 1260284											
Nitrogen, Total Kjeldahl	1.00				0.942	mg/L		94.2	(90%-110%)		11/06/12 14:12
QC1202772707 MB											
Nitrogen, Total Kjeldahl				J	0.0602	mg/L				KLP1	11/06/12 14:11
QC1202772709 314340001 MS											
Nitrogen, Total Kjeldahl	1.00	J	0.0596		0.908	mg/L		84.8 *	(90%-110%)		11/06/12 14:14
QC1202772710 314340001 MSD											
Nitrogen, Total Kjeldahl	1.00	J	0.0596		1.02	mg/L	11.6	96	(0%-20%)		11/06/12 14:15
Solids Analysis											
Batch 1260149											
QC1202772397 314445004 DUP											
Total Dissolved Solids			303		317	mg/L	4.61		(0%-10%)	LYG1	11/05/12 07:58
QC1202772398 314529002 DUP											
Total Dissolved Solids			456		439	mg/L	3.83		(0%-10%)		11/05/12 07:58
QC1202772399 LCS											
Total Dissolved Solids	300				287	mg/L		95.7	(95%-105%)		11/05/12 07:58
QC1202772396 MB											
Total Dissolved Solids				U	ND	mg/L					11/05/12 07:58
Titration Analysis											
Batch 1262945											
QC1202779306 314591002 DUP											
Alkalinity, Total as CaCO3			96.0		97.1	mg/L	1.11		(0%-20%)	LXA1	11/14/12 15:32
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A				
QC1202779299 LCS											
Alkalinity, Total as CaCO3	50.0				52.6	mg/L		105	(90%-110%)		11/14/12 10:29
QC1202779307 314591002 MS											
Alkalinity, Total as CaCO3	50.0		96.0		145	mg/L		98.7	(80%-120%)		11/14/12 15:37

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E Organics--Concentration of the target analyte exceeds the instrument calibration range
- F Estimated Value
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed

QC Summary

Workorder: **314529**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

	invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
06-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1260284	See Below		

Potentially affected work order(s)(SDG): **314340(2013-246),314341(2013-247),314443(2013-259),314445(2013-258),314528(2013-265),314529(2013-264)**

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS/PS: QC 1202772709MS	1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits.

Originator's Name:

Kristen Parson 06-NOV-12

Data Validator/Group Leader:

Thomas Lewis 27-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
15-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ESHL, FBWP, TRIA
Batch ID:	**Sample Numbers:**		
1260327	See below.		

Potentially affected work order(s)(SDG): **314440(2013-263),314443(2013-259),314445(2013-258),314506,314519,314528(2013-265),314529(2013-264)**

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 314440 001 314443 002,005,007 314445 002,004 314506 001 314519 006,013 314528 002 314529 002	1. Samples were received out of holding.

Originator's Name:
Lisa Gregory 15-NOV-12

Data Validator/Group Leader:
Julia Hamilton 15-NOV-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-264
Work Order 314529

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1259850

Sample ID	Client ID
314529001	CASA-13-24215
1202771681	Method Blank (MB)
1202771682	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202771683	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202771681 (MB) and 1202771683 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314443005 (CAMO-13-24225). The QC was from ARSL work order 314443.

QC Information

All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1259851

Sample ID	Client ID
314529001	CASA-13-24215
1202771684	Method Blank (MB)
1202771686	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202771688	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202771684 (MB) and 1202771688 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314443005 (CAMO-13-24225). The QC was from ARSL work order 314443.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER 1142000 was generated due to RDL less than MDA. 1. Samples 314443006, 314445001, 314445003, and 314529001 did not meet the detection limits for Pu-239/240 due to the high standard deviation and lower tracer yield recovery. 1. When a blank population is performed, the MDA is greater than the RDL due to the high standard deviation. Samples do meet the client requested yield requirements and were counted for 1000 minutes. Reporting results.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level

The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1259852

Sample ID	Client ID
314529001	CASA-13-24215
1202771689	Method Blank (MB)
1202771691	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202771693	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202771689 (MB) and 1202771693 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314443005 (CAMO-13-24225). The QC was from ARSL work order 314443.

QC Information

All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1260199

Sample ID	Client ID
314529001	CASA-13-24215
1202772494	Method Blank (MB)
1202772495	314528001(CAMO-13-24279) Sample Duplicate (DUP)
1202772496	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in June 2012, July 2012 and August 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314528001 (CAMO-13-24279). The QC was from ARSL work order 314528.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank 1202772494 (MB) result is greater than 1.65 times the CSU but less than the MDC for Co-60.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank 1202772494 (MB) result is greater than the decision level but less than the MDC for Co-60.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1260884

Sample ID	Client ID
314529001	CASA-13-24215
1202774230	Method Blank (MB)
1202774231	314445001(CAMO-13-24241) Sample Duplicate (DUP)
1202774232	314445001(CAMO-13-24241) Matrix Spike (MS)
1202774233	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202774230 (MB) and 1202774233 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314445001 (CAMO-13-24241). The QC was from ARSL work order 314445.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202774231 (CAMO-13-24241) was recounted due to high MDC. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202774232 (CAMO-13-24241), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1260898

Sample ID	Client ID
314529001	CASA-13-24215
1202774275	Method Blank (MB)
1202774276	314136001(CAPA-12-23808) Sample Duplicate (DUP)
1202774277	314136001(CAPA-12-23808) Matrix Spike (MS)
1202774278	314136001(CAPA-12-23808) Matrix Spike Duplicate (MSD)
1202774279	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in September 2011. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202774275 (MB) and 1202774279 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314136001 (CAPA-12-23808). The QC was from ARSL work order 314136.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202774276 (CAPA-12-23808) was recounted due to high MDC. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments

The matrix spike and matrix spike duplicate, 1202774277 (CAPA-12-23808) and 1202774278 (CAPA-12-23808), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-H-3**
Analytical Method:	EPA 906.0 Modified
Analytical Batch Number:	1260474

Sample ID	Client ID
314529001	CASA-13-24215
1202773257	Method Blank (MB)
1202773258	314529001(CASA-13-24215) Sample Duplicate (DUP)
1202773259	314529001(CASA-13-24215) Matrix Spike (MS)
1202773260	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-002 REV# 20.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in August 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314529001 (CASA-13-24215). The QC was from ARSL work order 314529.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-264 GEL Work Order: 314529

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Theresa L. Austin **Name: Theresa Austin**

Date: 27 NOV 2012 **Title: Group Leader**

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
19-NOV-12	Radiochemistry	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ALPHA SPECTROMETER	DOE EML HASL-300, Pu-11-RC Modified	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1259851	See Below		

Potentially affected work order(s)(SDG): **314340(2013-246),314341(2013-247),314443(2013-259),314445(2013-258),314528(2013-265),314529(2013-264)**

Application Issues:

RDL less than MDA

Specification and Requirements Exception Description:	DER Disposition:
1. Samples 314443006, 314445001, 314445003, and 314529001 did not meet the detection limits for Pu-239/240 due to the high standard deviation and lower tracer yield recovery.	1. When a blank population is performed, the MDA is greater than the RDL due to the high standard deviation. Samples do meet the client requested yield requirements and were counted for 1000 minutes. Reporting results.

Originator's Name:
Jessica Downey 19-NOV-12

Data Validator/Group Leader:
Jessica Davis 21-NOV-12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 27, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CASA-13-24215
Sample ID: 314529001
Matrix: W
Collect Date: 02-NOV-12
Receive Date: 03-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.00	+/-0.011	0.051	+/-0.011	0.050	pCi/L		LYS1	11/12/12	1058	1259852	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	-0.007	+/-0.007	0.0336	+/-0.007	0.050	pCi/L		LYS1	11/12/12	1059	1259851	2
Plutonium-239/240	U	0.007	+/-0.007	0.0559	+/-0.00701	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		1.34	+/-0.0666	0.0734	+/-0.111	1.00	pCi/L		LYS1	11/12/12	1050	1259850	3
Uranium-235/236	U	0.0352	+/-0.0141	0.0459	+/-0.0143	1.00	pCi/L						
Uranium-238		0.636	+/-0.0453	0.0499	+/-0.0618	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-0.0752	+/-1.24	4.55	+/-1.24	8.00	pCi/L		KXG3	11/07/12	1058	1260199	4
Cobalt-60	U	-0.337	+/-1.16	4.37	+/-1.16	8.00	pCi/L						
Neptunium-237	U	1.30	+/-2.51	9.02	+/-2.51	10.0	pCi/L						
Potassium-40	U	2.49	+/-15.7	56.3	+/-15.7	10.0	pCi/L						
Sodium-22	U	-0.755	+/-1.20	4.19	+/-1.20	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.0567	+/-0.131	0.485	+/-0.131	0.500	pCi/L		VXC2	11/21/12	1702	1260884	5
WSP-GrossA/B "As Received"													
Beta	U	0.474	+/-0.751	2.70	+/-0.752	3.00	pCi/L		BXF1	11/15/12	1313	1260898	6
Alpha	U	1.88	+/-0.990	2.93	+/-1.00	3.00	pCi/L		BXF1	11/17/12	1641	1260898	7
Rad Liquid Scintillation Analysis													
WSP-H-3 "As Received"													
Tritium	U	56.6	+/-45.7	152	+/-46.0	200	pCi/L		BYS1	11/11/12	1720	1260474	8

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310
8	EPA 906.0 Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1259852	51.2	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1259851	61.8	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 27, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CASA-13-24215
Sample ID: 314529001

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1259850	70.1	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1260884	87.9	(50%-105%)

Notes:
TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

QC Summary

Report Date: November 27, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico
Contact: **Keith Greene**

Workorder: **314529**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1259850										
QC1202771682 314443005 DUP										
Uranium-234	U	-0.0173	U	-0.00844	pCi/L	0.187		(0-1)	LYS1	11/12/1210:50
	Uncert:	+/-0.00984		+/-0.0139						
	TPU:	+/-0.00984		+/-0.0139						
Uranium-235/236	U	0.00733	U	0.00735	pCi/L	0.000488		(0-1)		
	Uncert:	+/-0.00733		+/-0.009						
	TPU:	+/-0.00735		+/-0.00901						
Uranium-238	U	0.00	U	0.00	pCi/L	0.00		(0-1)		
	Uncert:	+/-0.00593		+/-0.00841						
	TPU:	+/-0.00594		+/-0.00841						
**Uranium-232 Tracer	2.73	2.06		1.93	pCi/L		70.8	(50%-105%)		
	Uncert:	+/-0.0913		+/-0.0907						
	TPU:	+/-0.201		+/-0.201						
QC1202771683 LCS										
Uranium-234				2.73	pCi/L				LYS1	11/12/1210:50
	Uncert:			+/-0.0831						
	TPU:			+/-0.199						
Uranium-235/236				0.117	pCi/L					
	Uncert:			+/-0.0204						
	TPU:			+/-0.0218						
Uranium-238	2.70			2.80	pCi/L		103	(80%-120%)		
	Uncert:			+/-0.0836						
	TPU:			+/-0.202						
**Uranium-232 Tracer	2.19			1.49	pCi/L		68.4	(50%-105%)		
	Uncert:			+/-0.0746						
	TPU:			+/-0.162						
QC1202771681 MB										
Uranium-234			U	-0.0191	pCi/L				LYS1	11/12/1210:50
	Uncert:			+/-0.00958						
	TPU:			+/-0.00958						
Uranium-235/236			U	0.00611	pCi/L					
	Uncert:			+/-0.00611						
	TPU:			+/-0.00613						
Uranium-238			U	0.00	pCi/L					
	Uncert:			+/-0.00606						
	TPU:			+/-0.00606						
**Uranium-232 Tracer	2.19			1.56	pCi/L		71.4	(50%-105%)		
	Uncert:			+/-0.0742						
	TPU:			+/-0.162						
Batch 1259851										
QC1202771686 314443005 DUP										
Plutonium-238	U	0.00497	U	-0.00289	pCi/L	0.344		(0-1)	LYS1	11/12/1210:59
	Uncert:	+/-0.00497		+/-0.00647						

QC Summary

Workorder: 314529

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1259851										
	TPU:	+/-0.00497		+/-0.00647						
Plutonium-239/240	U	-0.00248	U	0.00868	pCi/L	0.464		(0-1)		
	Uncert:	+/-0.00555		+/-0.00647						
	TPU:	+/-0.00556		+/-0.00648						
**Plutonium-242 Tracer	2.43	2.16		1.87	pCi/L		77.1	(50%-105%)		
	Uncert:	+/-0.0779		+/-0.0843						
	TPU:	+/-0.130		+/-0.138						
QC1202771688 LCS										
Plutonium-238			U	0.00506	pCi/L			(80%-120%)	LYS1	11/12/1210:59
	Uncert:			+/-0.0062						
	TPU:			+/-0.0062						
Plutonium-239/240	2.03			2.27	pCi/L		112	(80%-120%)		
	Uncert:			+/-0.0759						
	TPU:			+/-0.130						
**Plutonium-242 Tracer	1.94			1.36	pCi/L		70.1	(50%-105%)		
	Uncert:			+/-0.0705						
	TPU:			+/-0.114						
QC1202771684 MB										
Plutonium-238			U	-0.00491	pCi/L				LYS1	11/12/1210:59
	Uncert:			+/-0.00491						
	TPU:			+/-0.00491						
Plutonium-239/240			U	-0.00245	pCi/L					
	Uncert:			+/-0.00425						
	TPU:			+/-0.00425						
**Plutonium-242 Tracer	1.94			1.41	pCi/L		72.3	(50%-105%)		
	Uncert:			+/-0.0692						
	TPU:			+/-0.113						
Batch 1259852										
QC1202771691 314443005 DUP										
Americium-241	U	0.00252	U	-0.00298	pCi/L	0.255		(0-1)	LYS1	11/12/1210:59
	Uncert:	+/-0.00564		+/-0.00516						
	TPU:	+/-0.00564		+/-0.00517						
**Americium-243 Tracer	2.60	2.42		1.96	pCi/L		75.3	(50%-105%)		
	Uncert:	+/-0.0808		+/-0.0877						
	TPU:	+/-0.138		+/-0.146						
QC1202771693 LCS										
Americium-241	1.41			1.49	pCi/L		106	(80%-120%)	LYS1	11/12/1210:59
	Uncert:			+/-0.0544						
	TPU:			+/-0.0833						
**Americium-243 Tracer	2.08			1.83	pCi/L		88.1	(50%-105%)		
	Uncert:			+/-0.0638						
	TPU:			+/-0.109						
QC1202771689 MB										
Americium-241			U	0.00	pCi/L				LYS1	11/12/1210:59
	Uncert:			+/-0.00561						
	TPU:			+/-0.00561						
**Americium-243 Tracer	2.08			1.84	pCi/L		88.5	(50%-105%)		
	Uncert:			+/-0.0639						
	TPU:			+/-0.109						

QC Summary

Workorder: 314529

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1260199										
QC1202772495 314528001 DUP										
Cesium-137	U	1.76	U	-0.106	pCi/L	0.378		(0-1)	KXG3	11/08/1208:59
	Uncert:	+/-1.34		+/-1.13						
	TPU:	+/-1.34		+/-1.13						
Cobalt-60	U	0.442	U	-1.04	pCi/L	0.293		(0-1)		
	Uncert:	+/-1.30		+/-1.24						
	TPU:	+/-1.30		+/-1.24						
Neptunium-237	U	-0.20	U	1.91	pCi/L	0.217		(0-1)		
	Uncert:	+/-2.48		+/-2.37						
	TPU:	+/-2.48		+/-2.37						
Potassium-40	U	-29.9	U	-1.61	pCi/L	0.459		(0-1)		
	Uncert:	+/-16.8		+/-14.0						
	TPU:	+/-16.8		+/-14.0						
Sodium-22	U	-1.35	U	-1.23	pCi/L	0.0237		(0-1)		
	Uncert:	+/-1.46		+/-0.974						
	TPU:	+/-1.46		+/-0.974						
QC1202772496 LCS										
Americium-241	2780			2920	pCi/L		105	(80%-120%)	KXG3	11/08/1212:19
	Uncert:			+/-163						
	TPU:			+/-163						
Cesium-137	6090			6310	pCi/L		104	(80%-120%)		
	Uncert:			+/-264						
	TPU:			+/-264						
Cobalt-60	5670			5730	pCi/L		101	(80%-120%)		
	Uncert:			+/-241						
	TPU:			+/-241						
Neptunium-237			U	32.7	pCi/L					
	Uncert:			+/-21.0						
	TPU:			+/-21.0						
Potassium-40			U	-60.9	pCi/L					
	Uncert:			+/-46.6						
	TPU:			+/-46.6						
Sodium-22			U	-0.12	pCi/L					
	Uncert:			+/-6.61						
	TPU:			+/-6.61						
QC1202772494 MB										
Cesium-137			U	-0.192	pCi/L				KXG3	11/07/1210:58
	Uncert:			+/-1.11						
	TPU:			+/-1.11						
Cobalt-60			U	2.16	pCi/L					
	Uncert:			+/-1.07						
	TPU:			+/-1.07						
Neptunium-237			U	-0.975	pCi/L					
	Uncert:			+/-2.08						
	TPU:			+/-2.08						
Potassium-40			U	-6.92	pCi/L					
	Uncert:			+/-13.7						
	TPU:			+/-13.7						
Sodium-22			U	0.849	pCi/L					

QC Summary

Workorder: 314529

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1260199										
Uncert:				+/-0.975						
TPU:				+/-0.975						
Rad Gas Flow										
Batch 1260884										
QC1202774231 314445001 DUP										
Strontium-90	U	0.224	U	-0.222	pCi/L	0.800		(0-1)	VXC2	11/24/1211:55
Uncert:		+/-0.147		+/-0.130						
TPU:		+/-0.148		+/-0.130						
**Strontium Carrier	7.17	6.40		6.20	mg		86.5	(50%-105%)		
QC1202774233 LCS										
Strontium-90	24.8			24.1	pCi/L		96.9	(80%-120%)	VXC2	11/21/1217:03
Uncert:				+/-0.597						
TPU:				+/-2.04						
**Strontium Carrier	7.17			6.00	mg		83.7	(50%-105%)		
QC1202774230 MB										
Strontium-90			U	-0.0606	pCi/L				VXC2	11/21/1217:02
Uncert:				+/-0.0614						
TPU:				+/-0.0614						
**Strontium Carrier	7.17			6.60	mg		92.1	(50%-105%)		
QC1202774232 314445001 MS										
Strontium-90	124 U	0.224		126	pCi/L		101	(75%-125%)	VXC2	11/21/1217:03
Uncert:		+/-0.147		+/-2.95						
TPU:		+/-0.148		+/-10.4						
**Strontium Carrier	7.17	6.40		6.40	mg		89.3	(50%-105%)		
Batch 1260898										
QC1202774276 314136001 DUP										
Alpha	U	0.899	U	0.189	pCi/L	0.288		(0-1)	BXF1	11/17/1216:40
Uncert:		+/-0.682		+/-0.545						
TPU:		+/-0.686		+/-0.545						
Beta	U	0.924	U	-1.31	pCi/L	0.667		(0-1)		11/16/1208:56
Uncert:		+/-0.855		+/-0.816						
TPU:		+/-0.859		+/-0.816						
QC1202774279 LCS										
Alpha	12.0			11.5	pCi/L		96	(80%-120%)	BXF1	11/18/1219:49
Uncert:				+/-0.620						
TPU:				+/-1.15						
Beta	49.7			45.8	pCi/L		92.2	(80%-120%)		11/15/1213:21
Uncert:				+/-0.882						
TPU:				+/-3.90						
QC1202774275 MB										
Alpha			U	0.00668	pCi/L				BXF1	11/17/1216:41
Uncert:				+/-0.0924						
TPU:				+/-0.0925						
Beta			U	0.0423	pCi/L					11/15/1213:19
Uncert:				+/-0.096						
TPU:				+/-0.0961						
QC1202774277 314136001 MS										
Alpha	481 U	0.899		408	pCi/L		84.7	(75%-125%)	BXF1	11/17/1216:40

QC Summary

Workorder: 314529

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1260898										
	Uncert:	+/-0.682		+/-23.0						
	TPU:	+/-0.686		+/-41.4						
Beta	1990 U	0.924		1730	pCi/L		87.2	(75%-125%)		11/15/1213:20
	Uncert:	+/-0.855		+/-34.2						
	TPU:	+/-0.859		+/-151						
QC1202774278 314136001 MSD										
Alpha	481 U	0.899		370	pCi/L	0.236	76.9	(0-1)	BXF1	11/17/1216:40
	Uncert:	+/-0.682		+/-21.5						
	TPU:	+/-0.686		+/-37.6						
Beta	1990 U	0.924		1850	pCi/L	0.193	93.2	(0-1)		11/15/1213:21
	Uncert:	+/-0.855		+/-36.3						
	TPU:	+/-0.859		+/-158						
Rad Liquid Scintillation										
Batch 1260474										
QC1202773258 314529001 DUP										
Tritium	U	56.6	U	55.7	pCi/L	0.00467		(0-1)	BYS1	11/11/1221:23
	Uncert:	+/-45.7		+/-46.7						
	TPU:	+/-46.0		+/-47.0						
QC1202773260 LCS										
Tritium	2010			2150	pCi/L		107	(80%-120%)	BYS1	11/11/1223:40
	Uncert:			+/-200						
	TPU:			+/-291						
QC1202773257 MB										
Tritium			U	-17.1	pCi/L				BYS1	11/11/1219:21
	Uncert:			+/-45.2						
	TPU:			+/-45.2						
QC1202773259 314529001 MS										
Tritium	2010 U	56.6		1650	pCi/L		82.1	(75%-125%)	BYS1	11/11/1223:24
	Uncert:	+/-45.7		+/-178						
	TPU:	+/-46.0		+/-241						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value

QC Summary

Workorder: 314529

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-259

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8082-PCB	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-8321A-NMED HEXP	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-H-3	WSP-HEXMOD	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CAMO-13-24242	Oct 31 2012	12:20	W													1	
CAMO-13-24259	Oct 31 2012	12:20	W					1	1				1	1			
CAMO-13-24225	Oct 31 2012	13:30	W	3	2	3	3	1	1	1	1	2	1	1	1	1	
CAMO-13-24244	Oct 31 2012	10:42	W							1	1				1	1	
CAMO-13-24261	Oct 31 2012	10:42	W					1	1				1	1			

Special Instructions:

Relinquished by: Melissa Montoya		Date/Time: 11/1/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24225

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/31/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1330	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	DC
LOCATION ID:	R-15	↓	FIELD PREP:	UF	OK
LOCATION TYPE:		↓	FIELD QC TYPE:	PEB	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8082-PCB	1 LITER AMBER GLASS	~~2~~ 1	ICE DF 10/31/12	~~N~~ Y	NA
↓	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	DF 10/31/12	↓
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	~~2~~ 1	ICE DF 10/31/12	↓	↓
↓	WSP-8290-D/F	1 LITER AMBER GLASS	2	ICE	↓	↓
↓	WSP-8321A-NMED HEXP	1 LITER AMBER GLASS	~~2~~ 1	ICE DF 10/31/12	↓	↓
↓	WSP-CL04	250 ML POLY	1	ICE	↓	↓
↓	WSP-GENINORG	1 LITER POLY	1	ICE	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-H-3	250 ML AMBER GLASS	1	ICE	↓	↓
↓	WSP-HEXMOD	1 LITER AMBER GLASS	2	ICE	↓	↓

Analyses continued on next page

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24225 **WORK ORDER:**

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-LL-H-3	1 LITER POLY	1	NONE	Y	NA
	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS: NA DF 10/31/12

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) (Signature) W. Ryan Shaw	**Date/Time** 10/31/12 1400	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time** 10/31/12 1400
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030

EVENT NAME: Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24242

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/31/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1220	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-15	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-LL-H-3	1 LITER POLY	1	NONE	Y	NA
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Sampled within 50' of running diesel generator.

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 7.05 mg/L Oxidation-Reduction Potential 119.1 MV pH 8.23 SU

Specific Conductance 150 uS/cm Temperature 16.45 deg C Turbidity 2.31 NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
William Shaw	10/31/12 1416		10/31/12 1400
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24244 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/31/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1042	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-42	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GrossA/B	1 LITER POLY	1	NONE	Y	NA
↓	WSP-H-3	250 ML AMBER GLASS	1	ICE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS:
Water has green tint.

LOCATION COMMENTS:
Sampled within 50' of running diesel generator.

FIELD PARAMETERS:

Dissolved Oxygen 6.99 mg/L Oxidation-Reduction Potential 114.4 MV pH 7.48 SU
Specific Conductance 480 uS/cm Temperature 19.49 deg C Turbidity 1.79 NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
William Shaw	10/31/12 1406	[illegible]	10/31/12 1400
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24259 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/31/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1220	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-15	↓	FIELD PREP:	F	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
↓	WSP-GENINORG	1 LITER POLY	1	ICE	↓	↓
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS:

See CAMO-13-~~24259~~ 24242 DF 10/31/12

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) (Signature) William Shaw	**Date/Time** 10/31/12 1406	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time** 10/31/12 1406
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4030 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24261 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		10/31/2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1042	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-42	↓	FIELD PREP:	F	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CL04	250 ML POLY	1	ICE	Y	NA
↓	WSP-GENINORG	1 LITER POLY	1	ICE	↓	↓
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS:

LOCATION COMMENTS:

See CAMO-13-24244

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
William Shaw	10/31/12 1406	L. Martin	10/31/12 1406
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-259

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
314443	EPA:120.1	2				
314443	EPA:150.1	2				
314443	EPA:160.1	2				
314443	EPA:245.2	2				
314443	EPA:300.0	2				
314443	EPA:310.1	2				
314443	EPA:350.1	2				
314443	EPA:351.2	2				
314443	EPA:353.2	2				
314443	EPA:365.4	2				
314443	EPA:900	1				
314443	EPA:901.1	1				
314443	EPA:905.0	1				
314443	EPA:906.0	1				
314443	HASL-300:AM-241	1				
314443	HASL-300:ISOPU	1				
314443	HASL-300:ISOU	1				
314443	SM:A2340B	2				
314443	SW-846:6010B	2				
314443	SW-846:6020	2				
314443	SW-846:6850	2				
314443	SW-846:8082					
314443	SW-846:8260B					
314443	SW-846:8270C					
314443	SW-846:8321A_MOD					
314443	SW-846:9060	2				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
314443	EPA:120.1	1265081	1265081	2							
314443	EPA:150.1	1260327	1260327	2							
314443	EPA:160.1	1260149	1260149	2					1		
314443	EPA:245.2	1264600	1264596	2					1	2	
314443	EPA:300.0	1259659	1259659	2					1		
314443	EPA:310.1	1262572	1262572	2					2	1	
314443	EPA:350.1	1260275	1260272	2					1	2	2
314443	EPA:351.2	1260284	1260283	2					1	1	1
314443	EPA:353.2	1260238	1260238	2					1		
314443	EPA:365.4	1260281	1260280	2					1	1	1
314443	EPA:900	1260898	1260898	1					1	1	1
314443	EPA:901.1	1260199	1260199	1					1		
314443	EPA:905.0	1260884	1260884	1					1	1	
314443	EPA:906.0	1260474	1260474	1					1	1	
314443	HASL-300:AM-241	1259852	1259852	1					1		
314443	HASL-300:ISOPU	1259851	1259851	1					1		
314443	HASL-300:ISOU	1259850	1259850	1					1		
314443	SM:A2340B	1266665	1266665	2							

CAMO-13-24225	R-15	PEB	EPA:365.4	0	1
CAMO-13-24225	R-15	PEB	EPA:900	0	2
CAMO-13-24225	R-15	PEB	EPA:901.1	0	5
CAMO-13-24225	R-15	PEB	EPA:905.0	0	1
CAMO-13-24225	R-15	PEB	EPA:906.0	0	1
CAMO-13-24225	R-15	PEB	HASL-300:AM-241	0	1
CAMO-13-24225	R-15	PEB	HASL-300:ISOPU	0	2
CAMO-13-24225	R-15	PEB	HASL-300:ISOU	0	3
CAMO-13-24225	R-15	PEB	SM:A2340B	0	1
CAMO-13-24225	R-15	PEB	SW-846:6010B	0	17
CAMO-13-24225	R-15	PEB	SW-846:6020	0	11
CAMO-13-24225	R-15	PEB	SW-846:6850	0	1
CAMO-13-24225	R-15	PEB	SW-846:8082	0	8
CAMO-13-24225	R-15	PEB	SW-846:8260B	0	80
CAMO-13-24225	R-15	PEB	SW-846:8270C	0	80
CAMO-13-24225	R-15	PEB	SW-846:8321A_MOD	0	23
CAMO-13-24225	R-15	PEB	SW-846:9060	0	1
CAMO-13-24242	R-15	REG	EPA:351.2	0	1
CAMO-13-24242	R-15	REG	SW-846:9060	0	1
CAMO-13-24244	R-42	REG	EPA:351.2	0	1
CAMO-13-24244	R-42	REG	EPA:900	0	2
CAMO-13-24244	R-42	REG	EPA:901.1	0	5
CAMO-13-24244	R-42	REG	EPA:905.0	0	1
CAMO-13-24244	R-42	REG	EPA:906.0	0	1
CAMO-13-24244	R-42	REG	HASL-300:AM-241	0	1
CAMO-13-24244	R-42	REG	HASL-300:ISOPU	0	2
CAMO-13-24244	R-42	REG	HASL-300:ISOU	0	3
CAMO-13-24244	R-42	REG	SW-846:9060	0	1
CAMO-13-24259	R-15	REG	EPA:120.1	0	1
CAMO-13-24259	R-15	REG	EPA:150.1	0	1
CAMO-13-24259	R-15	REG	EPA:160.1	0	1
CAMO-13-24259	R-15	REG	EPA:245.2	0	1
CAMO-13-24259	R-15	REG	EPA:300.0	0	4
CAMO-13-24259	R-15	REG	EPA:310.1	0	2
CAMO-13-24259	R-15	REG	EPA:350.1	0	1
CAMO-13-24259	R-15	REG	EPA:353.2	0	1
CAMO-13-24259	R-15	REG	EPA:365.4	0	1
CAMO-13-24259	R-15	REG	SM:A2340B	0	1
CAMO-13-24259	R-15	REG	SW-846:6010B	0	17
CAMO-13-24259	R-15	REG	SW-846:6020	0	11
CAMO-13-24259	R-15	REG	SW-846:6850	0	1
CAMO-13-24261	R-42	REG	EPA:120.1	0	1
CAMO-13-24261	R-42	REG	EPA:150.1	0	1
CAMO-13-24261	R-42	REG	EPA:160.1	0	1
CAMO-13-24261	R-42	REG	EPA:245.2	0	1
CAMO-13-24261	R-42	REG	EPA:300.0	0	4
CAMO-13-24261	R-42	REG	EPA:310.1	0	2
CAMO-13-24261	R-42	REG	EPA:350.1	0	1
CAMO-13-24261	R-42	REG	EPA:353.2	0	1
CAMO-13-24261	R-42	REG	EPA:365.4	0	1
CAMO-13-24261	R-42	REG	SM:A2340B	0	1
CAMO-13-24261	R-42	REG	SW-846:6010B	0	17
CAMO-13-24261	R-42	REG	SW-846:6020	0	11
CAMO-13-24261	R-42	REG	SW-846:6850	0	1

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				2			
		1				1			
		1				2			
		1				2			
		1				1			
		2				1			
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			

314443	SW-846:6010B	1260610	1260609	2					1	1	
314443	SW-846:6020	1260607	1260605	2					1	1	
314443	SW-846:6850	1260140	1260138	2					1	1	1
314443	SW-846:8082	1262673	1262672						1	1	1
314443	SW-846:8260B	1262189	1262189						2		
314443	SW-846:8270C	1260029	1260028						1	1	1
314443	SW-846:8321A_MOD	1260257	1260256						1	1	1
314443	SW-846:9060	1260735	1260735	2					1		

2. Distribution Of Analytes in EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24225	314443005	PEB	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24255	1202784135	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24258	1202784136	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24259	314443002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24261	314443007	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202784137	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24225	314443005	PEB	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24258	1202772818	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24259	314443002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24261	314443007	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202772819	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24225	314443005	PEB	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24259	314443002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24260	1202772397	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24261	314443007	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CASA-13-24223	1202772398	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202772399	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202772396	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24225	314443005	PEB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783063	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783067	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783064	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783068	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24259	314443002	REG	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24261	314443007	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202783069	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202783062	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24225	314443005	PEB	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24255	1202771232	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24259	314443002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24261	314443007	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202771234	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202771231	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24225	314443005	PEB	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24255	1202778371	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24255	1202778372	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24259	314443002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24261	314443007	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202778366	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202778927	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202778365	MB	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202778926	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24225	314443005	PEB	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	1202772677	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	1202772679	MS	0	0	1	0

		1				1			
		1				1			
		1							
		1							
		4							
		1							
		1							
		1				1			

EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	1202772681	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	1202772678	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	1202772680	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	1202772682	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24259	314443002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24261	314443007	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202772683	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202772676	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24225	314443005	PEB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	1202772708	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	1202772709	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	1202772710	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24242	314443001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24244	314443006	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202772711	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202772707	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24225	1202772593	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24225	314443005	PEB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24259	314443002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24261	314443007	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202772598	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202772591	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24225	314443005	PEB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	1202772696	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	1202772698	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	1202772700	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24259	314443002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24261	314443007	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202772701	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202772694	MB	1	0	0	0
EPA:900	RAD	CAMO-13-24225	314443005	PEB	2	0	0	0
EPA:900	RAD	CAMO-13-24244	314443006	REG	2	0	0	0
EPA:900	RAD	CAPA-12-23808	1202774276	DUP	2	0	0	0
EPA:900	RAD	CAPA-12-23808	1202774277	MS	0	0	2	0
EPA:900	RAD	CAPA-12-23808	1202774278	MSD	0	0	2	0
EPA:900	RAD	LCS	1202774279	LCS	0	0	2	0
EPA:900	RAD	MB	1202774275	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24225	314443005	PEB	5	0	0	0
EPA:901.1	RAD	CAMO-13-24244	314443006	REG	5	0	0	0
EPA:901.1	RAD	CAMO-13-24279	1202772495	DUP	6	0	0	0
EPA:901.1	RAD	LCS	1202772496	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202772494	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24225	314443005	PEB	1	0	0	0
EPA:905.0	RAD	CAMO-13-24241	1202774231	DUP	1	0	0	0
EPA:905.0	RAD	CAMO-13-24241	1202774232	MS	0	0	1	0
EPA:905.0	RAD	CAMO-13-24244	314443006	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202774233	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202774230	MB	1	0	0	0
EPA:906.0	RAD	CAMO-13-24225	314443005	PEB	1	0	0	0
EPA:906.0	RAD	CAMO-13-24244	314443006	REG	1	0	0	0
EPA:906.0	RAD	CASA-13-24215	1202773258	DUP	1	0	0	0
EPA:906.0	RAD	CASA-13-24215	1202773259	MS	0	0	1	0
EPA:906.0	RAD	LCS	1202773260	LCS	0	0	1	0
EPA:906.0	RAD	MB	1202773257	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24225	1202771691	DUP	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24225	314443005	PEB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24244	314443006	REG	1	0	0	0

HASL-300:AM-241	RAD	LCS	1202771693	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202771689	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24225	1202771686	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24225	314443005	PEB	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24244	314443006	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202771688	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202771684	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24225	1202771682	DUP	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24225	314443005	PEB	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24244	314443006	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202771683	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202771681	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24225	314443005	PEB	1	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24259	314443002	REG	1	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24261	314443007	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24225	314443005	PEB	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24259	314443002	REG	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24261	314443007	REG	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24283	1202773562	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24283	1202773563	MS	0	0	17	0
SW-846:6010B	INORGANIC	LCS	1202773561	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202773560	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24225	314443005	PEB	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24259	314443002	REG	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24261	314443007	REG	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24283	1202773554	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24283	1202773555	MS	0	0	11	0
SW-846:6020	INORGANIC	LCS	1202773553	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202773552	MB	11	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24225	314443005	PEB	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24259	1202772360	MS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24259	1202772361	MSD	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24259	314443002	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	CAMO-13-24261	314443007	REG	1	0	0	0
SW-846:6850	LCMS/MS PERCHLORATE	LCS	1202772359	LCS	0	0	1	0
SW-846:6850	LCMS/MS PERCHLORATE	MB	1202772358	MB	1	0	0	0
SW-846:8082	PESTPCB	CAMO-13-24225	314443003	PEB	8	2	0	0
SW-846:8082	PESTPCB	LCS	1202778593	LCS	0	2	2	0
SW-846:8082	PESTPCB	MB	1202778592	MB	8	2	0	0
SW-846:8082	PESTPCB	WST05-12-23548	1202778594	MS	0	2	2	0
SW-846:8082	PESTPCB	WST05-12-23548	1202778595	MSD	0	2	2	0
SW-846:8260B	VOC	CAMO-13-24225	314443004	PEB	80	3	0	0
SW-846:8260B	VOC	LCS	1202777502	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202777503	LCS	0	3	10	0
SW-846:8260B	VOC	LCS	1202782475	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202782476	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1202777499	MB	80	3	0	0
SW-846:8260B	VOC	MB	1202782474	MB	80	3	0	0
SW-846:8270C	SVOC	CAMO-13-24225	314443004	PEB	80	6	0	0
SW-846:8270C	SVOC	CAMO-13-24238	1202772855	MS	0	6	76	0

SW-846:8270C	SVOC	CAMO-13-24238	1202772856	MSD	0	6	76	0
SW-846:8270C	SVOC	LCS	1202772058	LCS	0	6	76	0
SW-846:8270C	SVOC	MB	1202772057	MB	80	6	0	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAMO-13-24225	1202772646	MS	0	2	23	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAMO-13-24225	1202772647	MSD	0	2	23	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	CAMO-13-24225	314443005	PEB	23	2	0	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	LCS	1202772645	LCS	0	2	23	0
SW-846:8321A_MOD	LCMS/MS HIGH EXPLOSIVES	MB	1202772644	MB	23	2	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24225	314443005	PEB	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24241	1202773872	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24242	314443001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24244	314443006	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202773876	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202773871	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202772694	METHOD BLANK	EPA:365.4	W	Total Phosphate as Phosphorus	0.0459	J	mg/L	0.05
MB	1202772707	METHOD BLANK	EPA:351.2	W	Total Kjeldahl Nitrogen	0.0602	J	mg/L	0.1
MB	1202773560	METHOD BLANK	SW-846:6010B	W	Sodium	236	J	ug/L	300
MB	1202773560	METHOD BLANK	SW-846:6010B	W	Strontium	1.55	J	ug/L	5
MB	1202773871	METHOD BLANK	SW-846:9060	W	Total Organic Carbon	0.488	J	mg/L	1

Any samples affected by the presence of contaminants in blanks?

Field Sample ID	Blank Field Sample ID	Blank Lab Sample ID	Blank Type	Analytical Method	Parameter Name	Units	Blank Result	Sample Result	Lab Qualifier	Detect Limit	Detected
CAMO-13-24242	MB	1202772707	METHOD BLANK	EPA:351.2	Total Kjeldahl Nitrogen	mg/L	0.0602	0.166		0.1	Y
CAMO-13-24244	MB	1202772707	METHOD BLANK	EPA:351.2	Total Kjeldahl Nitrogen	mg/L	0.0602	0.188		0.1	Y
CAMO-13-24259	MB	1202772694	METHOD BLANK	EPA:365.4	Total Phosphate as Phosphorus	mg/L	0.0459	0.0481	J	0.05	Y
CAMO-13-24225	MB	1202772694	METHOD BLANK	EPA:365.4	Total Phosphate as Phosphorus	mg/L	0.0459	0.024	J	0.05	Y
CAMO-13-24225	MB	1202773560	METHOD BLANK	SW-846:6010B	Sodium	ug/L	236	231	J	300	Y
CAMO-13-24225	MB	1202773560	METHOD BLANK	SW-846:6010B	Strontium	ug/L	1.55	1.34	J	5	Y
CAMO-13-24242	MB	1202773871	METHOD BLANK	SW-846:9060	Total Organic Carbon	mg/L	0.488	1.01		1	Y

Correction Factor (ND)	Correction Factor (J)	Use Factors
5		Y
5		Y
5		Y
5		Y
5		Y
5		Y
5		Y

CAMO-13-24225	MB	1202773871	METHOD BLANK	SW-846:9060	Total Organic Carbon	mg/L	0.488	0.632	J	1	Y
CAMO-13-24244	MB	1202773871	METHOD BLANK	SW-846:9060	Total Organic Carbon	mg/L	0.488	0.744	J	1	Y

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CAMO-13-24238	1202772709	1202772710	EPA:351.2	Total Kjeldahl Nitrogen	1260283	11/6/2012	W	84.8	96	110	90
CAMO-13-24259	1202772360	1202772361	SW-846:6850	Perchlorate	1260138	11/9/2012	W	93	63	125	75
CAMO-13-24225	1202772646	1202772647	SW-846:8321A_MOD	HMX	1260256	11/26/2012	W	77	97	121	60

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-15	2013-259	CAMO-13-24225	PEB	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-15	2013-259	CAMO-13-24225	PEB	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-15	2013-259	CAMO-13-24225	PEB	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-15	2013-259	CAMO-13-24225	PEB	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-15	2013-259	CAMO-13-24225	PEB	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-15	2013-259	CAMO-13-24225	PEB	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-15	2013-259	CAMO-13-24225	PEB	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-15	2013-259	CAMO-13-24225	PEB	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-15	2013-259	CAMO-13-24225	PEB	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-15	2013-259	CAMO-13-24225	PEB	INIT	INORGANIC	SW-846:6010B	Sodium	J	U	I4	N
R-15	2013-259	CAMO-13-24225	PEB	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-15	2013-259	CAMO-13-24225	PEB	INIT	INORGANIC	SW-846:6010B	Strontium	J	U	I4	N
R-15	2013-259	CAMO-13-24225	PEB	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N

Data Validation Report for:

Chain Of Custody No. 2013-259

5		Y
5		Y

Rejection Limit	RPD	RPD Limit
10	11.6	20
10	1	30
10	26	25

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
0.00252	pCi/L	0.00252	pCi/L	0.0287	0.00564	W	10/31/2012		1259852	VAL	Y
-0.716	pCi/L	-0.716	pCi/L	5.77	1.63	W	10/31/2012		1260199	VAL	Y
-1.54	pCi/L	-1.54	pCi/L	5.78	1.64	W	10/31/2012		1260199	VAL	Y
-0.315	pCi/L	-0.315	pCi/L	2.52	0.541	W	10/31/2012		1260898	VAL	Y
-1.44	pCi/L	-1.44	pCi/L	2.98	0.74	W	10/31/2012		1260898	VAL	Y
-4.26	pCi/L	-4.26	pCi/L	11	3.35	W	10/31/2012		1260199	VAL	Y
0.00497	pCi/L	0.00497	pCi/L	0.0239	0.00497	W	10/31/2012		1259851	VAL	Y
-0.00248	pCi/L	-0.00248	pCi/L	0.0397	0.00555	W	10/31/2012		1259851	VAL	Y
-4.66	pCi/L	-4.66	pCi/L	62.5	16.3	W	10/31/2012		1260199	VAL	Y
231	ug/L	0.231	mg/L			W	10/31/2012		1260610	VAL	Y
-0.613	pCi/L	-0.613	pCi/L	6.59	1.79	W	10/31/2012		1260199	VAL	Y
1.34	ug/L	1.34	ug/L			W	10/31/2012		1260610	VAL	Y
-0.228	pCi/L	-0.228	pCi/L	0.482	0.136	W	10/31/2012		1260884	VAL	Y

R-15	2013-259	CAMO-13-24225	PEB	INIT	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	J	U	I4	N
R-15	2013-259	CAMO-13-24225	PEB	INIT	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	J	U	I4	N
R-15	2013-259	CAMO-13-24225	PEB	INIT	RAD	EPA:906.0	Tritium	U	U	R5	N
R-15	2013-259	CAMO-13-24225	PEB	INIT	RAD	HASL-300:ISOU	Uranium-234	U	U	R5	N
R-15	2013-259	CAMO-13-24225	PEB	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-15	2013-259	CAMO-13-24225	PEB	INIT	RAD	HASL-300:ISOU	Uranium-238	U	U	R5	N
R-15	2013-259	CAMO-13-24242	REG	INIT	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen		U	I4	N
R-15	2013-259	CAMO-13-24242	REG	INIT	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon		U	I4	N
R-42	2013-259	CAMO-13-24244	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-42	2013-259	CAMO-13-24244	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-42	2013-259	CAMO-13-24244	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-42	2013-259	CAMO-13-24244	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-42	2013-259	CAMO-13-24244	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-42	2013-259	CAMO-13-24244	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-42	2013-259	CAMO-13-24244	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-42	2013-259	CAMO-13-24244	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-42	2013-259	CAMO-13-24244	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-42	2013-259	CAMO-13-24244	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-42	2013-259	CAMO-13-24244	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-42	2013-259	CAMO-13-24244	REG	INIT	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen		U	I4	N
R-42	2013-259	CAMO-13-24244	REG	INIT	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	J	U	I4	N
R-42	2013-259	CAMO-13-24244	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-15	2013-259	CAMO-13-24259	REG	INIT	LCMS/MS PERCHLORATE	SW-846:6850	Perchlorate		J	PE12e	Y
R-15	2013-259	CAMO-13-24259	REG	INIT	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	J	U	I4	N

Reason Code	Description
I4	the sample result is =<5x the concentration of related analyte in the method blank.
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
PE12e	The MS/MSD percent recovery was >10% but <75%
R5	Analyte is not detected because the amount reported is less than the MDC.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24225	R-15	PEB	EPA:120.1	0	1
CAMO-13-24225	R-15	PEB	EPA:150.1	0	1
CAMO-13-24225	R-15	PEB	EPA:160.1	0	1
CAMO-13-24225	R-15	PEB	EPA:245.2	0	1
CAMO-13-24225	R-15	PEB	EPA:300.0	0	4
CAMO-13-24225	R-15	PEB	EPA:310.1	0	2
CAMO-13-24225	R-15	PEB	EPA:350.1	0	1
CAMO-13-24225	R-15	PEB	EPA:351.2	0	1
CAMO-13-24225	R-15	PEB	EPA:353.2	0	1

0.632	mg/L	0.632	mg/L			W	10/31/2012		1260735	VAL	Y
0.024	mg/L	0.024	mg/L			W	10/31/2012		1260281	VAL	Y
57.2	pCi/L	57.2	pCi/L	154	46.2	W	10/31/2012		1260474	VAL	Y
-0.0173	pCi/L	-0.0173	pCi/L	0.0688	0.00984	W	10/31/2012		1259850	VAL	Y
0.00733	pCi/L	0.00733	pCi/L	0.043	0.00733	W	10/31/2012		1259850	VAL	Y
0	pCi/L	0	pCi/L	0.0467	0.00593	W	10/31/2012		1259850	VAL	Y
0.166	mg/L	0.166	mg/L			W	10/31/2012		1260284	VAL	Y
1.01	mg/L	1.01	mg/L			W	10/31/2012		1260735	VAL	Y
0.00286	pCi/L	0.00286	pCi/L	0.0325	0.00756	W	10/31/2012		1259852	VAL	Y
0.508	pCi/L	0.508	pCi/L	6.24	1.71	W	10/31/2012		1260199	VAL	Y
-0.544	pCi/L	-0.544	pCi/L	5.82	1.58	W	10/31/2012		1260199	VAL	Y
0.526	pCi/L	0.526	pCi/L	2.64	0.703	W	10/31/2012		1260898	VAL	Y
0.769	pCi/L	0.769	pCi/L	2.44	0.7	W	10/31/2012		1260898	VAL	Y
1.57	pCi/L	1.57	pCi/L	11.4	3.24	W	10/31/2012		1260199	VAL	Y
0.00723	pCi/L	0.00723	pCi/L	0.0347	0.00723	W	10/31/2012		1259851	VAL	Y
0	pCi/L	0	pCi/L	0.0577	0.00511	W	10/31/2012		1259851	VAL	Y
-34.6	pCi/L	-34.6	pCi/L	53	16	W	10/31/2012		1260199	VAL	Y
-0.711	pCi/L	-0.711	pCi/L	5.3	1.44	W	10/31/2012		1260199	VAL	Y
0.235	pCi/L	0.235	pCi/L	0.481	0.145	W	10/31/2012		1260884	VAL	Y
0.188	mg/L	0.188	mg/L			W	10/31/2012		1260284	VAL	Y
0.744	mg/L	0.744	mg/L			W	10/31/2012		1260735	VAL	Y
0	pCi/L	0	pCi/L	0.044	0.00919	W	10/31/2012		1259850	VAL	Y
7.86	ug/L	7.86	ug/L			W	10/31/2012		1260140	VAL	Y
0.0481	mg/L	0.0481	mg/L			W	10/31/2012		1260281	VAL	Y

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

November 29, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 314443
SDG: 2013-259

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 02, 2012, and analyzed for Explosives by LCMSMS, GC Semivolatile PCB, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-259
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 314443
SDG: 2013-259

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....10

Volatile Analysis.....12

Case Narrative.....13

Sample Data Summary.....18

Quality Control Summary.....22

Quality Control Data.....38

Miscellaneous.....54

Semi-Volatile Analysis.....56

Case Narrative.....57

Sample Data Summary.....63

Quality Control Summary.....67

Quality Control Data.....82

Miscellaneous.....95

Perchlorates by LCMSMS Analysis.....97

Case Narrative.....98

Sample Data Summary.....104

Quality Control Summary.....108

Quality Control Data.....111

Miscellaneous.....117
Explosives by LCMSMS Analysis.....119
Case Narrative.....120
Sample Data Summary.....127
Quality Control Summary.....131
Quality Control Data.....137
Miscellaneous.....160
PCB Analysis.....162
Case Narrative.....163
Sample Data Summary.....168
Quality Control Summary.....170
Quality Control Data.....176
Metals Analysis.....179
Case Narrative.....180
Sample Data Summary.....186
Quality Control Summary.....194
General Chem Analysis.....208
Case Narrative.....209
Sample Data Summary.....237
Quality Control Summary.....247
Miscellaneous.....252

Radiological Analysis.....255

Sample Data Summary.....269

Quality Control Data.....274

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 314443
SDG # : 2013-259

November 29, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 02, 2012 for analysis. Please see attached email for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. The containers for Gross A/B were preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). The containers for radiochemistry analysis were received at a temperature of 19c. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
314443001	CAMO-13-24242
314443002	CAMO-13-24259
314443003	CAMO-13-24225
314443004	CAMO-13-24225
314443005	CAMO-13-24225
314443006	CAMO-13-24244
314443007	CAMO-13-24261

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Explosives by LCMSMS, GC Semivolatile PCB, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

for
Valerie Davis
Project Manager

List of current GEL Certifications as of 29 November 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

314443

COC/Lab Request #: 2013-259

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8082-PCB	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-8321A-NMED HEXP	WSP-CL04	WSP-GENINORG	WSP-GrossA/B	WSP-H-3	WSP-HEXMOD	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAMO-13-24242	Oct 31 2012	12:20	W													1
CAMO-13-24259	Oct 31 2012	12:20	W					1	1				1	1		
CAMO-13-24225	Oct 31 2012	13:30	W	3	2	3	3	1	1	1	1	2	1	1	1	1
CAMO-13-24244	Oct 31 2012	10:42	W							1	1				1	1
CAMO-13-24261	Oct 31 2012	10:42	W					1	1				1	1		

Special Instructions:

Special Instructions:

Relinquished by: Melissa Martinez		Date/Time: 11/1/12 3:00	Received by:	11/02/12 @ 0905
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	SDG/AR/COC/Work Order: ~~2013-258~~ H7-110912 2013-259
Received By: H. Taylor	Date Received: 110212

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Ice bags (Blue ice) Dry ice (None) Other (describe) 3.4, 19 *all temperatures are recorded in Celsius
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: 61524646 Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	X		✓	Circle Applicable: Seals broken Damaged container Leaking container Other (describe) CAMO-13-24225 container received broken
5	Samples requiring chemical preservation at proper pH?	✓			Sample ID's, containers affected and observed pH: CAMO-13-24225 CAMO-13-24244 If Preservation added, Lot#: L03022
6	VOA vials free of headspace (defined as < 6mm bubble)?	✓			Sample ID's and containers affected:
7	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?			✓	Sample ID's affected: * see below
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			
14	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 5462 9832 4820-3 5462 9832 4830-4 5462 9832 4841-4 5462 9832 4819-9

Comments (Use Continuation Form if needed): * CAMO-13-24225 received 1 container for SVOA and PCB HEXP Chain indicates 3

PM (or PMA) review: Initials PD. Date 11-9-12 Page 1 of 1

Subject: Sample Receipt for 110212 and 110312
From: Hope Taylor <Hope.Taylor@gel.com>
Date: 11/5/2012 11:00 AM
To: "Keith R. Greene" <kgreene@lanl.gov>, LANL@amrad.com, "team.davis" <team.davis@gel.com>

Good morning Keith,

The containers for Gross A/B were preserved prior to analysis.

RN 2013-259 The lab received one container each for HEXP, SVOA and PCB for ID CAMO-13-24225, chain indicates three.
Received a broken vial(8260) for ID CAMO-13-24225.

RN 2013-263 The lab received one container for ID WST55-13-24513, chain indicates six.

RN 2013-265 The lab received one container for 8260 for ID CAMO-13-24274, chain indicates two

RN 2013-264 The lab received two containers for PCB for ID CASA-13-24215, chain indicates three.

Thanks

--
Hope Taylor
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Direct: 843.769.7376 ext. 4778
Main: 843.556.8171
Fax: 843.766.1178
E-mail: hop01200@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 01NOV12
ACTWGT: 46.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

3

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

58DC1/9CCB/10BC

FedEx Express

J111311060601 25

2 of 3
MPS# 0263 5462 9832 4820
Mstr# 5462 9832 4819

FRI - 02 NOV A1
PRIORITY OVERNIGHT
0201

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 01NOV12
ACTWGT: 45.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

4

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

58DC1/9CCB/10BC

FedEx Express

J111311060601 25

3 of 3
MPS# 0263 5462 9832 4830
Mstr# 5462 9832 4819

FRI - 02 NOV A1
PRIORITY OVERNIGHT
0201

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 01NOV12
ACTWGT: 30.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

4

50DC1/SCCB/10BC

FedEx Express

J111311060601 25

TRK# 0201 5462 9832 4841

FRI - 02 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP
ACTI
CAD

BILL

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWKO

19

FedEx Express

J111311060601 25

1 of 3

TRK# 0201 5462 9832 4819
MASTER

FRI - 2 NOV A1
PRIORIT OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Volatile Analysis

Case Narrative

ChemStation Case Narrative
ARS International (ARSL)
SDG 2013-259

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 8260B DOE-AL
Analytical Batch Number:	1262189

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

Sample ID	Client ID
314443004	CAMO-13-24225
1202777499	Method Blank (MB)
1202777500	314340001(CAMO-13-24238) Post Spike (PS)
1202777501	314340001(CAMO-13-24238) Post Spike Duplicate (PSD)
1202777502	Laboratory Control Sample (LCS)
1202777503	Laboratory Control Sample (LCS)

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 18.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 19.1.2. False positive analytes are designated on the quantitation report with a ’d’ qualifier.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package.

The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories

LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement
The blank analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
Surrogate recoveries in all client and quality control samples were within the acceptance limits.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Sample 314340001 (CAMO-13-24238) was designated for spike analysis.

Matrix Spike (PS) Recovery Statement
The spike recoveries were within the required acceptance limits.

Matrix Spike Duplicate (PSD) Recovery Statement
The spike duplicate recoveries were within the required acceptance limits.

Relative Percent Difference (RPD) Statement
The RPD between the matrix spike pair 1202777500 (CAMO-13-24238) and 1202777501 (CAMO-13-24238) were not all within the acceptance limits. See the Data Exception Report in the miscellaneous section of the deliverable.

Internal Standard (ISTD) Acceptance
The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-analyses were not required for samples in this SDG.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER# 1141397.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) may be requested for this sample delivery group/work order. Please note that non-requested target analytes that are reported on the quantitation reports will be present on the Form I. These detected analytes are included in the calibrated method and as a result will be reported on the Sample Data Summary (Form I) or Certificate of Analysis (C of A). TIC data, if requested, are included on the Sample Data Summary (Form I) and are also included with the sample raw data.

Residual Chlorine
Residual Chlorine was not detected in any of the samples in this SDG.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOA6.I	Agilent 6890N/5975 GC/MS w/ OI 4560/Archon Autosampler	HP6890N/HP5975	DB-624	J&W, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-259 GEL Work Order: 314443

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Erin Haubert **Name:** **Erin Haubert**

Date: **20 NOV 2012** **Title:** **Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/31/2012 13:30**	**Matrix:**	**W**
Lab Sample ID:	**314443004**	**Date Received:**	**11/02/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24225**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 16:31**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 16:31**				
Data File:	**110912V6\6J514.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/31/2012 13:30**	**Matrix:**	**W**
Lab Sample ID:	**314443004**	**Date Received:**	**11/02/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24225**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 16:31**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 16:31**				
Data File:	**110912V6\6J514.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/31/2012 13:30**	**Matrix:**	**W**
Lab Sample ID:	**314443004**	**Date Received:**	**11/02/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24225**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 16:31**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 16:31**				
Data File:	**110912V6\6J514.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	49.4	50.0	ug/L	98.7	(78%-124%)
Bromofluorobenzene	48.7	50.0	ug/L	97.5	(80%-120%)
Toluene-d8	48.0	50.0	ug/L	96.0	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	14.028	5.81	ug/L	0	J

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2013-259

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1202777502	LCS for batch 1262189	96	96	98
1202777503	LCS for batch 1262189	103	97	97
1202777499	MB for batch 1262189	97	96	96
314443004	CAMO-13-24225	99	96	97
1202777500	CAMO-13-24238PS	100	97	97
1202777501	CAMO-13-24238PSD	97	98	97

Surrogate		Acceptance Limits
DCED4	= 1,2-Dichloroethane-d4	(78%-124%)
TOL	= Toluene-d8	(80%-120%)
BFB	= Bromofluorobenzene	(80%-120%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **CAMO-13-24238PS**
Lab Sample ID: **1202777500**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/09/2012 19:54**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	PS	Dichlorodifluoromethane	50.0	0.00	U	42.9	86	36-123
74-87-3	PS	Chloromethane	50.0	0.00	U	37.2	74	47-134
75-01-4	PS	Vinyl chloride	50.0	0.00	U	38.4	77	49-129
74-83-9	PS	Bromomethane	50.0	0.00	U	45.3	91	56-127
75-00-3	PS	Chloroethane	50.0	0.00	U	43.5	87	67-122
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	U	45.7	91	60-123
60-29-7	PS	Ethyl ether	50.0	0.00	U	42.9	86	69-121
67-64-1	PS	Acetone	250	0.00	U	144	58	30-143
75-05-8	PS	Acetonitrile	1250	0.00	U	999	80	60-133
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	U	48.1	96	67-132
74-88-4	PS	Iodomethane	250	0.00	U	249	100	69-147
75-09-2	PS	Methylene chloride	50.0	0.00	U	46.1	92	56-135
75-15-0	PS	Carbon disulfide	250	0.00	U	247	99	65-153
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	U	47.8	96	73-126
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	U	46.4	93	69-128
108-05-4	PS	Vinyl acetate	250	0.00	U	218	87	50-143
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	U	46.9	94	75-124
78-93-3	PS	2-Butanone	250	0.00	U	228	91	30-140
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	U	46.4	93	52-147
594-20-7	PS	2,2-Dichloropropane	50.0	0.00	U	46.4	93	67-143
67-66-3	PS	Chloroform	50.0	0.00	U	47.9	96	75-125
74-97-5	PS	Bromochloromethane	50.0	0.00	U	47.2	94	80-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259** **Sample Type:** **Post Spike**
Client ID: **CAMO-13-24238PS** **Matrix:** **W**
Lab Sample ID: **1202777500**
Instrument: **VOA6.I** **Analysis Date:** **11/09/2012 19:54** **Dilution: 1**
Analyst: **RXD1** **Prep Batch ID:** **1262189**
Purge Vol: **5 mL** **Batch ID:** **1262189**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	PS	1,1,1-Trichloroethane	50.0	0.00	U	50.3	101	69-140
563-58-6	PS	1,1-Dichloropropene	50.0	0.00	U	46.9	94	71-130
71-36-3	PS	n-Butyl alcohol	5000	0.00	U	5440	109	53-150
56-23-5	PS	Carbon tetrachloride	50.0	0.00	U	51.6	103	69-142
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	U	47.0	94	72-126
71-43-2	PS	Benzene	50.0	0.00	U	43.3	87	73-119
79-01-6	PS	Trichloroethylene	50.0	0.00	U	44.8	90	54-147
78-87-5	PS	1,2-Dichloropropane	50.0	0.00	U	45.8	92	78-123
75-27-4	PS	Bromodichloromethane	50.0	0.00	U	51.2	102	76-131
74-95-3	PS	Dibromomethane	50.0	0.00	U	47.7	95	79-120
108-10-1	PS	4-Methyl-2-pentanone	250	0.00	U	242	97	68-136
10061-01-5	PS	cis-1,3-Dichloropropylene	50.0	0.00	U	49.5	99	72-134
108-88-3	PS	Toluene	50.0	0.00	U	42.3	85	62-126
10061-02-6	PS	trans-1,3-Dichloropropylene	50.0	0.00	U	50.6	101	72-133
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	U	46.6	93	74-120
591-78-6	PS	2-Hexanone	250	0.00	U	243	97	31-132
142-28-9	PS	1,3-Dichloropropane	50.0	0.00	U	44.4	89	73-121
127-18-4	PS	Tetrachloroethylene	50.0	0.00	U	41.6	83	54-139
124-48-1	PS	Dibromochloromethane	50.0	0.00	U	52.1	104	74-128
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	U	48.8	98	80-120
108-90-7	PS	Chlorobenzene	50.0	0.00	U	41.2	82	73-119
100-41-4	PS	Ethylbenzene	50.0	0.00	U	40.9	82	66-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **CAMO-13-24238PS**
Lab Sample ID: **1202777500**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/09/2012 19:54**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	PS	m,p-Xylenes	100	0.00	U	79.7	80	56-134
95-47-6	PS	o-Xylene	50.0	0.00	U	40.3	81	68-126
100-42-5	PS	Styrene	50.0	0.00	U	42.3	85	57-138
75-25-2	PS	Bromoform	50.0	0.00	U	55.1	110	66-129
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	U	47.7	95	44-146
96-18-4	PS	1,2,3-Trichloropropane	50.0	0.00	U	46.5	93	68-129
108-86-1	PS	Bromobenzene	50.0	0.00	U	40.5	81	70-122
103-65-1	PS	n-Propylbenzene	50.0	0.00	U	36.5	73	61-131
95-49-8	PS	2-Chlorotoluene	50.0	0.00	U	37.7	75	66-126
98-82-8	PS	Isopropylbenzene	50.0	0.00	U	39.0	78	65-130
108-67-8	PS	1,3,5-Trimethylbenzene	50.0	0.00	U	37.8	76	58-134
106-43-4	PS	4-Chlorotoluene	50.0	0.00	U	37.2	74	63-125
98-06-6	PS	tert-Butylbenzene	50.0	0.00	U	38.1	76	66-129
95-63-6	PS	1,2,4-Trimethylbenzene	50.0	0.00	U	37.6	75	60-131
135-98-8	PS	sec-Butylbenzene	50.0	0.00	U	35.9	72	62-130
99-87-6	PS	4-Isopropyltoluene	50.0	0.00	U	35.4	71	62-132
541-73-1	PS	1,3-Dichlorobenzene	50.0	0.00	U	37.3	75	66-121
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	U	36.6	73	65-119
104-51-8	PS	n-Butylbenzene	50.0	0.00	U	33.0	66	55-134
96-12-8	PS	1,2-Dibromo-3-chloropropane	50.0	0.00	U	53.9	108	58-137
87-68-3	PS	Hexachlorobutadiene	50.0	0.00	U	28.5	57	49-139
91-20-3	PS	Naphthalene	50.0	0.00	U	41.3	83	46-145

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **CAMO-13-24238PS**
Lab Sample ID: **1202777500**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/09/2012 19:54**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	PS	1,2,3-Trichlorobenzene	50.0	0.00	U	34.3	69	54-134
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	U	48.3	97	79-128
120-82-1	PS	1,2,4-Trichlorobenzene	50.0	0.00	U	34.4	69	55-128
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	U	39.5	79	68-121

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **CAMO-13-24238PSD**
Lab Sample ID: **1202777501**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/09/2012 20:22**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
75-71-8	PSD	Dichlorodifluoromethane	50.0	0.00	U	40.7	81	36-123	5	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	U	35.4	71	47-134	5	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	U	36.5	73	49-129	5	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	U	44.1	88	56-127	3	0-20
75-00-3	PSD	Chloroethane	50.0	0.00	U	42.7	85	67-122	2	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	U	44.4	89	60-123	3	0-20
60-29-7	PSD	Ethyl ether	50.0	0.00	U	41.9	84	69-121	2	0-20
67-64-1	PSD	Acetone	250	0.00	U	128	51	30-143	12	0-20
75-05-8	PSD	Acetonitrile	1250	0.00	U	901	72	60-133	10	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	U	47.8	96	67-132	1	0-20
74-88-4	PSD	Iodomethane	250	0.00	U	248	99	69-147	1	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	U	46.2	92	56-135	0	0-20
75-15-0	PSD	Carbon disulfide	250	0.00	U	247	99	65-153	0	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	U	46.3	93	73-126	3	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	U	46.2	92	69-128	1	0-20
108-05-4	PSD	Vinyl acetate	250	0.00	U	205	82	50-143	6	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	U	46.8	94	75-124	0	0-20
78-93-3	PSD	2-Butanone	250	0.00	U	201	80	30-140	13	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	U	46.3	93	52-147	0	0-20
594-20-7	PSD	2,2-Dichloropropane	50.0	0.00	U	46.7	93	67-143	1	0-20
67-66-3	PSD	Chloroform	50.0	0.00	U	47.7	95	75-125	1	0-20
74-97-5	PSD	Bromochloromethane	50.0	0.00	U	47.3	95	80-120	0	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **CAMO-13-24238PSD**
Lab Sample ID: **1202777501**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/09/2012 20:22**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: **1**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
71-55-6	PSD	1,1,1-Trichloroethane	50.0	0.00	U	50.5	101	69-140	0	0-20
563-58-6	PSD	1,1-Dichloropropene	50.0	0.00	U	47.0	94	71-130	0	0-20
71-36-3	PSD	n-Butyl alcohol	5000	0.00	U	4780	96	53-150	13	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	U	51.8	104	69-142	1	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	U	46.2	92	72-126	2	0-20
71-43-2	PSD	Benzene	50.0	0.00	U	44.1	88	73-119	2	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	U	46.6	93	54-147	4	0-20
78-87-5	PSD	1,2-Dichloropropane	50.0	0.00	U	46.0	92	78-123	0	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	U	51.7	103	76-131	1	0-20
74-95-3	PSD	Dibromomethane	50.0	0.00	U	46.9	94	79-120	2	0-20
108-10-1	PSD	4-Methyl-2-pentanone	250	0.00	U	221	88	68-136	9	0-20
10061-01-5	PSD	cis-1,3-Dichloropropylene	50.0	0.00	U	50.5	101	72-134	2	0-20
108-88-3	PSD	Toluene	50.0	0.00	U	45.2	90	62-126	7	0-20
10061-02-6	PSD	trans-1,3-Dichloropropylene	50.0	0.00	U	51.9	104	72-133	3	0-20
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	U	46.7	93	74-120	0	0-20
591-78-6	PSD	2-Hexanone	250	0.00	U	219	88	31-132	10	0-20
142-28-9	PSD	1,3-Dichloropropane	50.0	0.00	U	44.7	89	73-121	1	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	U	45.3	91	54-139	9	0-20
124-48-1	PSD	Dibromochloromethane	50.0	0.00	U	53.3	107	74-128	2	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	U	48.1	96	80-120	2	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.00	U	44.9	90	73-119	9	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	U	46.0	92	66-125	12	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **CAMO-13-24238PSD**
Lab Sample ID: **1202777501**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/09/2012 20:22**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: **1**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	PSD	m,p-Xylenes	100	0.00	U	90.2	90	56-134	12	0-20
95-47-6	PSD	o-Xylene	50.0	0.00	U	45.5	91	68-126	12	0-20
100-42-5	PSD	Styrene	50.0	0.00	U	47.4	95	57-138	11	0-20
75-25-2	PSD	Bromoform	50.0	0.00	U	54.7	109	66-129	1	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	U	46.2	92	44-146	3	0-20
96-18-4	PSD	1,2,3-Trichloropropane	50.0	0.00	U	44.5	89	68-129	4	0-20
108-86-1	PSD	Bromobenzene	50.0	0.00	U	45.0	90	70-122	11	0-20
103-65-1	PSD	n-Propylbenzene	50.0	0.00	U	44.7	89	61-131	20	0-20
95-49-8	PSD	2-Chlorotoluene	50.0	0.00	U	44.1	88	66-126	16	0-20
98-82-8	PSD	Isopropylbenzene	50.0	0.00	U	45.4	91	65-130	15	0-20
108-67-8	PSD	1,3,5-Trimethylbenzene	50.0	0.00	U	45.4	91	58-134	18	0-20
106-43-4	PSD	4-Chlorotoluene	50.0	0.00	U	44.1	88	63-125	17	0-20
98-06-6	PSD	tert-Butylbenzene	50.0	0.00	U	45.4	91	66-129	18	0-20
95-63-6	PSD	1,2,4-Trimethylbenzene	50.0	0.00	U	45.3	91	60-131	19	0-20
135-98-8	PSD	sec-Butylbenzene	50.0	0.00	U	44.8	90	62-130	22 *	0-20
99-87-6	PSD	4-Isopropyltoluene	50.0	0.00	U	45.0	90	62-132	24 *	0-20
541-73-1	PSD	1,3-Dichlorobenzene	50.0	0.00	U	43.7	87	66-121	16	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	U	43.0	86	65-119	16	0-20
104-51-8	PSD	n-Butylbenzene	50.0	0.00	U	43.6	87	55-134	28 *	0-20
96-12-8	PSD	1,2-Dibromo-3-chloropropane	50.0	0.00	U	49.0	98	58-137	10	0-20
87-68-3	PSD	Hexachlorobutadiene	50.0	0.00	U	40.3	81	49-139	34 *	0-20
91-20-3	PSD	Naphthalene	50.0	0.00	U	43.0	86	46-145	4	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **CAMO-13-24238PSD**
Lab Sample ID: **1202777501**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/09/2012 20:22**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
87-61-6	PSD	1,2,3-Trichlorobenzene	50.0	0.00	U	40.0	80	54-134	15	0-20
630-20-6	PSD	1,1,1,2-Tetrachloroethane	50.0	0.00	U	51.4	103	79-128	6	0-20
120-82-1	PSD	1,2,4-Trichlorobenzene	50.0	0.00	U	40.5	81	55-128	16	0-20
95-50-1	PSD	1,2-Dichlorobenzene	50.0	0.00	U	44.7	89	68-121	12	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **LCS for batch 1262189**
Lab Sample ID: **1202777502**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/09/2012 11:03**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	44.0	88	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	41.0	82	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	42.5	85	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	47.0	94	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	46.2	92	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	48.3	97	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	43.7	87	74-120
67-64-1	LCS	Acetone	250	0.0	144	58	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	990	79	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	52.6	105	76-127
74-88-4	LCS	Iodomethane	250	0.0	264	106	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	48.4	97	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	273	109	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	49.2	98	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	50.1	100	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	249	100	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	49.9	100	79-120
78-93-3	LCS	2-Butanone	250	0.0	162	65	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	49.9	100	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	51.7	103	76-145
67-66-3	LCS	Chloroform	50.0	0.0	50.7	101	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	49.3	99	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **LCS for batch 1262189**
Lab Sample ID: **1202777502**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/09/2012 11:03**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	55.1	110	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	52.2	104	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	5150	103	66-138
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	57.1	114	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	47.5	95	75-121
71-43-2	LCS	Benzene	50.0	0.0	47.5	95	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	51.2	102	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	48.9	98	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	55.1	110	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	48.8	98	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	223	89	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	55.0	110	80-127
108-88-3	LCS	Toluene	50.0	0.0	48.7	97	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	55.2	110	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	48.1	96	79-120
591-78-6	LCS	2-Hexanone	250	0.0	183	73	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	46.4	93	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	50.1	100	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	55.6	111	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	49.6	99	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	48.2	96	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	50.3	101	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **LCS for batch 1262189**
Lab Sample ID: **1202777502**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/09/2012 11:03**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	98.9	99	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	49.3	99	80-120
100-42-5	LCS	Styrene	50.0	0.0	52.7	105	80-121
75-25-2	LCS	Bromoform	50.0	0.0	58.4	117	72-125
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	48.8	98	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	46.2	92	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	48.2	96	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	50.4	101	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	48.3	97	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	50.3	101	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	50.7	101	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	49.3	99	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	50.8	102	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	50.8	102	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	50.4	101	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	51.6	103	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	48.6	97	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	48.1	96	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	51.9	104	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	53.7	107	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	47.9	96	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	45.8	92	71-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **LCS for batch 1262189**
Lab Sample ID: **1202777502**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/09/2012 11:03**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	43.1	86	73-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	53.2	106	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	46.5	93	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	48.7	97	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **LCS for batch 1262189**
Lab Sample ID: **1202777503**
Instrument: **VOA6.I**
Analyst: **RXD1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/09/2012 12:31**
Prep Batch ID: **1262189**
Batch ID: **1262189**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS	Acrolein	250	0.0	252	101	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	276	110	65-157
107-05-1	LCS	Allyl chloride	250	0.0	226	90	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	213	85	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	57.2	114	45-159
107-12-0	LCS	Propionitrile	250	0.0	218	87	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	220	88	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2230	89	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	234	94	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	241	97	66-132

Method Blank Summary

SDG Number:	**2013-259**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1262189**	**Instrument ID:**	**VOA6.I**	**Data File:**	**110912V6\6J508BA.D**
Lab Sample ID:	**1202777499**	**Prep Date:**	**11/09/2012 13:29**	**Analyzed:**	**11/09/12 13:29**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1262189	1202777502	110912V6\6J503LA.D	11/09/12	1103
02 LCS for batch 1262189	1202777503	110912V6\6J506BA.D	11/09/12	1231
03 CAMO-13-24225	314443004	110912V6\6J514.D	11/09/12	1631
04 CAMO-13-24238PS	1202777500	110912V6\6J521.D	11/09/12	1954
05 CAMO-13-24238PSD	1202777501	110912V6\6J522.D	11/09/12	2022

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777499**				
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262189**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 13:29**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 13:29**				
Data File:	**110912V6\6J508BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777499**				
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262189**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 13:29**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 13:29**				
Data File:	**110912V6\6J508BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777499**				
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262189**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 13:29**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 13:29**				
Data File:	**110912V6\6J508BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.5	50.0	ug/L	97.1	(78%-124%)
Bromofluorobenzene	48.2	50.0	ug/L	96.4	(80%-120%)
Toluene-d8	47.8	50.0	ug/L	95.7	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202777500**	**Date Received:**	**11/01/2012 08:55**		
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 19:54**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 19:54**				
Data File:	**110912V6\6J521.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		42.9	ug/L	0.300	1.00
74-87-3	Chloromethane		37.2	ug/L	0.300	1.00
75-01-4	Vinyl chloride		38.4	ug/L	0.300	1.00
74-83-9	Bromomethane		45.3	ug/L	0.300	1.00
75-00-3	Chloroethane		43.5	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		45.7	ug/L	0.300	1.00
60-29-7	Ethyl ether		42.9	ug/L	0.300	1.00
67-64-1	Acetone	B	144	ug/L	3.00	10.0
75-05-8	Acetonitrile		999	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		48.1	ug/L	0.300	1.00
74-88-4	Iodomethane		249	ug/L	1.50	5.00
75-09-2	Methylene chloride		46.1	ug/L	3.00	10.0
75-15-0	Carbon disulfide		247	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		47.8	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		46.4	ug/L	0.300	1.00
108-05-4	Vinyl acetate		218	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		46.9	ug/L	0.300	1.00
78-93-3	2-Butanone		228	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		46.4	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		46.4	ug/L	0.300	1.00
67-66-3	Chloroform		47.9	ug/L	0.300	1.00
74-97-5	Bromochloromethane		47.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		50.3	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		46.9	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5440	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		51.6	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		47.0	ug/L	0.300	1.00
71-43-2	Benzene		43.3	ug/L	0.300	1.00
79-01-6	Trichloroethylene		44.8	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		45.8	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		51.2	ug/L	0.300	1.00
74-95-3	Dibromomethane		47.7	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		242	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		49.5	ug/L	0.300	1.00
108-88-3	Toluene		42.3	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		50.6	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		46.6	ug/L	0.300	1.00
591-78-6	2-Hexanone		243	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202777500**	**Date Received:**	**11/01/2012 08:55**		
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 19:54**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 19:54**				
Data File:	**110912V6\6J521.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		44.4	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		41.6	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		52.1	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		48.8	ug/L	0.300	1.00
108-90-7	Chlorobenzene		41.2	ug/L	0.300	1.00
100-41-4	Ethylbenzene		40.9	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		79.7	ug/L	0.300	2.00
95-47-6	o-Xylene		40.3	ug/L	0.300	1.00
100-42-5	Styrene		42.3	ug/L	0.300	1.00
75-25-2	Bromoform		55.1	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		47.7	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		46.5	ug/L	0.300	1.00
108-86-1	Bromobenzene		40.5	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		36.5	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		37.7	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		39.0	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		37.8	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		37.2	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		38.1	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		37.6	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		35.9	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		35.4	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		37.3	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		36.6	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		33.0	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		53.9	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		28.5	ug/L	0.300	1.00
91-20-3	Naphthalene		41.3	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		34.3	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202777500**	**Date Received:**	**11/01/2012 08:55**		
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 19:54**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 19:54**				
Data File:	**110912V6\6J521.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		48.3	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		34.4	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		39.5	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	49.8	50.0	ug/L	99.7	(78%-124%)
Bromofluorobenzene	48.7	50.0	ug/L	97.4	(80%-120%)
Toluene-d8	48.5	50.0	ug/L	97.1	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202777501**	**Date Received:**	**11/01/2012 08:55**		
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 20:22**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 20:22**				
Data File:	**110912V6\6J522.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		40.7	ug/L	0.300	1.00
74-87-3	Chloromethane		35.4	ug/L	0.300	1.00
75-01-4	Vinyl chloride		36.5	ug/L	0.300	1.00
74-83-9	Bromomethane		44.1	ug/L	0.300	1.00
75-00-3	Chloroethane		42.7	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		44.4	ug/L	0.300	1.00
60-29-7	Ethyl ether		41.9	ug/L	0.300	1.00
67-64-1	Acetone	B	128	ug/L	3.00	10.0
75-05-8	Acetonitrile		901	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		47.8	ug/L	0.300	1.00
74-88-4	Iodomethane		248	ug/L	1.50	5.00
75-09-2	Methylene chloride		46.2	ug/L	3.00	10.0
75-15-0	Carbon disulfide		247	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		46.3	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		46.2	ug/L	0.300	1.00
108-05-4	Vinyl acetate		205	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		46.8	ug/L	0.300	1.00
78-93-3	2-Butanone		201	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		46.3	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		46.7	ug/L	0.300	1.00
67-66-3	Chloroform		47.7	ug/L	0.300	1.00
74-97-5	Bromochloromethane		47.3	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		50.5	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		47.0	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		4780	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		51.8	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		46.2	ug/L	0.300	1.00
71-43-2	Benzene		44.1	ug/L	0.300	1.00
79-01-6	Trichloroethylene		46.6	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		46.0	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		51.7	ug/L	0.300	1.00
74-95-3	Dibromomethane		46.9	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		221	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		50.5	ug/L	0.300	1.00
108-88-3	Toluene		45.2	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		51.9	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		46.7	ug/L	0.300	1.00
591-78-6	2-Hexanone		219	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202777501**	**Date Received:**	**11/01/2012 08:55**		
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 20:22**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 20:22**				
Data File:	**110912V6\6J522.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		44.7	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		45.3	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		53.3	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		48.1	ug/L	0.300	1.00
108-90-7	Chlorobenzene		44.9	ug/L	0.300	1.00
100-41-4	Ethylbenzene		46.0	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		90.2	ug/L	0.300	2.00
95-47-6	o-Xylene		45.5	ug/L	0.300	1.00
100-42-5	Styrene		47.4	ug/L	0.300	1.00
75-25-2	Bromoform		54.7	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		46.2	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		44.5	ug/L	0.300	1.00
108-86-1	Bromobenzene		45.0	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		44.7	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		44.1	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		45.4	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		45.4	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		44.1	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		45.4	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		45.3	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		44.8	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		45.0	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		43.7	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		43.0	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		43.6	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		49.0	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		40.3	ug/L	0.300	1.00
91-20-3	Naphthalene		43.0	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		40.0	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202777501**	**Date Received:**	**11/01/2012 08:55**		
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 20:22**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 20:22**				
Data File:	**110912V6\6J522.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		51.4	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		40.5	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		44.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.3	50.0	ug/L	96.6	(78%-124%)
Bromofluorobenzene	48.5	50.0	ug/L	97.1	(80%-120%)
Toluene-d8	49.1	50.0	ug/L	98.2	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777502**				
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262189**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 11:03**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 11:03**				
Data File:	**110912V6\6J503LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		44.0	ug/L	0.300	1.00
74-87-3	Chloromethane		41.0	ug/L	0.300	1.00
75-01-4	Vinyl chloride		42.5	ug/L	0.300	1.00
74-83-9	Bromomethane		47.0	ug/L	0.300	1.00
75-00-3	Chloroethane		46.2	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		48.3	ug/L	0.300	1.00
60-29-7	Ethyl ether		43.7	ug/L	0.300	1.00
67-64-1	Acetone	B	144	ug/L	3.00	10.0
75-05-8	Acetonitrile		990	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		52.6	ug/L	0.300	1.00
74-88-4	Iodomethane		264	ug/L	1.50	5.00
75-09-2	Methylene chloride		48.4	ug/L	3.00	10.0
75-15-0	Carbon disulfide		273	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		49.2	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		50.1	ug/L	0.300	1.00
108-05-4	Vinyl acetate		249	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		49.9	ug/L	0.300	1.00
78-93-3	2-Butanone		162	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		49.9	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		51.7	ug/L	0.300	1.00
67-66-3	Chloroform		50.7	ug/L	0.300	1.00
74-97-5	Bromochloromethane		49.3	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		55.1	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		52.2	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5150	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		57.1	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		47.5	ug/L	0.300	1.00
71-43-2	Benzene		47.5	ug/L	0.300	1.00
79-01-6	Trichloroethylene		51.2	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.9	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		55.1	ug/L	0.300	1.00
74-95-3	Dibromomethane		48.8	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		223	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		55.0	ug/L	0.300	1.00
108-88-3	Toluene		48.7	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		55.2	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.1	ug/L	0.300	1.00
591-78-6	2-Hexanone		183	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777502**				
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262189**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 11:03**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 11:03**				
Data File:	**110912V6\6J503LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		46.4	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		50.1	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		55.6	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		49.6	ug/L	0.300	1.00
108-90-7	Chlorobenzene		48.2	ug/L	0.300	1.00
100-41-4	Ethylbenzene		50.3	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		98.9	ug/L	0.300	2.00
95-47-6	o-Xylene		49.3	ug/L	0.300	1.00
100-42-5	Styrene		52.7	ug/L	0.300	1.00
75-25-2	Bromoform		58.4	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		48.8	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		46.2	ug/L	0.300	1.00
108-86-1	Bromobenzene		48.2	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		50.4	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		48.3	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		50.3	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		50.7	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		49.3	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		50.8	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		50.8	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		50.4	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		51.6	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		48.6	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		48.1	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		51.9	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		53.7	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		47.9	ug/L	0.300	1.00
91-20-3	Naphthalene		45.8	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		43.1	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777502**				
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262189**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 11:03**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 11:03**				
Data File:	**110912V6\6J503LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		53.2	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		46.5	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		48.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.1	50.0	ug/L	96.3	(78%-124%)
Bromofluorobenzene	49.2	50.0	ug/L	98.5	(80%-120%)
Toluene-d8	48.2	50.0	ug/L	96.5	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777503**				
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262189**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 12:31**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 12:31**				
Data File:	**110912V6\6J506BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777503**				
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262189**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 12:31**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 12:31**				
Data File:	**110912V6\6J506BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein		252	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		276	ug/L	1.50	5.00
107-05-1	Allyl chloride		226	ug/L	1.50	5.00
107-13-1	Acrylonitrile		213	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		57.2	ug/L	0.300	1.00
107-12-0	Propionitrile		218	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		220	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2230	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		234	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777503**				
Client Sample:	**QC for batch 1262189**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262189**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262189**	**Inst:**	**VOA6.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 12:31**	**Analyst:**	**RXD1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/09/2012 12:31**				
Data File:	**110912V6\6J506BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		241	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	51.4	50.0	ug/L	103	(78%-124%)
Bromofluorobenzene	48.5	50.0	ug/L	97.0	(80%-120%)
Toluene-d8	48.5	50.0	ug/L	96.9	(80%-120%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
16-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
VOA GC/MS	SW846 8260B DOE-AL	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1262189	See Below		

Potentially affected work order(s)(SDG): 314340(2013-246),314440(2013-263),314443(2013-259)

Application Issues:

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. QC samples 1202777500 (MS) and 1202777501 (MSD) did not have acceptable calculated RPD values for all analytes.	1. All of the compounds passed recovery for the MS and the MSD.

Originator's Name:

Ryan Dushak 16-NOV-12

Data Validator/Group Leader:

Erin Haubert 20-NOV-12

Semi-Volatile Analysis

Case Narrative

Semi-Volatile Case Narrative
ARS International (ARSL)
SDG 2013-259

Method/Analysis Information

Procedure:	**Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method:	SW846 8270C
Prep Method:	SW846 3510C
Analytical Batch Number:	1260029
Prep Batch Number:	1260028

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8270C:

Sample ID	Client ID
314443004	CAMO-13-24225
1202772057	Method Blank (MB)
1202772058	Laboratory Control Sample (LCS)
1202772855	314340001(CAMO-13-24238) Matrix Spike (MS)
1202772856	314340001(CAMO-13-24238) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 29.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 18.2.

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in

the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

CCV Requirements
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG in this batch met the acceptance criteria.

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria for this SDG in this batch.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Sample 314340001 (CAMO-13-24238) was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) Recovery Statement
The MS(1202772855) recovered Benzidine at 0% (limits: 10%-125%) and Pyridine at 12% (limits: 21%-93%). The LCS and MSD were well within the acceptance limits for Benzidine and Pyridine. Since there was insufficient sample volume remaining to re-extract the parent sample with a MS/MSD pair the data results have been reported.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The MS(1202772855)/MSD(1202772856) RPD value for Aniline was 43% (limit: 30%), for Benzidine was 200% (limit: 30%), and for Pyridine was 125% (limit: 30%). The RPD failures were attributed to the higher recoveries in the MSD when compared to the MS. Since there was insufficient sample volume remaining to re-extract the parent sample with a MS/MSD pair the data results have been reported.

Internal Standard (ISTD) Acceptance
The internal standard responses used to quantitate the requested target analytes were within the required acceptance criteria for the SDG associated samples in this batch.

Technical Information:

Holding Time Specifications
All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection

specifications in the method.

Sample Dilutions
The samples in this SDG in this batch did not require dilutions.

Sample Re-extraction/Re-analysis
Sample 314443004 (CAMO-13-24225) was re-analyzed due to a marginally low surrogate recovery. The re-analyzed data results have been reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception report 1137905 was generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

TIC Comment
Tentatively identified compounds (TIC) may be requested for samples in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

Additional Comments
Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

System Configuration

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
MSD3.I	Agilent 7890A/5975C GC/MS w/ 7683 Autosampler	HP7890A/HP5975C	DB-5MS	25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-259 GEL Work Order: 314443

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Barbara Bailey **Name: Barbara Bailey**

Date: 27 NOV 2012 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/31/2012 13:30**	**Matrix:**	**W**
Lab Sample ID:	**314443004**	**Date Received:**	**11/02/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24225**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/07/2012 18:40**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**950 mL**	**Final Volume:**	**1 mL**
Data File:	**S110712.B\s3k0721.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.5	ug/L	3.16	10.5
110-86-1	Pyridine	U	10.5	ug/L	3.16	10.5
62-53-3	Aniline	U	10.5	ug/L	3.16	10.5
108-95-2	Phenol	U	10.5	ug/L	3.16	10.5
111-44-4	bis(2-Chloroethyl) ether	U	10.5	ug/L	3.16	10.5
95-57-8	2-Chlorophenol	U	10.5	ug/L	3.16	10.5
541-73-1	1,3-Dichlorobenzene	U	10.5	ug/L	3.16	10.5
106-46-7	1,4-Dichlorobenzene	U	10.5	ug/L	3.16	10.5
95-50-1	1,2-Dichlorobenzene	U	10.5	ug/L	3.16	10.5
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.5	ug/L	3.16	10.5
100-51-6	Benzyl alcohol	U	10.5	ug/L	3.16	10.5
95-48-7	o-Cresol	U	10.5	ug/L	3.16	10.5
65794-96-9	m,p-Cresols	U	10.5	ug/L	3.16	10.5
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.5	ug/L	3.16	10.5
67-72-1	Hexachloroethane	U	10.5	ug/L	3.16	10.5
98-95-3	Nitrobenzene	U	10.5	ug/L	3.16	10.5
78-59-1	Isophorone	U	10.5	ug/L	3.16	10.5
88-75-5	2-Nitrophenol	U	10.5	ug/L	3.16	10.5
105-67-9	2,4-Dimethylphenol	U	10.5	ug/L	3.16	10.5
111-91-1	bis(2-Chloroethoxy)methane	U	10.5	ug/L	3.16	10.5
120-83-2	2,4-Dichlorophenol	U	10.5	ug/L	3.16	10.5
65-85-0	Benzoic acid	U	21.1	ug/L	6.32	21.1
106-47-8	4-Chloroaniline	U	10.5	ug/L	3.47	10.5
87-68-3	Hexachlorobutadiene	U	10.5	ug/L	3.16	10.5
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.5	ug/L	3.16	10.5
91-57-6	2-Methylnaphthalene	U	1.05	ug/L	0.316	1.05
91-20-3	Naphthalene	U	1.05	ug/L	0.316	1.05
90-12-0	1-Methylnaphthalene	U	1.05	ug/L	0.316	1.05
77-47-4	Hexachlorocyclopentadiene	U	10.5	ug/L	3.16	10.5
88-06-2	2,4,6-Trichlorophenol	U	10.5	ug/L	3.16	10.5
95-95-4	2,4,5-Trichlorophenol	U	10.5	ug/L	3.16	10.5
91-58-7	2-Chloronaphthalene	U	1.05	ug/L	0.316	1.05
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.5	ug/L	3.16	10.5
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.5	ug/L	3.16	10.5
131-11-3	Dimethylphthalate	U	10.5	ug/L	3.16	10.5
606-20-2	2,6-Dinitrotoluene	U	10.5	ug/L	3.16	10.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/31/2012 13:30**	**Matrix:**	**W**
Lab Sample ID:	**314443004**	**Date Received:**	**11/02/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24225**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/07/2012 18:40**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**950 mL**	**Final Volume:**	**1 mL**
Data File:	**S110712.B\s3k0721.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.5	ug/L	3.16	10.5
208-96-8	Acenaphthylene	U	1.05	ug/L	0.316	1.05
83-32-9	Acenaphthene	U	1.05	ug/L	0.316	1.05
51-28-5	2,4-Dinitrophenol	U	21.1	ug/L	5.26	21.1
132-64-9	Dibenzofuran	U	10.5	ug/L	3.16	10.5
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.5	ug/L	3.16	10.5
84-66-2	Diethylphthalate	U	10.5	ug/L	3.16	10.5
100-02-7	4-Nitrophenol	U	10.5	ug/L	3.16	10.5
86-73-7	Fluorene	U	1.05	ug/L	0.316	1.05
7005-72-3	4-Chlorophenylphenylether	U	10.5	ug/L	3.16	10.5
100-01-6	4-Nitroaniline	U	10.5	ug/L	3.16	10.5
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.5	ug/L	3.16	10.5
122-39-4	Diphenylamine	U	10.5	ug/L	3.16	10.5
122-66-7	Azobenzene	U	10.5	ug/L	3.16	10.5
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.5	ug/L	3.16	10.5
118-74-1	Hexachlorobenzene	U	10.5	ug/L	3.16	10.5
87-86-5	Pentachlorophenol	U	10.5	ug/L	3.16	10.5
88-85-7	Dinoseb	U	10.5	ug/L	3.16	10.5
85-01-8	Phenanthrene	U	1.05	ug/L	0.316	1.05
120-12-7	Anthracene	U	1.05	ug/L	0.316	1.05
84-74-2	Di-n-butylphthalate	U	10.5	ug/L	3.16	10.5
206-44-0	Fluoranthene	U	1.05	ug/L	0.316	1.05
129-00-0	Pyrene	U	1.05	ug/L	0.316	1.05
85-68-7	Butylbenzylphthalate	U	10.5	ug/L	3.16	10.5
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.5	ug/L	3.16	10.5
56-55-3	Benzo(a)anthracene	U	1.05	ug/L	0.316	1.05
218-01-9	Chrysene	U	1.05	ug/L	0.316	1.05
117-84-0	Di-n-octylphthalate	U	10.5	ug/L	3.16	10.5
205-99-2	Benzo(b)fluoranthene	U	1.05	ug/L	0.316	1.05
207-08-9	Benzo(k)fluoranthene	U	1.05	ug/L	0.316	1.05
50-32-8	Benzo(a)pyrene	U	1.05	ug/L	0.463	1.05
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.05	ug/L	0.316	1.05
53-70-3	Dibenzo(a,h)anthracene	U	1.05	ug/L	0.316	1.05
191-24-2	Benzo(ghi)perylene	U	1.05	ug/L	0.316	1.05
123-91-1	1,4-Dioxane	U	10.5	ug/L	3.16	10.5
55-18-5	N-Nitrosodiethylamine	U	10.5	ug/L	3.16	10.5
930-55-2	N-Nitrosopyrrolidine	U	10.5	ug/L	3.16	10.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/31/2012 13:30**	**Matrix:**	**W**
Lab Sample ID:	**314443004**	**Date Received:**	**11/02/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24225**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/07/2012 18:40**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**950 mL**	**Final Volume:**	**1 mL**
Data File:	**S110712.B\s3k0721.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.5	ug/L	3.16	10.5
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.5	ug/L	3.16	10.5
608-93-5	Pentachlorobenzene	U	10.5	ug/L	3.16	10.5
1912-24-9	Atrazine	U	10.5	ug/L	3.16	10.5
92-87-5	Benzidine	U	10.5	ug/L	3.16	10.5
91-94-1	3,3'-Dichlorobenzidine	U	10.5	ug/L	3.16	10.5
120-82-1	1,2,4-Trichlorobenzene	U	10.5	ug/L	3.16	10.5

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	37.9	105	ug/L	36.0	(23%-130%)
2-Fluorobiphenyl	18.4	52.6	ug/L	35.0	(30%-104%)
2-Fluorophenol	39.3	105	ug/L	37.3	(14%-77%)
Nitrobenzene-d5	20.5	52.6	ug/L	39.0	(34%-125%)
Phenol-d5	26.2	105	ug/L	24.9	(10%-78%)
p-Terphenyl-d14	30.1	52.6	ug/L	57.1	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.943	40.3	ug/L	0	J
	unknown	2.031	11.6	ug/L	0	J
000110-83-8	Cyclohexene	2.062	18.6	ug/L	93	NJ

Quality Control Summary

Semi-Volatile

Surrogate Recovery Report

SDG Number: 2013-259

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1202772057	MB for batch 1260028	41	26	68	52	87	65
1202772058	LCS for batch 1260028	44	30	69	58	82	59
1202772855	CAMO-13-24238MS	56	44	67	56	88	65
1202772856	CAMO-13-24238MSD	54	42	67	54	85	64
314443004	CAMO-13-24225	37	25	39	35	36	57

Surrogate			Acceptance Limits
2FP	=	2-Fluorophenol	(14%-77%)
PHL	=	Phenol-d5	(10%-78%)
NBZ	=	Nitrobenzene-d5	(34%-125%)
FBP	=	2-Fluorobiphenyl	(30%-104%)
TBP	=	2,4,6-Tribromophenol	(23%-130%)
TPH	=	p-Terphenyl-d14	(33%-136%)

* Recovery outside Acceptance Limits

\# Column to be used to flag recovery values

D Sample Diluted

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **LCS for batch 1260028**
Lab Sample ID: **1202772058**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/06/2012 14:04**
Prep Batch ID: **1260028**
Batch ID: **1260029**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	LCS	N-Methyl-N-nitrosomethylam	50.0	0.0	21.7	43	29-86
110-86-1	LCS	Pyridine	50.0	0.0	22.6	45	25-96
62-53-3	LCS	Aniline	50.0	0.0	32.7	65	38-105
108-95-2	LCS	Phenol	50.0	0.0	16.1	32	13-137
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	31.6	63	37-110
95-57-8	LCS	2-Chlorophenol	50.0	0.0	31.0	62	41-98
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	27.2	54	33-86
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	27.0	54	33-87
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	27.2	54	34-86
39638-32-9	LCS	bis(2-Chloroisopropyl)ether	50.0	0.0	30.7	61	30-118
100-51-6	LCS	Benzyl alcohol	50.0	0.0	27.7	55	39-88
95-48-7	LCS	o-Cresol	50.0	0.0	29.8	60	37-89
65794-96-9	LCS	m,p-Cresols	50.0	0.0	34.9	70	33-99
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	33.1	66	40-112
67-72-1	LCS	Hexachloroethane	50.0	0.0	25.9	52	31-87
98-95-3	LCS	Nitrobenzene	50.0	0.0	36.6	73	42-118
78-59-1	LCS	Isophorone	50.0	0.0	38.3	77	50-132
88-75-5	LCS	2-Nitrophenol	50.0	0.0	36.5	73	45-109
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	28.8	58	44-98
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	34.6	69	45-109
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	35.9	72	46-106
65-85-0	LCS	Benzoic acid	100	0.0	43.7	44	4-134

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **LCS for batch 1260028**
Lab Sample ID: **1202772058**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/06/2012 14:04**
Prep Batch ID: **1260028**
Batch ID: **1260029**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	LCS	4-Chloroaniline	50.0	0.0	35.1	70	50-122
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	35.0	70	29-94
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	36.6	73	47-110
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	31.3	63	37-100
91-20-3	LCS	Naphthalene	50.0	0.0	30.7	61	35-97
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	33.0	66	38-105
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	23.1	46	38-79
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	34.3	69	43-108
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	35.0	70	43-110
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	30.8	62	40-96
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	33.3	67	45-116
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	34.2	68	46-123
131-11-3	LCS	Dimethylphthalate	50.0	0.0	37.9	76	53-111
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	35.7	71	52-117
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	36.9	74	46-124
208-96-8	LCS	Acenaphthylene	50.0	0.0	30.9	62	42-105
83-32-9	LCS	Acenaphthene	50.0	0.0	29.0	58	42-103
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	42.3	85	33-105
132-64-9	LCS	Dibenzofuran	50.0	0.0	34.2	68	46-106
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	36.7	73	46-119
84-66-2	LCS	Diethylphthalate	50.0	0.0	35.7	71	52-115
100-02-7	LCS	4-Nitrophenol	50.0	0.0	16.6	33	12-130

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **LCS for batch 1260028**
Lab Sample ID: **1202772058**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/06/2012 14:04**
Prep Batch ID: **1260028**
Batch ID: **1260029**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	LCS	Fluorene	50.0	0.0	32.7	65	44-110
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	36.0	72	41-113
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	36.6	73	39-132
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	43.2	86	39-111
122-39-4	LCS	Diphenylamine	50.0	0.0	32.0	64	47-111
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	32.5	65	41-111
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	38.1	76	42-113
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	36.9	74	44-115
87-86-5	LCS	Pentachlorophenol	50.0	0.0	34.3	69	36-99
85-01-8	LCS	Phenanthrene	50.0	0.0	33.2	66	47-111
120-12-7	LCS	Anthracene	50.0	0.0	32.5	65	46-109
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	33.7	67	49-115
206-44-0	LCS	Fluoranthene	50.0	0.0	33.9	68	45-118
129-00-0	LCS	Pyrene	50.0	0.0	33.3	67	39-126
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	31.3	63	41-121
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	31.2	62	38-124
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	33.7	67	49-110
218-01-9	LCS	Chrysene	50.0	0.0	33.3	67	45-117
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	29.4	59	34-121
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	31.3	63	47-116
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	31.7	63	47-119
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	31.9	64	48-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **LCS for batch 1260028**
Lab Sample ID: **1202772058**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/06/2012 14:04**
Prep Batch ID: **1260028**
Batch ID: **1260029**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	LCS	Indeno(1,2,3-cd)pyrene	50.0	0.0	41.0	82	38-124
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	43.1	86	38-124
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	40.3	81	36-124
123-91-1	LCS	1,4-Dioxane	50.0	0.0	22.1	44	41-69
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	33.6	67	42-105
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	29.9	60	40-93
1912-24-9	LCS	Atrazine	50.0	0.0	25.2	50	47-115
92-87-5	LCS	Benzidine	100	0.0	54.5	55	19-124
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	31.8	64	36-111
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	30.9	62	32-92

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259** **Sample Type:** **Matrix Spike**
Client ID: **CAMO-13-24238MS** **Matrix:** **W**
Lab Sample ID: **1202772855**
Instrument: **MSD3.I** **Analysis Date:** **11/06/2012 17:24** **Dilution: 1**
Analyst: **JLD1** **Prep Batch ID:** **1260028**
Inj. Vol: **1 uL** **Batch ID:** **1260029**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	MS	N-Methyl-N-nitrosomethylam	110	0.00	U	63.8	58	27-85
110-86-1	MS	Pyridine	110	0.00	U	13.3	12 *	21-93
62-53-3	MS	Aniline	110	0.00	U	53.8	49	28-108
108-95-2	MS	Phenol	110	0.00	U	50.9	46	15-100
111-44-4	MS	bis(2-Chloroethyl) ether	110	0.00	U	71.1	65	27-114
95-57-8	MS	2-Chlorophenol	110	0.00	U	70.9	65	32-103
541-73-1	MS	1,3-Dichlorobenzene	110	0.00	U	54.6	50	23-84
106-46-7	MS	1,4-Dichlorobenzene	110	0.00	U	54.8	50	23-88
95-50-1	MS	1,2-Dichlorobenzene	110	0.00	U	55.9	51	24-86
39638-32-9	MS	bis(2-Chloroisopropyl)ether	110	0.00	U	69.9	64	19-122
100-51-6	MS	Benzyl alcohol	110	0.00	U	71.5	65	34-98
95-48-7	MS	o-Cresol	110	0.00	U	71.4	65	29-96
65794-96-9	MS	m,p-Cresols	110	0.00	U	91.3	83	26-111
621-64-7	MS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	110	0.00	U	76.6	70	32-115
67-72-1	MS	Hexachloroethane	110	0.00	U	51.2	47	25-82
98-95-3	MS	Nitrobenzene	110	0.00	U	79.2	72	35-124
78-59-1	MS	Isophorone	110	0.00	U	88.3	80	37-140
88-75-5	MS	2-Nitrophenol	110	0.00	U	78.8	72	33-115
105-67-9	MS	2,4-Dimethylphenol	110	0.00	U	69.4	63	31-106
111-91-1	MS	bis(2-Chloroethoxy)methane	110	0.00	U	77.9	71	35-112
120-83-2	MS	2,4-Dichlorophenol	110	0.00	U	80.1	73	36-110
65-85-0	MS	Benzoic acid	220	0.00	U	137	62	12-108

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **CAMO-13-24238MS**
Lab Sample ID: **1202772855**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/06/2012 17:24**
Prep Batch ID: **1260028**
Batch ID: **1260029**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS	4-Chloroaniline	110	0.00	U	88.9	81	33-120
87-68-3	MS	Hexachlorobutadiene	110	0.00	U	64.8	59	19-96
59-50-7	MS	Parachlorometa cresol *4-Chloro-3-methylphenol*	110	0.00	U	87.3	79	36-116
91-57-6	MS	2-Methylnaphthalene	110	0.00	U	62.4	57	27-103
91-20-3	MS	Naphthalene	110	0.00	U	62.1	57	28-99
90-12-0	MS	1-Methylnaphthalene	110	0.00	U	66.6	61	29-107
77-47-4	MS	Hexachlorocyclopentadiene	110	0.00	U	38.5	35	25-75
88-06-2	MS	2,4,6-Trichlorophenol	110	0.00	U	78.3	71	36-111
95-95-4	MS	2,4,5-Trichlorophenol	110	0.00	U	81.9	75	34-115
91-58-7	MS	2-Chloronaphthalene	110	0.00	U	62.3	57	33-96
88-74-4	MS	2-Nitroaniline *o-Nitroaniline*	110	0.00	U	78.7	72	31-120
99-09-2	MS	3-Nitroaniline *m-Nitroaniline*	110	0.00	U	80.4	73	32-123
131-11-3	MS	Dimethylphthalate	110	0.00	U	90.5	82	43-115
606-20-2	MS	2,6-Dinitrotoluene	110	0.00	U	86.5	79	42-121
121-14-2	MS	2,4-Dinitrotoluene	110	0.00	U	88.6	81	37-125
208-96-8	MS	Acenaphthylene	110	0.00	U	66.3	60	34-103
83-32-9	MS	Acenaphthene	110	0.00	U	62.8	57	31-104
51-28-5	MS	2,4-Dinitrophenol	110	0.00	U	98.9	90	25-108
132-64-9	MS	Dibenzofuran	110	0.00	U	75.7	69	38-106
58-90-2	MS	2,3,4,6-Tetrachlorophenol	110	0.00	U	86.5	79	33-123
84-66-2	MS	Diethylphthalate	110	0.00	U	88.5	81	43-116
100-02-7	MS	4-Nitrophenol	110	0.00	U	52.4	48	26-72

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259** **Sample Type:** **Matrix Spike**

Client ID: **CAMO-13-24238MS** **Matrix:** **W**

Lab Sample ID: **1202772855**

Instrument: **MSD3.I** **Analysis Date:** **11/06/2012 17:24** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1260028**

Inj. Vol: **1 uL** **Batch ID:** **1260029**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	110	0.00	U	74.5	68	33-110
7005-72-3	MS	4-Chlorophenylphenylether	110	0.00	U	81.2	74	30-112
100-01-6	MS	4-Nitroaniline *p-Nitroaniline*	110	0.00	U	76.3	69	28-131
534-52-1	MS	2-Methyl-4,6-dinitrophenol	110	0.00	U	103	94	31-113
122-39-4	MS	Diphenylamine	110	0.00	U	74.9	68	36-110
122-66-7	MS	Azobenzene *1,2-Diphenylhydrazine*	110	0.00	U	77.1	70	33-110
101-55-3	MS	4-Bromophenylphenylether	110	0.00	U	89.4	81	33-111
118-74-1	MS	Hexachlorobenzene	110	0.00	U	89.1	81	36-113
87-86-5	MS	Pentachlorophenol	110	0.00	U	85.3	78	25-110
85-01-8	MS	Phenanthrene	110	0.00	U	79.6	72	36-111
120-12-7	MS	Anthracene	110	0.00	U	77.4	70	36-107
84-74-2	MS	Di-n-butylphthalate	110	0.00	U	85.7	78	38-116
206-44-0	MS	Fluoranthene	110	0.00	U	85.4	78	35-116
129-00-0	MS	Pyrene	110	0.00	U	78.0	71	28-126
85-68-7	MS	Butylbenzylphthalate	110	0.00	U	75.3	69	32-120
117-81-7	MS	bis(2-Ethylhexyl)phthalate	110	0.00	U	75.8	69	30-121
56-55-3	MS	Benzo(a)anthracene	110	0.00	U	80.5	73	38-110
218-01-9	MS	Chrysene	110	0.00	U	80.3	73	35-115
117-84-0	MS	Di-n-octylphthalate	110	0.00	U	70.6	64	30-115
205-99-2	MS	Benzo(b)fluoranthene	110	0.00	U	75.8	69	37-115
207-08-9	MS	Benzo(k)fluoranthene	110	0.00	U	76.0	69	36-118
50-32-8	MS	Benzo(a)pyrene	110	0.00	U	75.6	69	36-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **CAMO-13-24238MS**
Lab Sample ID: **1202772855**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/06/2012 17:24**
Prep Batch ID: **1260028**
Batch ID: **1260029**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	MS	Indeno(1,2,3-cd)pyrene	110	0.00	U	100	91	28-121
53-70-3	MS	Dibenzo(a,h)anthracene	110	0.00	U	105	96	26-124
191-24-2	MS	Benzo(ghi)perylene	110	0.00	U	101	92	25-122
123-91-1	MS	1,4-Dioxane	110	5.28	J	72.6	61	26-90
930-55-2	MS	N-Nitrosopyrrolidine	110	0.00	U	85.4	78	40-113
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	110	0.00	U	57.4	52	32-94
1912-24-9	MS	Atrazine	110	0.00	U	60.9	55	36-119
92-87-5	MS	Benzidine	220	0.00	U	0.00	0 *	10-125
91-94-1	MS	3,3'-Dichlorobenzidine	110	0.00	U	70.9	65	27-109
120-82-1	MS	1,2,4-Trichlorobenzene	110	0.00	U	59.8	54	23-90

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24238MSD** **Matrix:** **W**

Lab Sample ID: **1202772856**

Instrument: **MSD3.I** **Analysis Date:** **11/06/2012 17:49** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1260028**

Inj. Vol: **1 uL** **Batch ID:** **1260029**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
62-75-9	MSD	N-Methyl-N-nitrosomethylam	110	0.00	U	60.7	55	27-85	5	0-30
110-86-1	MSD	Pyridine	110	0.00	U	57.8	53	21-93	125 *	0-30
62-53-3	MSD	Aniline	110	0.00	U	83.3	76	28-108	43 *	0-30
108-95-2	MSD	Phenol	110	0.00	U	48.6	44	15-100	5	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	110	0.00	U	71.3	65	27-114	0	0-30
95-57-8	MSD	2-Chlorophenol	110	0.00	U	72.2	66	32-103	2	0-30
541-73-1	MSD	1,3-Dichlorobenzene	110	0.00	U	57.0	52	23-84	4	0-30
106-46-7	MSD	1,4-Dichlorobenzene	110	0.00	U	57.0	52	23-88	4	0-30
95-50-1	MSD	1,2-Dichlorobenzene	110	0.00	U	57.4	52	24-86	3	0-30
39638-32-9	MSD	bis(2-Chloroisopropyl)ether	110	0.00	U	69.1	63	19-122	1	0-30
100-51-6	MSD	Benzyl alcohol	110	0.00	U	69.2	63	34-98	3	0-30
95-48-7	MSD	o-Cresol	110	0.00	U	71.3	65	29-96	0	0-30
65794-96-9	MSD	m,p-Cresols	110	0.00	U	87.2	79	26-111	5	0-30
621-64-7	MSD	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	110	0.00	U	75.3	69	32-115	2	0-30
67-72-1	MSD	Hexachloroethane	110	0.00	U	52.9	48	25-82	3	0-30
98-95-3	MSD	Nitrobenzene	110	0.00	U	80.1	73	35-124	1	0-30
78-59-1	MSD	Isophorone	110	0.00	U	86.3	79	37-140	2	0-30
88-75-5	MSD	2-Nitrophenol	110	0.00	U	79.6	72	33-115	1	0-30
105-67-9	MSD	2,4-Dimethylphenol	110	0.00	U	61.5	56	31-106	12	0-30
111-91-1	MSD	bis(2-Chloroethoxy)methane	110	0.00	U	75.8	69	35-112	3	0-30
120-83-2	MSD	2,4-Dichlorophenol	110	0.00	U	80.3	73	36-110	0	0-30
65-85-0	MSD	Benzoic acid	220	0.00	U	135	61	12-108	1	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **CAMO-13-24238MSD**
Lab Sample ID: **1202772856**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/06/2012 17:49**
Prep Batch ID: **1260028**
Batch ID: **1260029**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
106-47-8	MSD	4-Chloroaniline	110	0.00	U	86.1	78	33-120	3	0-30
87-68-3	MSD	Hexachlorobutadiene	110	0.00	U	65.1	59	19-96	1	0-30
59-50-7	MSD	Parachlorometa cresol *4-Chloro-3-methylphenol*	110	0.00	U	85.2	78	36-116	2	0-30
91-57-6	MSD	2-Methylnaphthalene	110	0.00	U	62.5	57	27-103	0	0-30
91-20-3	MSD	Naphthalene	110	0.00	U	62.7	57	28-99	1	0-30
90-12-0	MSD	1-Methylnaphthalene	110	0.00	U	66.3	60	29-107	0	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	110	0.00	U	37.3	34	25-75	3	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	110	0.00	U	76.7	70	36-111	2	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	110	0.00	U	80.7	73	34-115	1	0-30
91-58-7	MSD	2-Chloronaphthalene	110	0.00	U	61.6	56	33-96	1	0-30
88-74-4	MSD	2-Nitroaniline *o-Nitroaniline*	110	0.00	U	76.8	70	31-120	2	0-30
99-09-2	MSD	3-Nitroaniline *m-Nitroaniline*	110	0.00	U	80.2	73	32-123	0	0-30
131-11-3	MSD	Dimethylphthalate	110	0.00	U	87.5	80	43-115	3	0-30
606-20-2	MSD	2,6-Dinitrotoluene	110	0.00	U	83.2	76	42-121	4	0-30
121-14-2	MSD	2,4-Dinitrotoluene	110	0.00	U	87.2	79	37-125	2	0-30
208-96-8	MSD	Acenaphthylene	110	0.00	U	64.5	59	34-103	3	0-30
83-32-9	MSD	Acenaphthene	110	0.00	U	60.5	55	31-104	4	0-30
51-28-5	MSD	2,4-Dinitrophenol	110	0.00	U	99.4	90	25-108	0	0-30
132-64-9	MSD	Dibenzofuran	110	0.00	U	73.1	66	38-106	4	0-30
58-90-2	MSD	2,3,4,6-Tetrachlorophenol	110	0.00	U	85.7	78	33-123	1	0-30
84-66-2	MSD	Diethylphthalate	110	0.00	U	84.8	77	43-116	4	0-30
100-02-7	MSD	4-Nitrophenol	110	0.00	U	50.9	46	26-72	3	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24238MSD** **Matrix:** **W**

Lab Sample ID: **1202772856**

Instrument: **MSD3.I** **Analysis Date:** **11/06/2012 17:49** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1260028**

Inj. Vol: **1 uL** **Batch ID:** **1260029**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
86-73-7	MSD	Fluorene	110	0.00	U	72.5	66	33-110	3	0-30
7005-72-3	MSD	4-Chlorophenylphenylether	110	0.00	U	78.4	71	30-112	3	0-30
100-01-6	MSD	4-Nitroaniline *p-Nitroaniline*	110	0.00	U	84.5	77	28-131	10	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	110	0.00	U	102	93	31-113	1	0-30
122-39-4	MSD	Diphenylamine	110	0.00	U	72.2	66	36-110	4	0-30
122-66-7	MSD	Azobenzene *1,2-Diphenylhydrazine*	110	0.00	U	74.1	67	33-110	4	0-30
101-55-3	MSD	4-Bromophenylphenylether	110	0.00	U	85.6	78	33-111	4	0-30
118-74-1	MSD	Hexachlorobenzene	110	0.00	U	85.8	78	36-113	4	0-30
87-86-5	MSD	Pentachlorophenol	110	0.00	U	80.8	74	25-110	5	0-30
85-01-8	MSD	Phenanthrene	110	0.00	U	77.4	70	36-111	3	0-30
120-12-7	MSD	Anthracene	110	0.00	U	76.0	69	36-107	2	0-30
84-74-2	MSD	Di-n-butylphthalate	110	0.00	U	79.7	73	38-116	7	0-30
206-44-0	MSD	Fluoranthene	110	0.00	U	79.1	72	35-116	8	0-30
129-00-0	MSD	Pyrene	110	0.00	U	78.1	71	28-126	0	0-30
85-68-7	MSD	Butylbenzylphthalate	110	0.00	U	73.2	67	32-120	3	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	110	0.00	U	73.1	67	30-121	4	0-30
56-55-3	MSD	Benzo(a)anthracene	110	0.00	U	79.1	72	38-110	2	0-30
218-01-9	MSD	Chrysene	110	0.00	U	78.7	72	35-115	2	0-30
117-84-0	MSD	Di-n-octylphthalate	110	0.00	U	68.6	62	30-115	3	0-30
205-99-2	MSD	Benzo(b)fluoranthene	110	0.00	U	74.9	68	37-115	1	0-30
207-08-9	MSD	Benzo(k)fluoranthene	110	0.00	U	78.8	72	36-118	4	0-30
50-32-8	MSD	Benzo(a)pyrene	110	0.00	U	74.2	67	36-109	2	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **CAMO-13-24238MSD**
Lab Sample ID: **1202772856**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/06/2012 17:49**
Prep Batch ID: **1260028**
Batch ID: **1260029**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
193-39-5	MSD	Indeno(1,2,3-cd)pyrene	110	0.00	U	93.8	85	28-121	7	0-30
53-70-3	MSD	Dibenzo(a,h)anthracene	110	0.00	U	98.0	89	26-124	7	0-30
191-24-2	MSD	Benzo(ghi)perylene	110	0.00	U	92.0	84	25-122	9	0-30
123-91-1	MSD	1,4-Dioxane	110	5.28	J	67.4	57	26-90	7	0-30
930-55-2	MSD	N-Nitrosopyrrolidine	110	0.00	U	81.7	74	40-113	4	0-30
95-94-3	MSD	1,2,4,5-Tetrachlorobenzene	110	0.00	U	57.0	52	32-94	1	0-30
1912-24-9	MSD	Atrazine	110	0.00	U	56.3	51	36-119	8	0-30
92-87-5	MSD	Benzidine	220	0.00	U	81.8	37	10-125	200 *	0-30
91-94-1	MSD	3,3'-Dichlorobenzidine	110	0.00	U	70.2	64	27-109	1	0-30
120-82-1	MSD	1,2,4-Trichlorobenzene	110	0.00	U	61.3	56	23-90	2	0-30

Method Blank Summary

SDG Number:	**2013-259**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1260028**	**Instrument ID:**	**MSD3.I**	**Data File:**	**S110612.B\s3k0607.D**
Lab Sample ID:	**1202772057**	**Prep Date:**	**11/05/2012 12:15**	**Analyzed:**	**11/06/12 13:39**
Column:	**DB-5ms**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1260028	1202772058	S110612.B\s3k0608.D	11/06/12	1404
02 CAMO-13-24238MS	1202772855	S110612.B\s3k0616.D	11/06/12	1724
03 CAMO-13-24238MSD	1202772856	S110612.B\s3k0617.D	11/06/12	1749
04 CAMO-13-24225	314443004	S110712.B\s3k0721.D	11/07/12	1840

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**			**Matrix:**	**WATER**
Lab Sample ID:	**1202772057**				
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1260028**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 13:39**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0607.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
62-53-3	Aniline	U	10.0	ug/L	3.00	10.0
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
78-59-1	Isophorone	U	10.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
65-85-0	Benzoic acid	U	20.0	ug/L	6.00	20.0
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene	U	10.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	10.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**			**Matrix:**	**WATER**
Lab Sample ID:	**1202772057**				
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1260028**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 13:39**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0607.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline	U	10.0	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene	U	10.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.0	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**			**Matrix:**	**WATER**
Lab Sample ID:	**1202772057**				
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1260028**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 13:39**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0607.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	86.5	100	ug/L	86.5	(23%-130%)
2-Fluorobiphenyl	26.2	50.0	ug/L	52.5	(30%-104%)
2-Fluorophenol	41.3	100	ug/L	41.3	(14%-77%)
Nitrobenzene-d5	34.2	50.0	ug/L	68.4	(34%-125%)
Phenol-d5	25.8	100	ug/L	25.8	(10%-78%)
p-Terphenyl-d14	32.5	50.0	ug/L	65.0	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.9	40.7	ug/L	0	J
	unknown	1.991	9.14	ug/L	0	J
000110-83-8	Cyclohexene	2.017	19.9	ug/L	94	NJ

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**			**Matrix:**	**WATER**
Lab Sample ID:	**1202772058**				
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1260028**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 14:04**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0608.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		21.7	ug/L	3.00	10.0
110-86-1	Pyridine		22.6	ug/L	3.00	10.0
62-53-3	Aniline		32.7	ug/L	3.00	10.0
108-95-2	Phenol		16.1	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		31.6	ug/L	3.00	10.0
95-57-8	2-Chlorophenol		31.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		27.2	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		27.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		27.2	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether		30.7	ug/L	3.00	10.0
100-51-6	Benzyl alcohol		27.7	ug/L	3.00	10.0
95-48-7	o-Cresol		29.8	ug/L	3.00	10.0
65794-96-9	m,p-Cresols		34.9	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		33.1	ug/L	3.00	10.0
67-72-1	Hexachloroethane		25.9	ug/L	3.00	10.0
98-95-3	Nitrobenzene		36.6	ug/L	3.00	10.0
78-59-1	Isophorone		38.3	ug/L	3.00	10.0
88-75-5	2-Nitrophenol		36.5	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		28.8	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		34.6	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		35.9	ug/L	3.00	10.0
65-85-0	Benzoic acid		43.7	ug/L	6.00	20.0
106-47-8	4-Chloroaniline		35.1	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene		35.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		36.6	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		31.3	ug/L	0.300	1.00
91-20-3	Naphthalene		30.7	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene		33.0	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene		23.1	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		34.3	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		35.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		30.8	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*		33.3	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		34.2	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		37.9	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		35.7	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**			**Matrix:**	**WATER**
Lab Sample ID:	**1202772058**				
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1260028**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 14:04**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0608.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		36.9	ug/L	3.00	10.0
208-96-8	Acenaphthylene		30.9	ug/L	0.300	1.00
83-32-9	Acenaphthene		29.0	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol		42.3	ug/L	5.00	20.0
132-64-9	Dibenzofuran		34.2	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol		36.7	ug/L	3.00	10.0
84-66-2	Diethylphthalate		35.7	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		16.6	ug/L	3.00	10.0
86-73-7	Fluorene		32.7	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether		36.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline		36.6	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		43.2	ug/L	3.00	10.0
122-39-4	Diphenylamine		32.0	ug/L	3.00	10.0
122-66-7	Azobenzene		32.5	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		38.1	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene		36.9	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		34.3	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene		33.2	ug/L	0.300	1.00
120-12-7	Anthracene		32.5	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		33.7	ug/L	3.00	10.0
206-44-0	Fluoranthene		33.9	ug/L	0.300	1.00
129-00-0	Pyrene		33.3	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate		31.3	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		31.2	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene		33.7	ug/L	0.300	1.00
218-01-9	Chrysene		33.3	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate		29.4	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene		31.3	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		31.7	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		31.9	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene		41.0	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene		43.1	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		40.3	ug/L	0.300	1.00
123-91-1	1,4-Dioxane		22.1	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		33.6	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**			**Matrix:**	**WATER**
Lab Sample ID:	**1202772058**				
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1260028**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 14:04**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0608.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene		29.9	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine		25.2	ug/L	3.00	10.0
92-87-5	Benzidine		54.5	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		31.8	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		30.9	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	81.7	100	ug/L	81.7	(23%-130%)
2-Fluorobiphenyl	29.1	50.0	ug/L	58.3	(30%-104%)
2-Fluorophenol	44.2	100	ug/L	44.2	(14%-77%)
Nitrobenzene-d5	34.3	50.0	ug/L	68.7	(34%-125%)
Phenol-d5	29.9	100	ug/L	29.9	(10%-78%)
p-Terphenyl-d14	29.7	50.0	ug/L	59.4	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202772855**	**Date Received:**	**11/01/2012 09:00**		
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 17:24**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**455 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0616.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		63.8	ug/L	6.59	22.0
110-86-1	Pyridine	J	13.3	ug/L	6.59	22.0
62-53-3	Aniline		53.8	ug/L	6.59	22.0
108-95-2	Phenol		50.9	ug/L	6.59	22.0
111-44-4	bis(2-Chloroethyl) ether		71.1	ug/L	6.59	22.0
95-57-8	2-Chlorophenol		70.9	ug/L	6.59	22.0
541-73-1	1,3-Dichlorobenzene		54.6	ug/L	6.59	22.0
106-46-7	1,4-Dichlorobenzene		54.8	ug/L	6.59	22.0
95-50-1	1,2-Dichlorobenzene		55.9	ug/L	6.59	22.0
39638-32-9	bis(2-Chloroisopropyl)ether		69.9	ug/L	6.59	22.0
100-51-6	Benzyl alcohol		71.5	ug/L	6.59	22.0
95-48-7	o-Cresol		71.4	ug/L	6.59	22.0
65794-96-9	m,p-Cresols		91.3	ug/L	6.59	22.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		76.6	ug/L	6.59	22.0
67-72-1	Hexachloroethane		51.2	ug/L	6.59	22.0
98-95-3	Nitrobenzene		79.2	ug/L	6.59	22.0
78-59-1	Isophorone		88.3	ug/L	6.59	22.0
88-75-5	2-Nitrophenol		78.8	ug/L	6.59	22.0
105-67-9	2,4-Dimethylphenol		69.4	ug/L	6.59	22.0
111-91-1	bis(2-Chloroethoxy)methane		77.9	ug/L	6.59	22.0
120-83-2	2,4-Dichlorophenol		80.1	ug/L	6.59	22.0
65-85-0	Benzoic acid		137	ug/L	13.2	44.0
106-47-8	4-Chloroaniline		88.9	ug/L	7.25	22.0
87-68-3	Hexachlorobutadiene		64.8	ug/L	6.59	22.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		87.3	ug/L	6.59	22.0
91-57-6	2-Methylnaphthalene		62.4	ug/L	0.659	2.20
91-20-3	Naphthalene		62.1	ug/L	0.659	2.20
90-12-0	1-Methylnaphthalene		66.6	ug/L	0.659	2.20
77-47-4	Hexachlorocyclopentadiene		38.5	ug/L	6.59	22.0
88-06-2	2,4,6-Trichlorophenol		78.3	ug/L	6.59	22.0
95-95-4	2,4,5-Trichlorophenol		81.9	ug/L	6.59	22.0
91-58-7	2-Chloronaphthalene		62.3	ug/L	0.659	2.20
88-74-4	2-Nitroaniline *o-Nitroaniline*		78.7	ug/L	6.59	22.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		80.4	ug/L	6.59	22.0
131-11-3	Dimethylphthalate		90.5	ug/L	6.59	22.0
606-20-2	2,6-Dinitrotoluene		86.5	ug/L	6.59	22.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202772855**	**Date Received:**	**11/01/2012 09:00**		
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 17:24**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**455 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0616.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		88.6	ug/L	6.59	22.0
208-96-8	Acenaphthylene		66.3	ug/L	0.659	2.20
83-32-9	Acenaphthene		62.8	ug/L	0.659	2.20
51-28-5	2,4-Dinitrophenol		98.9	ug/L	11.0	44.0
132-64-9	Dibenzofuran		75.7	ug/L	6.59	22.0
58-90-2	2,3,4,6-Tetrachlorophenol		86.5	ug/L	6.59	22.0
84-66-2	Diethylphthalate		88.5	ug/L	6.59	22.0
100-02-7	4-Nitrophenol		52.4	ug/L	6.59	22.0
86-73-7	Fluorene		74.5	ug/L	0.659	2.20
7005-72-3	4-Chlorophenylphenylether		81.2	ug/L	6.59	22.0
100-01-6	4-Nitroaniline		76.3	ug/L	6.59	22.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		103	ug/L	6.59	22.0
122-39-4	Diphenylamine		74.9	ug/L	6.59	22.0
122-66-7	Azobenzene		77.1	ug/L	6.59	22.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		89.4	ug/L	6.59	22.0
118-74-1	Hexachlorobenzene		89.1	ug/L	6.59	22.0
87-86-5	Pentachlorophenol		85.3	ug/L	6.59	22.0
88-85-7	Dinoseb	U	22.0	ug/L	6.59	22.0
85-01-8	Phenanthrene		79.6	ug/L	0.659	2.20
120-12-7	Anthracene		77.4	ug/L	0.659	2.20
84-74-2	Di-n-butylphthalate		85.7	ug/L	6.59	22.0
206-44-0	Fluoranthene		85.4	ug/L	0.659	2.20
129-00-0	Pyrene		78.0	ug/L	0.659	2.20
85-68-7	Butylbenzylphthalate		75.3	ug/L	6.59	22.0
117-81-7	bis(2-Ethylhexyl)phthalate		75.8	ug/L	6.59	22.0
56-55-3	Benzo(a)anthracene		80.5	ug/L	0.659	2.20
218-01-9	Chrysene		80.3	ug/L	0.659	2.20
117-84-0	Di-n-octylphthalate		70.6	ug/L	6.59	22.0
205-99-2	Benzo(b)fluoranthene		75.8	ug/L	0.659	2.20
207-08-9	Benzo(k)fluoranthene		76.0	ug/L	0.659	2.20
50-32-8	Benzo(a)pyrene		75.6	ug/L	0.967	2.20
193-39-5	Indeno(1,2,3-cd)pyrene		100	ug/L	0.659	2.20
53-70-3	Dibenzo(a,h)anthracene		105	ug/L	0.659	2.20
191-24-2	Benzo(ghi)perylene		101	ug/L	0.659	2.20
123-91-1	1,4-Dioxane		72.6	ug/L	6.59	22.0
55-18-5	N-Nitrosodiethylamine	U	22.0	ug/L	6.59	22.0
930-55-2	N-Nitrosopyrrolidine		85.4	ug/L	6.59	22.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202772855**	**Date Received:**	**11/01/2012 09:00**		
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 17:24**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**455 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0616.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	22.0	ug/L	6.59	22.0
95-94-3	1,2,4,5-Tetrachlorobenzene		57.4	ug/L	6.59	22.0
608-93-5	Pentachlorobenzene	U	22.0	ug/L	6.59	22.0
1912-24-9	Atrazine		60.9	ug/L	6.59	22.0
92-87-5	Benzidine	U	22.0	ug/L	6.59	22.0
91-94-1	3,3'-Dichlorobenzidine		70.9	ug/L	6.59	22.0
120-82-1	1,2,4-Trichlorobenzene		59.8	ug/L	6.59	22.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	193	220	ug/L	87.8	(23%-130%)
2-Fluorobiphenyl	61.7	110	ug/L	56.2	(30%-104%)
2-Fluorophenol	123	220	ug/L	56.0	(14%-77%)
Nitrobenzene-d5	73.7	110	ug/L	67.0	(34%-125%)
Phenol-d5	96.8	220	ug/L	44.0	(10%-78%)
p-Terphenyl-d14	71.9	110	ug/L	65.5	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202772856**	**Date Received:**	**11/01/2012 09:00**		
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 17:49**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**455 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0617.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		60.7	ug/L	6.59	22.0
110-86-1	Pyridine		57.8	ug/L	6.59	22.0
62-53-3	Aniline		83.3	ug/L	6.59	22.0
108-95-2	Phenol		48.6	ug/L	6.59	22.0
111-44-4	bis(2-Chloroethyl) ether		71.3	ug/L	6.59	22.0
95-57-8	2-Chlorophenol		72.2	ug/L	6.59	22.0
541-73-1	1,3-Dichlorobenzene		57.0	ug/L	6.59	22.0
106-46-7	1,4-Dichlorobenzene		57.0	ug/L	6.59	22.0
95-50-1	1,2-Dichlorobenzene		57.4	ug/L	6.59	22.0
39638-32-9	bis(2-Chloroisopropyl)ether		69.1	ug/L	6.59	22.0
100-51-6	Benzyl alcohol		69.2	ug/L	6.59	22.0
95-48-7	o-Cresol		71.3	ug/L	6.59	22.0
65794-96-9	m,p-Cresols		87.2	ug/L	6.59	22.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		75.3	ug/L	6.59	22.0
67-72-1	Hexachloroethane		52.9	ug/L	6.59	22.0
98-95-3	Nitrobenzene		80.1	ug/L	6.59	22.0
78-59-1	Isophorone		86.3	ug/L	6.59	22.0
88-75-5	2-Nitrophenol		79.6	ug/L	6.59	22.0
105-67-9	2,4-Dimethylphenol		61.5	ug/L	6.59	22.0
111-91-1	bis(2-Chloroethoxy)methane		75.8	ug/L	6.59	22.0
120-83-2	2,4-Dichlorophenol		80.3	ug/L	6.59	22.0
65-85-0	Benzoic acid		135	ug/L	13.2	44.0
106-47-8	4-Chloroaniline		86.1	ug/L	7.25	22.0
87-68-3	Hexachlorobutadiene		65.1	ug/L	6.59	22.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		85.2	ug/L	6.59	22.0
91-57-6	2-Methylnaphthalene		62.5	ug/L	0.659	2.20
91-20-3	Naphthalene		62.7	ug/L	0.659	2.20
90-12-0	1-Methylnaphthalene		66.3	ug/L	0.659	2.20
77-47-4	Hexachlorocyclopentadiene		37.3	ug/L	6.59	22.0
88-06-2	2,4,6-Trichlorophenol		76.7	ug/L	6.59	22.0
95-95-4	2,4,5-Trichlorophenol		80.7	ug/L	6.59	22.0
91-58-7	2-Chloronaphthalene		61.6	ug/L	0.659	2.20
88-74-4	2-Nitroaniline *o-Nitroaniline*		76.8	ug/L	6.59	22.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		80.2	ug/L	6.59	22.0
131-11-3	Dimethylphthalate		87.5	ug/L	6.59	22.0
606-20-2	2,6-Dinitrotoluene		83.2	ug/L	6.59	22.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202772856**	**Date Received:**	**11/01/2012 09:00**		
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 17:49**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**455 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0617.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		87.2	ug/L	6.59	22.0
208-96-8	Acenaphthylene		64.5	ug/L	0.659	2.20
83-32-9	Acenaphthene		60.5	ug/L	0.659	2.20
51-28-5	2,4-Dinitrophenol		99.4	ug/L	11.0	44.0
132-64-9	Dibenzofuran		73.1	ug/L	6.59	22.0
58-90-2	2,3,4,6-Tetrachlorophenol		85.7	ug/L	6.59	22.0
84-66-2	Diethylphthalate		84.8	ug/L	6.59	22.0
100-02-7	4-Nitrophenol		50.9	ug/L	6.59	22.0
86-73-7	Fluorene		72.5	ug/L	0.659	2.20
7005-72-3	4-Chlorophenylphenylether		78.4	ug/L	6.59	22.0
100-01-6	4-Nitroaniline		84.5	ug/L	6.59	22.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		102	ug/L	6.59	22.0
122-39-4	Diphenylamine		72.2	ug/L	6.59	22.0
122-66-7	Azobenzene		74.1	ug/L	6.59	22.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		85.6	ug/L	6.59	22.0
118-74-1	Hexachlorobenzene		85.8	ug/L	6.59	22.0
87-86-5	Pentachlorophenol		80.8	ug/L	6.59	22.0
88-85-7	Dinoseb	U	22.0	ug/L	6.59	22.0
85-01-8	Phenanthrene		77.4	ug/L	0.659	2.20
120-12-7	Anthracene		76.0	ug/L	0.659	2.20
84-74-2	Di-n-butylphthalate		79.7	ug/L	6.59	22.0
206-44-0	Fluoranthene		79.1	ug/L	0.659	2.20
129-00-0	Pyrene		78.1	ug/L	0.659	2.20
85-68-7	Butylbenzylphthalate		73.2	ug/L	6.59	22.0
117-81-7	bis(2-Ethylhexyl)phthalate		73.1	ug/L	6.59	22.0
56-55-3	Benzo(a)anthracene		79.1	ug/L	0.659	2.20
218-01-9	Chrysene		78.7	ug/L	0.659	2.20
117-84-0	Di-n-octylphthalate		68.6	ug/L	6.59	22.0
205-99-2	Benzo(b)fluoranthene		74.9	ug/L	0.659	2.20
207-08-9	Benzo(k)fluoranthene		78.8	ug/L	0.659	2.20
50-32-8	Benzo(a)pyrene		74.2	ug/L	0.967	2.20
193-39-5	Indeno(1,2,3-cd)pyrene		93.8	ug/L	0.659	2.20
53-70-3	Dibenzo(a,h)anthracene		98.0	ug/L	0.659	2.20
191-24-2	Benzo(ghi)perylene		92.0	ug/L	0.659	2.20
123-91-1	1,4-Dioxane		67.4	ug/L	6.59	22.0
55-18-5	N-Nitrosodiethylamine	U	22.0	ug/L	6.59	22.0
930-55-2	N-Nitrosopyrrolidine		81.7	ug/L	6.59	22.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/30/2012 13:02**	**Matrix:**	**W**
Lab Sample ID:	**1202772856**	**Date Received:**	**11/01/2012 09:00**		
Client Sample:	**QC for batch 1260028**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24238MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1260029**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/06/2012 17:49**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/05/2012 12:15**	**Aliquot:**	**455 mL**	**Final Volume:**	**1 mL**
Data File:	**S110612.B\s3k0617.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	22.0	ug/L	6.59	22.0
95-94-3	1,2,4,5-Tetrachlorobenzene		57.0	ug/L	6.59	22.0
608-93-5	Pentachlorobenzene	U	22.0	ug/L	6.59	22.0
1912-24-9	Atrazine		56.3	ug/L	6.59	22.0
92-87-5	Benzidine		81.8	ug/L	6.59	22.0
91-94-1	3,3'-Dichlorobenzidine		70.2	ug/L	6.59	22.0
120-82-1	1,2,4-Trichlorobenzene		61.3	ug/L	6.59	22.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	186	220	ug/L	84.7	(23%-130%)
2-Fluorobiphenyl	59.1	110	ug/L	53.8	(30%-104%)
2-Fluorophenol	119	220	ug/L	53.9	(14%-77%)
Nitrobenzene-d5	73.5	110	ug/L	66.9	(34%-125%)
Phenol-d5	91.2	220	ug/L	41.5	(10%-78%)
p-Terphenyl-d14	70.5	110	ug/L	64.2	(33%-136%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
08-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 8270C	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1260029	See Below		

Potentially affected work order(s)(SDG): 314340(2013-246),314440(2013-263),314443(2013-259)

Application Issues:

Failed Recovery for MS/PS

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. The MS(1202772855) recovered Benzidine at 0% (limits: 10%-125%) and Pyridine at 12% (limits: 21%-93%).	1. The LCS and MSD were well within the acceptance limits for Benzidine and Pyridine. Since there was insufficient sample volume remaining to re-extract the parent sample with a MS/MSD pair the data results have been reported.
2. The MS(1202772855)/MSD(1202772856) RPD value for Aniline was 43% (limit: 30%), for Benzidine was 200% (limit: 30%), and for Pyridine was 125% (limit: 30%).	2. The RPD failures were attributed to the higher recoveries in the MSD when compared to the MS. Since there was insufficient sample volume remaining to re-extract the parent sample with a MS/MSD pair the data results have been reported.

Originator's Name:

Jennifer Dunagan Jones 08-NOV-12

Data Validator/Group Leader:

Barbara Bailey 09-NOV-12

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorate by LC/MSMS
ARS International (ARSL)
SDG 2013-259

Method/Analysis Information

Procedure:	**Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method:	SW846 6850 Modified
Prep Method:	SW846 6850 Modified
Analytical Batch Number:	1260140
Prep Batch Number:	1260138

Sample Analysis

Sample ID	Client ID
314443002	CAMO-13-24259
314443005	CAMO-13-24225
314443007	CAMO-13-24261
1202772362	Interference Check Sample (ICS)
1202772358	Method Blank (MB)
1202772359	Laboratory Control Sample (LCS)
1202772360	314443002(CAMO-13-24259) Matrix Spike (MS)
1202772361	314443002(CAMO-13-24259) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-067 REV# 9.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

Due to software constraints, all Initial Calibration Blanks must be designated as IPB001.

ICV Requirements
All associated initial calibration verification standards (ICV) met the acceptance criteria.

CCB Requirements
All continuing calibration blanks (CCB) bracketing the analyses associated with this batch were within acceptance criteria.

CCV Requirements
All continuing calibration checks (CCV) requirements were met by all bracketing CCV standards.

Low Level Standard (CRI) Requirements
All low level calibration verification (CRI) requirements were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Interference Check Sample (ICS)
The interference check sample (ICS) met all recovery acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Client sample 314443002 (CAMO-13-24259) was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
A negative recovery of -28.4% was observed for Perchlorate-101 in MS (1202772360). The acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

Matrix Spike Duplicate (MSD) Recovery Statement
Low recoveries were observed for Perchlorate and Perchlorate-101 in MSD (1202772361). The recoveries were 63% and 3.9% respectively and the acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits.

Retention Time Standard Area Acceptance
The retention time standard areas were within the required acceptance criteria for all samples and QC.

Retention Time
During the analysis of Perchlorate by LC/MS/MS, retention time shifts are commonly observed. These retention time shifts, which are caused by fouling of the column by the sample matrices, are problematic when the retention time is used as one of the criterion for confirmation. To overcome this problem, a known amount of O(18) labeled Perchlorate was added to each sample as a retention time standard.

The presence of Perchlorate was confirmed by the relative retention time (RRT) of the Perchlorate peak and the O(18) standard. A RRT window of 0.98 to 1.02, as required by Method 332.0, has been used.

In addition to the isotopic ratio, the presence of Perchlorate in the samples associated with this data package have been confirmed using the relative retention criteria stated above, not the absolute retention time.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Samples 314443002 (CAMO-13-24259), 314443007 (CAMO-13-24261) and QC samples 1202772360 (CAMO-13-24259MS) and 1202772361 (CAMO-13-24259MSD) were diluted to bring the over range concentrations within the calibration range.

Parmname	**314443**	
	002	**007**
All	10X	2X

Sample Re-extraction/Re-analysis
Sample 314443005 (CAMO-13-24225) was re-analyzed to confirm the potential of carryover from the previous sample. The re-analysis data are reported.

Miscellaneous Information

Data Exception (DER) Documentation
Data Exception Report 1138672 was generated for this SDG.

A negative recovery of -28.4% was observed for Perchlorate-101 in MS (1202772360). The acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

Low recoveries were observed for Perchlorate and Perchlorate-101 in MSD (1202772361). The recoveries were 63% and 3.9% respectively and the acceptance range is 75-125%. This may be the result of the background concentration present in the parent sample, 314443002 (CAMO-13-24259), and the need to dilute all at a 1:10 dilution prior to analysis.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations.

Method Comments
The samples in this SDG were not originally analyzed using EPA Method 314.0.

Additional Comments
The Perchlorate Isotope Ratio on the Form I may differ slightly from the ratio on the corresponding raw data due to rounding rules and/or significant figures or due to software limitations when there are manual integrations, dilutions or other factors. The ratio value of the Form I is the correct value.

The retention time marker, Perchlorate-O (18), is added to all samples, instrument blanks, and standards prior to injection. It is used to verify the retention time of Perchlorate and Perchlorate-101 and to insure an accurate injection occurred.

Due to various anions affecting the recovery of Perchlorate-O (18) and not Perchlorate and Perchlorate-101, the calibration curves of Perchlorate and Perchlorate-101 are not internally corrected for using Perchlorate-O (18). They are external calibrations.

Perchlorate Isotope Ratio
The Perchlorate isotope ratio met acceptance criteria for all samples and QC samples.

Please see the isotope ratio criteria in the Miscellaneous Section.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Perchlorate analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

The laboratory may also utilize an Agilent 1100 liquid chromatography instrument for Perchlorate analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as LCMSMS #3 or LCMSMS #4. It is also fitted with an electrospray probe that is operated in the negative electrospray ionization mode for Perchlorate analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

Chromatographic separation of Perchlorate is accomplished through analysis on the following anion column:

Dionex: IonPac AG-16 2 x 50 mm.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-259 GEL Work Order: 314443

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 12 NOV 2012 **Title: Group Leader**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24259

Date Received: 02-NOV-12

GEL Job No (SDG): 2013-259

GEL Sample ID: 314443002

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	7.86	ug/L		10	09-NOV-12 13:23	per1109014a
	Perchlorate Isotope Ratio			3.18			10	09-NOV-12 13:23	per1109014a
14797-73-0	Perchlorate-101	.5	2	8.09	ug/L		10	09-NOV-12 13:23	per1109014a
	Perchlorate-O(18)			4.99	ug/L		10	09-NOV-12 13:23	per1109014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24225

Date Received: 02-NOV-12

GEL Job No (SDG): 2013-259

GEL Sample ID: 314443005

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.200	ug/L	U	1	09-NOV-12 13:47	per1109017a
	Perchlorate Isotope Ratio						1	09-NOV-12 13:47	per1109017a
14797-73-0	Perchlorate-101	.05	.2	0.200	ug/L	U	1	09-NOV-12 13:47	per1109017a
	Perchlorate-O(18)			0.507	ug/L		1	09-NOV-12 13:47	per1109017a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24261

Date Received: 02-NOV-12

GEL Job No (SDG): 2013-259

GEL Sample ID: 314443007

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.1	.4	1.19	ug/L		2	09-NOV-12 13:55	per1109018a
	Perchlorate Isotope Ratio			3.12			2	09-NOV-12 13:55	per1109018a
14797-73-0	Perchlorate-101	.1	.4	1.25	ug/L		2	09-NOV-12 13:55	per1109018a
	Perchlorate-O(18)			0.992	ug/L		2	09-NOV-12 13:55	per1109018a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2013-259

Extract Batch Code: 1260138

Date Filtered: 07-NOV-12

Matrix: WATER

Sample ID: 1202772359

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.213	ug/L	107		85 - 115
Perchlorate Isotope Ratio		3.25				-
Perchlorate-101	0.200	.212	ug/L	106		85 - 115
Perchlorate-O(18)		.479	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2013-259

Extract Batch Code: 1260138

Date Extracted: 07-NOV-12

GEL MS/PS ID: 1202772360

Client ID: CAMO-13-24259

GEL MSD/PSD ID: 1202772361

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Recovery Limit
Perchlorate	0.200	7.86	ug/L	8.04	93.3		7.98	62.6	*	.766		30	75 - 125
Perchlorate Isotope Ratio	0	3.18		3.28			3.23			1.57			-
Perchlorate-101	0.200	8.09	ug/L	8.03	-28.4	*	8.09	3.89	*	.802		30	75 - 125
Perchlorate-O(18)	0	4.99	ug/L	4.97			4.95			.302			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-259

GEL Sample ID: 1202772358

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	08-NOV-12 16:16	per1108012a
	Perchlorate Isotope Ratio						1	08-NOV-12 16:16	per1108012a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	08-NOV-12 16:16	per1108012a
	Perchlorate-O(18)			0.471	ug/L		1	08-NOV-12 16:16	per1108012a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 07-NOV-12

GEL Job No (SDG): 2013-259

GEL Sample ID: 1202772359

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.213	ug/L		1	08-NOV-12 16:24	per1108013a
	Perchlorate Isotope Ratio			3.25			1	08-NOV-12 16:24	per1108013a
14797-73-0	Perchlorate-101	.05	.2	0.212	ug/L		1	08-NOV-12 16:24	per1108013a
	Perchlorate-O(18)			0.479	ug/L		1	08-NOV-12 16:24	per1108013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2013-259

GEL Sample ID: 1202772362

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.202	ug/L		1	08-NOV-12 16:33	per1108014a
	Perchlorate Isotope Ratio			3.12			1	08-NOV-12 16:33	per1108014a
14797-73-0	Perchlorate-101	.05	.2	0.209	ug/L		1	08-NOV-12 16:33	per1108014a
	Perchlorate-O(18)			0.502	ug/L		1	08-NOV-12 16:33	per1108014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24259MS

Date Received: 02-NOV-12

GEL Job No (SDG): 2013-259

GEL Sample ID: 1202772360

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	8.04	ug/L		10	09-NOV-12 13:31	per1109015a
	Perchlorate Isotope Ratio			3.28			10	09-NOV-12 13:31	per1109015a
14797-73-0	Perchlorate-101	.5	2	8.03	ug/L		10	09-NOV-12 13:31	per1109015a
	Perchlorate-O(18)			4.97	ug/L		10	09-NOV-12 13:31	per1109015a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1260138

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CAMO-13-24259MSD

Date Received: 02-NOV-12

GEL Job No (SDG): 2013-259

GEL Sample ID: 1202772361

Date Filtered: 07-NOV-12

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	7.98	ug/L		10	09-NOV-12 13:39	per1109016a
	Perchlorate Isotope Ratio			3.23			10	09-NOV-12 13:39	per1109016a
14797-73-0	Perchlorate-101	.5	2	8.09	ug/L		10	09-NOV-12 13:39	per1109016a
	Perchlorate-O(18)			4.95	ug/L		10	09-NOV-12 13:39	per1109016a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
10-NOV-12	Federal	Others	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LC-MS/MS	SW846-6850 Modified	Liquid	ARSL001
Batch ID:	**Sample Numbers:**		
1260140	See below		

Potentially affected work order(s)(SDG): 314340(2013-246),314341(2013-247),314443(2013-259),314445(2013-258),314529(2013-264)

Application Issues:

Failed Recovery for MS/PS

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. A negative recovery was observed for Perchlorate-101 at -28.4% in the MS (1202772360). The acceptance range is 75-125%. 2. Low recoveries were observed for Perchlorate and Perchlorate-101 in the MSD (1202772361). The recoveries were 63% and 3.9% respectively and the acceptance range is 75-125% for both.	1. & 2. The low and negative recoveries observed in the matrix spikes may be the result of the background concentration present in the parent sample, 314443002, and the need to dilute all at a 1:10 dilution prior to analysis. The data are reported with the appropriate DER.

Originator's Name:

Charles Wilson 10-NOV-12

Data Validator/Group Leader:

Michael Penny 10-NOV-12

Explosives by LCMSMS Analysis

Case Narrative

LC/MS/MS Case Narrative
ARS International (ARSL)
SDG 2013-259

Method/Analysis Information

Procedure:	**Definitive Low Level Analysis of Nitroaromatic Explosives Utilizing Liquid Chromatography / Mass Spectrometry / Mass Spectrometry (LC/MS/MS) by SW-846 Method 8321 Modified (8321M)**
Analytical Method:	SW846 3535/8321A Modified
Prep Method:	SW846 Method 3535
Analytical Batch Number:	1260257
Prep Batch Number:	1260256

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3535/8321A Modified :

Sample ID	Client ID
314443005	CAMO-13-24225
1202772644	Method Blank (MB)
1202772645	Laboratory Control Sample (LCS)
1202772646	314443005(CAMO-13-24225) Matrix Spike (MS)
1202772647	314443005(CAMO-13-24225) Matrix Spike Duplicate (MSD)

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP).

The data discussed in this narrative has been analyzed in accordance with GL-OA-E-056 REV# 17.

Primary Analyte Analysis

Calibration Information

Initial Calibration
All initial calibration requirements for this analysis have been met for this SDG.

Calibration Verification Standard Requirements
All associated calibration verification standards (ICV and CCV) for this analysis met the acceptance criteria.

Calibration Blank Requirements
All initial and continuing calibration blanks (ICB and CCB) bracketing the analyses associated with this batch for this analysis were within acceptance criteria.

Due to software limitations, the CCBs and/or the ICBs may have a concentration for target analytes in the Found column. These values should be zero.

CRI Requirements
All low level calibration verification (CRI) requirements for this analysis were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG for this analysis met the acceptance criteria.

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria in this SDG in this analytical batch for this analysis.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries were within the established acceptance limits.

QC Sample Designation
Client sample 314443005 (CAMO-13-24225) was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
The MS spike recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD spike recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The MS/MSD pair (1202772646/1202772647) did not meet RPD acceptance criteria for HMX at 26.4%. The limit is 25%. Both the MS and MSD had passing recoveries for all spiked analytes. Target analytes were not detected in the parent sample, 314443005 (CAMO-13-24225). The data are considered unaffected and are reported.

Internal Standard (ISTD) Acceptance
A final internal standard concentration of 100ug/L is employed in order to meet the minimum response factor requirement of 0.01 per EPA Method 8000C for the analysis of explosives on the API 4000.

The internal standard responses were within the required acceptance criteria for all samples and QC in this SDG.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
According to the GEL SOP for Method 8321A, all sample and QC extracts are diluted 1:1 v/v with HPLC grade water.

The samples in this SDG in this analytical batch for this analysis did not require any additional dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG in this analytical batch for this analysis.

Secondary Analyte Analysis

Calibration Information

Initial Calibration
All initial calibration requirements for this analysis have been met for this SDG.

Calibration Verification Standard Requirements
All associated calibration verification standards (ICV and CCV) for this analysis met the acceptance criteria.

Calibration Blank Requirements
All initial and continuing calibration blanks (ICB and CCB) bracketing the analyses associated with this batch for this analysis were within acceptance criteria.

Due to software limitations, the CCBs and/or the ICBs may have a concentration for target analytes in the Found column. These values should be zero.

CRI Requirements
All low level calibration verification (CRI) requirements for this analysis were met by all bracketing CRI standards.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG for this analysis met the acceptance criteria.

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria in this SDG in this analytical batch for this analysis.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries were within the established acceptance limits.

QC Sample Designation
Client sample 314443005 (CAMO-13-24225) was chosen for matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement
The MS spike recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD spike recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the MS and MSD met the acceptance limits for this analysis.

Internal Standard (ISTD) Acceptance
The internal standard was not added to the Secondary analyte extracts.

Technical Information

Holding Time Specifications
All samples in this SDG in this analytical batch met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
According to the GEL SOP for Method 8321A, all sample and QC extracts are diluted 1:1 v/v with HPLC grade water.

The samples in this SDG in this analytical batch for this analysis did not require any additional dilutions.

Sample Re-extraction/Re-analysis
The entire analytical batch was re-analyzed for non-conforming instrument QC recoveries for the Secondary analyte analysis. The re-analysis data are reported.

Miscellaneous Information

Data Exception (DER) Documentation
Data Exception Report 1144233 was generated for this SDG.

The MS/MSD pair (1202772646/1202772647) did not meet RPD acceptance criteria for HMX at 26.4%. The limit is 25%. Both the MS and MSD had passing recoveries for all spiked analytes. Target analytes were not detected in the parent sample, 314443005 (CAMO-13-24225). The data are considered unaffected and are reported.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples required manual integrations due to software limitations.

Flagging Convention
The samples were not originally analyzed using SW-846 Method 8330.

Additional Comments
Due to software limitations, all initial calibration blanks must be designated as XIB001 in order for the forms to be correct.

Due to software limitations in the Secondary analyte analysis, false positives and analytes detected below the MDL cannot be deleted from the raw data.

Due to software limitations, file extensions such as DL, RE, etc. may not appear on the generated forms and/or raw data.

System Configuration

The laboratory utilizes a Waters LC 2795 liquid chromatography instrument for Primary analyte analysis. It is coupled with either a Micromass Quattro Micro Mass Spectrometer/ Mass Spectrometer, or a Micromass Quattro Ultima Mass Spectrometer/ Mass Spectrometer. Each being designated as LCMSMS #1 and LCMSMS #2, respectively. It is fitted with an APCI (Atmospheric Pressure chemical Ionization) probe that is operated in the negative ionization mode for the Primary analyte analysis.

The laboratory also utilizes an Agilent 1100 liquid chromatography instrument for either Primary or Secondary analyte analysis. It is coupled with an Applied Biosystems 4000 Mass Spectrometer/ Mass Spectrometer, designated as either LCMSMS #3 or LCMSMS #4. It is fitted with an APCI (Atmospheric Pressure chemical Ionization) probe that is operated in the negative ionization mode for both the Primary and Secondary analyte analysis.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package.

Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Chromatographic Columns

The detection of the Primary analyte Nitroaromatic and Nitramines is accomplished through analysis on the following reversed phase column:

Phenomenex: Ultracarb 5u ODS (20), 250 x 4.60 mm ID.

The detection of the Secondary analytes is accomplished through analysis on the following reversed phase column:

YMC: J'sphere ODS-H80, 150 x 4.6mm I.D.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641−10)

Client SDG: 2013−259 GEL Work Order: 314443

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re−analyzed without re−extraction.
RE Indicates that sample is re−extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP−like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Michael A. Penny Jr. **Name: Michael Penny**

Date: 28 NOV 2012 **Title: Group Leader**

Sample Data Summary

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24225

Lab Code: GEL

GEL Job No (SDG) 2013-259

Matrix: WATER

GEL Sample ID: 314443005

Sample Amount 940 mL

Date Received: 02-NOV-12

Moisture:

Extraction Batch ID: 1260256

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP1126015.wiff

Date Analyzed: 26-NOV-12 18:45

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	0.266	U	0.0851	0.266
118-96-7	*2,4,6-Trinitrotoluene*				
121-14-2	2,4-Dinitrotoluene	0.266	U	0.0851	0.266
121-14-2	*2,4-Dinitrotoluene*				
121-82-4	RDX	0.266	U	0.0851	0.266
121-82-4	*RDX*				
13980-04-6	TNX	0.266	U	0.0851	0.266
13980-04-6	*TNX*				
19406-51-0	4-Amino-2,6-dinitrotoluene	0.266	U	0.0851	0.266
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
2691-41-0	HMX	0.266	U	0.0851	0.266
2691-41-0	*HMX*				
35572-78-2	2-Amino-4,6-dinitrotoluene	0.266	U	0.0851	0.266
35572-78-2	*2-Amino-4,6-dinitrotoluene*				
5755-27-1	MNX	0.266	U	0.0851	0.266
5755-27-1	*MNX*				
606-20-2	2,6-Dinitrotoluene	0.266	U	0.0851	0.266
606-20-2	*2,6-Dinitrotoluene*				
80251-29-2	DNX	0.266	U	0.0851	0.266
80251-29-2	*DNX*				
88-72-2	o-Nitrotoluene	0.266	U	0.0872	0.266
88-72-2	*o-Nitrotoluene*				
98-95-3	Nitrobenzene	0.266	U	0.0851	0.266
98-95-3	*Nitrobenzene*				
99-08-1	m-Nitrotoluene	0.266	U	0.0851	0.266
99-08-1	*m-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24225

Lab Code: GEL

GEL Job No (SDG) 2013-259

Matrix: WATER

GEL Sample ID: 314443005

Sample Amount 940 mL

Date Received: 02-NOV-12

Moisture:

Extraction Batch ID: 1260256

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-35-4	1,3,5-Trinitrobenzene	0.266	U	0.0851	0.266
99-35-4	*1,3,5-Trinitrobenzene*				
99-65-0	m-Dinitrobenzene	0.266	U	0.0851	0.266
99-65-0	*m-Dinitrobenzene*				
479-45-8	Tetryl	0.532	U	0.0851	0.532
479-45-8	*Tetryl*				
78-11-5	PETN	0.532	U	0.106	0.532
78-11-5	*PETN*				
99-99-0	p-Nitrotoluene	0.532	U	0.160	0.532
99-99-0	*p-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24225

Lab Code: GEL

GEL Job No (SDG) 2013-259

Matrix: WATER

GEL Sample ID: 314443005

Sample Amount 940 mL

Date Received: 02-NOV-12

Moisture:

Extraction Batch ID: 1260256

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS11190016.wiff

Date Analyzed: 19-NOV-12 14:17

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.06	U	0.319	1.06
3058-38-6	*TATB*				
618-87-1	3,5-Dinitroaniline	1.06	U	0.319	1.06
618-87-1	*3,5-Dinitroaniline*				
78-30-8	tris(o-cresyl) phosphate	1.06	U	0.319	1.06
78-30-8	*tris(o-cresyl) phosphate*				
59229-75-3	2,6-Diamino-4-nitrotoluene	2.66	U	0.532	2.66
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
6629-29-4	2,4-Diamino-6-nitrotoluene	2.66	U	0.532	2.66
6629-29-4	*2,4-Diamino-6-nitrotoluene*				

Quality Control Summary

High Explosives Surrogate Recovery Summary

Lab Name: GEL Laboratories LLC **GEL Job No (SDG):** 2013-259

Lab Code: GEL **HPLC Column:** Phenomenex Ultracarb 5u ODS(20)

Lab Sample ID	Client Sample ID	DNT	QC Limits	Flg
314443005	CAMO-13-24225	85.6	66 - 120	
314443005	CAMO-13-24225	84.4	66 - 120	
1202772644	MB for batch 1260256	94.8	66 - 120	
1202772644	MB for batch 1260256	82.4	66 - 120	
1202772645	LCS for batch 1260256	85.2	66 - 120	
1202772645	LCS for batch 1260256	80.8	66 - 120	
1202772646	CAMO-13-24225MS	86.8	66 - 120	
1202772646	CAMO-13-24225MS	82.4	66 - 120	
1202772647	CAMO-13-24225MSD	95.2	66 - 120	
1202772647	CAMO-13-24225MSD	87.2	66 - 120	

DNT = 3,4-Dinitrotoluene

3B
High Explosives LCS/LCS Duplicate Summary

Lab Name: GEL Laboratories LLC

Client ID: LCS

Lab Code: GEL

GEL Job No (SDG) 2013-259

Extract Batch Code: 1260256

Date Extracted:

GEL LCS ID: 1202772645

GEL LCSDUP ID:

Analysis Date/Time: 26-NOV-12 18:10

DUP Analysis Date/Time:

Reporting Units: ug/L

QC Type: LCS/LCSD

Compound	Spike Added	LCS Conc	LCS Rec #	LCSD Conc	LCSD Rec #	RPD #	RPD	Recovery Limits
MNX	5	4.26	85.2					67 - 125
Nitrobenzene	5	4.22	84.4					64 - 112
PETN	5	3.63	72.6					64 - 121
RDX	5	4.27	85.4					77 - 122
TNX	5	3.87	77.4					65 - 116
Tetryl	5	4.01	80.2					40 - 118
m-Dinitrobenzene	5	4.5	90					79 - 119
m-Nitrotoluene	5	4.14	82.8					59 - 115
1,3,5-Trinitrobenzene	5	4.7	94					62 - 114
HMX	5	3.97	79.4					66 - 110
DNX	5	4.39	87.8					72 - 117
4-Amino-2,6-dinitrotoluene	5	4.35	87					72 - 122
2-Amino-4,6-dinitrotoluene	5	4.7	94					73 - 121
2,6-Dinitrotoluene	5	4.29	85.8					77 - 111
2,4-Dinitrotoluene	5	4.46	89.2					75 - 119
2,4,6-Trinitrotoluene	5	4.21	84.2					72 - 124
o-Nitrotoluene	5	4.06	81.2					60 - 111
p-Nitrotoluene	5	4.19	83.8					61 - 113

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

3B
High Explosives LCS/LCS Duplicate Summary

Lab Name: GEL Laboratories LLC

Client ID: LCS

Lab Code: GEL

GEL Job No (SDG) 2013-259

Extract Batch Code: 1260256

Date Extracted:

GEL LCS ID: 1202772645

GEL LCSDUP ID:

Analysis Date/Time: 19-NOV-12 14:00

DUP Analysis Date/Time:

Reporting Units: ug/L

QC Type: LCS/LCSD

Compound	Spike Added	LCS Conc	LCS Rec	#	LCSD Conc	LCSD Rec	#	RPD	#	RPD	Recovery Limits
2,4-Diamino-6-nitrotoluene	5	3.8	76								61 - 105
2,6-Diamino-4-nitrotoluene	5	4.2	84								64 - 115
3,5-Dinitroaniline	5	4.9	98								73 - 112
TATB	5	1.63	32.6								32 - 169
tris(o-cresyl) phosphate	5	3.11	62.2								30 - 82

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

High Explosives MS/MSD Summary

Lab Name: GEL Laboratories LLC

Client ID: CAMO-13-24225

Lab Code: GEL

GEL Job No (SDG) 2013-259

Extract Batch Code: 1260256

Date Extracted: 26-NOV-12

GEL Spike ID: 1202772646

GEL SpikeDup ID: 1202772647

Analysis Date/Time: 26-NOV-12 19:20

MSD Analysis Date/Time: 26-NOV-12 19:55

Reporting Units: ug/L

QC Type: MS/MSD

Compound	Spike Added	Sample Conc	MS Conc	MS Rec #	MSD Conc	MSD Rec #	RPD #	RPD Limit	Rec Limits
m-Dinitrobenzene	5.20833	0	4.6	88.4	5.19	96.6	12	25	73 - 126
m-Nitrotoluene	5.20833	0	4.51	86.6	4.66	86.6	3.18	25	56 - 114
o-Nitrotoluene	5.20833	0	4.11	79	4.49	83.6	8.83	25	57 - 113
1,3,5-Trinitrobenzene	5.20833	.00368	4.65	89.1	5.29	98.3	13	25	58 - 121
p-Nitrotoluene	5.20833	0	4.53	87	4.57	85	.849	25	54 - 119
Tetryl	5.20833	0	4.27	82	5.16	96	18.9	25	30 - 110
2,4,6-Trinitrotoluene	5.20833	.00288	4.75	91.1	4.97	92.3	4.48	25	64 - 132
2,6-Dinitrotoluene	5.20833	.00354	4.31	82.7	5.05	93.9	15.8	25	74 - 117
4-Amino-2,6-dinitrotoluene	5.20833	0	4.41	84.6	5.24	97.4	17.2	25	64 - 132
TNX	5.20833	0	4.31	82.8	4.84	90	11.5	25	61 - 117
RDX	5.20833	0	4.96	95.2	5.39	100	8.29	25	64 - 137
PETN	5.20833	0	4.21	80.8	4.86	90.4	14.4	25	58 - 127
Nitrobenzene	5.20833	0	4.51	86.6	4.86	90.4	7.47	25	60 - 113
MNX	5.20833	0	4.82	92.6	5.48	102	12.8	25	67 - 127
HMX	5.20833	0	3.99	76.6	5.2	96.8	26.4 *	25	60 - 121
DNX	5.20833	0	4.55	87.4	5.68	106	22	25	67 - 124
2-Amino-4,6-dinitrotoluene	5.20833	0	4.82	92.6	5.81	108	18.5	25	67 - 129
2,4-Dinitrotoluene	5.20833	0	4.71	90.4	5.44	101	14.4	25	72 - 126

#Column to be used to flag recovery and RPD values with an asterisk

High Explosives MS/MSD Summary

Lab Name: GEL Laboratories LLC

Client ID: CAMO-13-24225

Lab Code: GEL

GEL Job No (SDG) 2013-259

Extract Batch Code: 1260256

Date Extracted: 19-NOV-12

GEL Spike ID: 1202772646

GEL SpikeDup ID: 1202772647

Analysis Date/Time: 19-NOV-12 14:34

MSD Analysis Date/Time: 19-NOV-12 14:50

Reporting Units: ug/L

QC Type: MS/MSD

Compound	Spike Added	Sample Conc	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Rec Limits
2,4-Diamino-6-nitrotoluene	5.20833	0	3.93	75.4		4.57	85		15.1		25	66 - 108
2,6-Diamino-4-nitrotoluene	5.20833	0	4.9	94		5.82	108		17.2		25	72 - 112
3,5-Dinitroaniline	5.20833	0	5.14	98.6		5.67	105		9.84		25	75 - 116
TATB	5.20833	0	1.72	33		1.98	36.8		14.1		25	32 - 96
tris(o-cresyl) phosphate	5.20833	.032	3.21	61		2.86	52.6		11.5		25	30 - 80

#Column to be used to flag recovery and RPD values with an asterisk

Quality Control Data

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1260256

Lab Code: GEL

GEL Job No (SDG) 2013-259

Matrix: WATER

GEL Sample ID: 1202772644

Sample Amount 1000 mL

Date Received: 02-NOV-12

Moisture:

Extraction Batch ID: 1260256

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP1126013.wiff

Date Analyzed: 26-NOV-12 17:35

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	0.250	U	0.080	0.250
118-96-7	*2,4,6-Trinitrotoluene*				
121-14-2	2,4-Dinitrotoluene	0.250	U	0.080	0.250
121-14-2	*2,4-Dinitrotoluene*				
121-82-4	RDX	0.250	U	0.080	0.250
121-82-4	*RDX*				
13980-04-6	TNX	0.250	U	0.080	0.250
13980-04-6	*TNX*				
19406-51-0	4-Amino-2,6-dinitrotoluene	0.250	U	0.080	0.250
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
2691-41-0	HMX	0.250	U	0.080	0.250
2691-41-0	*HMX*				
35572-78-2	2-Amino-4,6-dinitrotoluene	0.250	U	0.080	0.250
35572-78-2	*2-Amino-4,6-dinitrotoluene*				
5755-27-1	MNX	0.250	U	0.080	0.250
5755-27-1	*MNX*				
606-20-2	2,6-Dinitrotoluene	0.250	U	0.080	0.250
606-20-2	*2,6-Dinitrotoluene*				
80251-29-2	DNX	0.250	U	0.080	0.250
80251-29-2	*DNX*				
88-72-2	o-Nitrotoluene	0.250	U	0.082	0.250
88-72-2	*o-Nitrotoluene*				
98-95-3	Nitrobenzene	0.250	U	0.080	0.250
98-95-3	*Nitrobenzene*				
99-08-1	m-Nitrotoluene	0.250	U	0.080	0.250
99-08-1	*m-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1260256

Lab Code: GEL

GEL Job No (SDG) 2013-259

Matrix: WATER

GEL Sample ID: 1202772644

Sample Amount 1000 mL

Date Received: 02-NOV-12

Moisture:

Extraction Batch ID: 1260256

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
99-35-4	1,3,5-Trinitrobenzene	0.250	U	0.080	0.250
99-35-4	*1,3,5-Trinitrobenzene*				
99-65-0	m-Dinitrobenzene	0.250	U	0.080	0.250
99-65-0	*m-Dinitrobenzene*				
479-45-8	Tetryl	0.500	U	0.080	0.500
479-45-8	*Tetryl*				
78-11-5	PETN	0.500	U	0.100	0.500
78-11-5	*PETN*				
99-99-0	p-Nitrotoluene	0.500	U	0.150	0.500
99-99-0	*p-Nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1260256

Lab Code: GEL

GEL Job No (SDG) 2013-259

Matrix: WATER

GEL Sample ID: 1202772644

Sample Amount 1000 mL

Date Received: 02-NOV-12

Moisture:

Extraction Batch ID: 1260256

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS11190014.wiff

Date Analyzed: 19-NOV-12 13:43

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.00	U	0.300	1.00
3058-38-6	*TATB*				
618-87-1	3,5-Dinitroaniline	1.00	U	0.300	1.00
618-87-1	*3,5-Dinitroaniline*				
78-30-8	tris(o-cresyl) phosphate	1.00	U	0.300	1.00
78-30-8	*tris(o-cresyl) phosphate*				
59229-75-3	2,6-Diamino-4-nitrotoluene	2.50	U	0.500	2.50
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
6629-29-4	2,4-Diamino-6-nitrotoluene	2.50	U	0.500	2.50
6629-29-4	*2,4-Diamino-6-nitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1260256

Lab Code: GEL

GEL Job No (SDG) 2013-259

Matrix: WATER

GEL Sample ID: 1202772645

Sample Amount 1000 mL

Date Received: 02-NOV-12

Moisture:

Extraction Batch ID: 1260256

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP1126014.wiff

Date Analyzed: 26-NOV-12 18:10

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
78-11-5	PETN	3.63		0.100	0.500
78-11-5	*PETN*				
13980-04-6	TNX	3.87		0.080	0.250
13980-04-6	*TNX*				
2691-41-0	HMX	3.97		0.080	0.250
2691-41-0	*HMX*				
479-45-8	Tetryl	4.01		0.080	0.500
479-45-8	*Tetryl*				
88-72-2	o-Nitrotoluene	4.06		0.082	0.250
88-72-2	*o-Nitrotoluene*				
99-08-1	m-Nitrotoluene	4.14		0.080	0.250
99-08-1	*m-Nitrotoluene*				
99-99-0	p-Nitrotoluene	4.19		0.150	0.500
99-99-0	*p-Nitrotoluene*				
118-96-7	2,4,6-Trinitrotoluene	4.21		0.080	0.250
118-96-7	*2,4,6-Trinitrotoluene*				
98-95-3	Nitrobenzene	4.22		0.080	0.250
98-95-3	*Nitrobenzene*				
5755-27-1	MNX	4.26		0.080	0.250
5755-27-1	*MNX*				
121-82-4	RDX	4.27		0.080	0.250
121-82-4	*RDX*				
606-20-2	2,6-Dinitrotoluene	4.29		0.080	0.250
606-20-2	*2,6-Dinitrotoluene*				
19406-51-0	4-Amino-2,6-dinitrotoluene	4.35		0.080	0.250
19406-51-0	*4-Amino-2,6-dinitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1260256

Lab Code: GEL

GEL Job No (SDG) 2013-259

Matrix: WATER

GEL Sample ID: 1202772645

Sample Amount 1000 mL

Date Received: 02-NOV-12

Moisture:

Extraction Batch ID: 1260256

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
80251-29-2	DNX	4.39		0.080	0.250
80251-29-2	*DNX*				
121-14-2	2,4-Dinitrotoluene	4.46		0.080	0.250
121-14-2	*2,4-Dinitrotoluene*				
99-65-0	m-Dinitrobenzene	4.5		0.080	0.250
99-65-0	*m-Dinitrobenzene*				
35572-78-2	2-Amino-4,6-dinitrotoluene	4.7		0.080	0.250
35572-78-2	*2-Amino-4,6-dinitrotoluene*				
99-35-4	1,3,5-Trinitrobenzene	4.7		0.080	0.250
99-35-4	*1,3,5-Trinitrobenzene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1260256

Lab Code: GEL

GEL Job No (SDG) 2013-259

Matrix: WATER

GEL Sample ID: 1202772645

Sample Amount 1000 mL

Date Received: 02-NOV-12

Moisture:

Extraction Batch ID: 1260256

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS11190015.wiff

Date Analyzed: 19-NOV-12 14:00

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.63		0.300	1.00
3058-38-6	*TATB*				
78-30-8	tris(o-cresyl) phosphate	3.11		0.300	1.00
78-30-8	*tris(o-cresyl) phosphate*				
6629-29-4	2,4-Diamino-6-nitrotoluene	3.8		0.500	2.50
6629-29-4	*2,4-Diamino-6-nitrotoluene*				
59229-75-3	2,6-Diamino-4-nitrotoluene	4.2		0.500	2.50
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
618-87-1	3,5-Dinitroaniline	4.9		0.300	1.00
618-87-1	*3,5-Dinitroaniline*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24225(314443005MS)MS

Lab Code: GEL

GEL Job No (SDG) 2013-259

Matrix: WATER

GEL Sample ID: 1202772646

Sample Amount 960 mL

Date Received: 02-NOV-12

Moisture:

Extraction Batch ID: 1260256

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP1126016.wiff

Date Analyzed: 26-NOV-12 19:20

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
2691-41-0	HMX	3.99		0.0833	0.260
2691-41-0	*HMX*				
88-72-2	o-Nitrotoluene	4.11		0.0854	0.260
88-72-2	*o-Nitrotoluene*				
78-11-5	PETN	4.21		0.104	0.521
78-11-5	*PETN*				
479-45-8	Tetryl	4.27		0.0833	0.521
479-45-8	*Tetryl*				
13980-04-6	TNX	4.31		0.0833	0.260
13980-04-6	*TNX*				
606-20-2	2,6-Dinitrotoluene	4.31		0.0833	0.260
606-20-2	*2,6-Dinitrotoluene*				
19406-51-0	4-Amino-2,6-dinitrotoluene	4.41		0.0833	0.260
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
98-95-3	Nitrobenzene	4.51		0.0833	0.260
98-95-3	*Nitrobenzene*				
99-08-1	m-Nitrotoluene	4.51		0.0833	0.260
99-08-1	*m-Nitrotoluene*				
99-99-0	p-Nitrotoluene	4.53		0.156	0.521
99-99-0	*p-Nitrotoluene*				
80251-29-2	DNX	4.55		0.0833	0.260
80251-29-2	*DNX*				
99-65-0	m-Dinitrobenzene	4.6		0.0833	0.260
99-65-0	*m-Dinitrobenzene*				
99-35-4	1,3,5-Trinitrobenzene	4.65		0.0833	0.260
99-35-4	*1,3,5-Trinitrobenzene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24225(314443005MS)MS

Lab Code: GEL

GEL Job No (SDG) 2013-259

Matrix: WATER

GEL Sample ID: 1202772646

Sample Amount 960 mL

Date Received: 02-NOV-12

Moisture:

Extraction Batch ID: 1260256

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-14-2	2,4-Dinitrotoluene	4.71		0.0833	0.260
121-14-2	*2,4-Dinitrotoluene*				
118-96-7	2,4,6-Trinitrotoluene	4.75		0.0833	0.260
118-96-7	*2,4,6-Trinitrotoluene*				
35572-78-2	2-Amino-4,6-dinitrotoluene	4.82		0.0833	0.260
35572-78-2	*2-Amino-4,6-dinitrotoluene*				
5755-27-1	MNX	4.82		0.0833	0.260
5755-27-1	*MNX*				
121-82-4	RDX	4.96		0.0833	0.260
121-82-4	*RDX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24225(314443005MS)MS

Lab Code: GEL

GEL Job No (SDG) 2013-259

Matrix: WATER

GEL Sample ID: 1202772646

Sample Amount 960 mL

Date Received: 02-NOV-12

Moisture:

Extraction Batch ID: 1260256

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS11190017.wiff

Date Analyzed: 19-NOV-12 14:34

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.72		0.313	1.04
3058-38-6	*TATB*				
78-30-8	tris(o-cresyl) phosphate	3.21		0.313	1.04
78-30-8	*tris(o-cresyl) phosphate*				
6629-29-4	2,4-Diamino-6-nitrotoluene	3.93		0.521	2.60
6629-29-4	*2,4-Diamino-6-nitrotoluene*				
59229-75-3	2,6-Diamino-4-nitrotoluene	4.9		0.521	2.60
59229-75-3	*2,6-Diamino-4-nitrotoluene*				
618-87-1	3,5-Dinitroaniline	5.14		0.313	1.04
618-87-1	*3,5-Dinitroaniline*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24225(314443005MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2013-259

Matrix: WATER

GEL Sample ID: 1202772647

Sample Amount 930 mL

Date Received: 02-NOV-12

Moisture:

Extraction Batch ID: 1260256

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP1126017.wiff

Date Analyzed: 26-NOV-12 19:55

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
88-72-2	o-Nitrotoluene	4.49		0.0882	0.269
88-72-2	*o-Nitrotoluene*				
99-99-0	p-Nitrotoluene	4.57		0.161	0.538
99-99-0	*p-Nitrotoluene*				
99-08-1	m-Nitrotoluene	4.66		0.086	0.269
99-08-1	*m-Nitrotoluene*				
13980-04-6	TNX	4.84		0.086	0.269
13980-04-6	*TNX*				
78-11-5	PETN	4.86		0.108	0.538
78-11-5	*PETN*				
98-95-3	Nitrobenzene	4.86		0.086	0.269
98-95-3	*Nitrobenzene*				
118-96-7	2,4,6-Trinitrotoluene	4.97		0.086	0.269
118-96-7	*2,4,6-Trinitrotoluene*				
606-20-2	2,6-Dinitrotoluene	5.05		0.086	0.269
606-20-2	*2,6-Dinitrotoluene*				
479-45-8	Tetryl	5.16		0.086	0.538
479-45-8	*Tetryl*				
99-65-0	m-Dinitrobenzene	5.19		0.086	0.269
99-65-0	*m-Dinitrobenzene*				
2691-41-0	HMX	5.2		0.086	0.269
2691-41-0	*HMX*				
19406-51-0	4-Amino-2,6-dinitrotoluene	5.24		0.086	0.269
19406-51-0	*4-Amino-2,6-dinitrotoluene*				
99-35-4	1,3,5-Trinitrobenzene	5.29		0.086	0.269
99-35-4	*1,3,5-Trinitrobenzene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24225(314443005MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2013-259

Matrix: WATER

GEL Sample ID: 1202772647

Sample Amount 930 mL

Date Received: 02-NOV-12

Moisture:

Extraction Batch ID: 1260256

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-82-4	RDX	5.39		0.086	0.269
121-82-4	*RDX*				
121-14-2	2,4-Dinitrotoluene	5.44		0.086	0.269
121-14-2	*2,4-Dinitrotoluene*				
5755-27-1	MNX	5.48		0.086	0.269
5755-27-1	*MNX*				
80251-29-2	DNX	5.68		0.086	0.269
80251-29-2	*DNX*				
35572-78-2	2-Amino-4,6-dinitrotoluene	5.81		0.086	0.269
35572-78-2	*2-Amino-4,6-dinitrotoluene*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: CAMO-13-24225(314443005MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2013-259

Matrix: WATER

GEL Sample ID: 1202772647

Sample Amount 930 mL

Date Received: 02-NOV-12

Moisture:

Extraction Batch ID: 1260256

Extraction Type Sol Exchange

Date Extracted:

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXS11190018.wiff

Date Analyzed: 19-NOV-12 14:50

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
3058-38-6	TATB	1.98		0.323	1.08
3058-38-6	*TATB*				
78-30-8	tris(o-cresyl) phosphate	2.86		0.323	1.08
78-30-8	*tris(o-cresyl) phosphate*				
6629-29-4	2,4-Diamino-6-nitrotoluene	4.57		0.538	2.69
6629-29-4	*2,4-Diamino-6-nitrotoluene*				
618-87-1	3,5-Dinitroaniline	5.67		0.323	1.08
618-87-1	*3,5-Dinitroaniline*				
59229-75-3	2,6-Diamino-4-nitrotoluene	5.82		0.538	2.69
59229-75-3	*2,6-Diamino-4-nitrotoluene*				

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-259

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 26-NOV-12 10:36

GEL Data File: EXP1126001.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-259

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 26-NOV-12 11:11

GEL Data File: EXP1126002.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-259

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 19-NOV-12 10:06

GEL Data File: EXS11190001.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	4.88
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-259

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 19-NOV-12 10:23

GEL Data File: EXS11190002.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	2.3
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-259

Lab Code: GEL

Lab Sample ID: XIBLK02

Analysis Date: 26-NOV-12 15:15

GEL Data File: EXP1126009.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-259

Lab Code: GEL

Lab Sample ID: XIBLK03

Analysis Date: 26-NOV-12 16:25

GEL Data File: EXP1126011.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-259

Lab Code: GEL

Lab Sample ID: XIBLK04

Analysis Date: 26-NOV-12 21:05

GEL Data File: EXP1126019.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-259

Lab Code: GEL

Lab Sample ID: XIBLK02

Analysis Date: 19-NOV-12 12:37

GEL Data File: EXS11190010.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	7.61
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-259

Lab Code: GEL

Lab Sample ID: XIBLK03

Analysis Date: 19-NOV-12 13:10

GEL Data File: EXS11190012.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	4.37
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2013-259

Lab Code: GEL

Lab Sample ID: XIBLK04

Analysis Date: 19-NOV-12 15:24

GEL Data File: EXS11190020.wiff

Instrument ID: LCMSMS

Column: Phenomenex Ultracarb 5u ODS(20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	3.71
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
28-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LC-MS/MS	SW846 3535/8321A Modified	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1260257	See Below		

Potentially affected work order(s)(SDG): 314443(2013-259)

Application Issues:

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. The MS/MSD pair (1202772646/1202772647) did not meet RPD acceptance criteria for HMX at 26.4%. The limit is 25%.	1. Both the MS and MSD had passing recoveries for all spiked analytes. Target analytes were not detected in the parent sample, 314443005. The data are considered unaffected and are reported.

Originator's Name:

Lynne Russell 28-NOV-12

Data Validator/Group Leader:

Michael Penny 28-NOV-12

PCB Analysis

Case Narrative

PCB Case Narrative
ARS International (ARSL)
SDG 2013-259

Method/Analysis Information

Procedure:	**Analysis of Polychlorinated Biphenyls by ECD**
Analytical Method:	SW846 3535A/8082
Prep Method:	SW846 3535A
Analytical Batch Number:	1262673
Prep Batch Number:	1262672

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3535A/8082:

Sample ID	Client ID
314443003	CAMO-13-24225
1202778592	Method Blank (MB)
1202778593	Laboratory Control Sample (LCS)
1202778594	314048005(WST05-12-23548) Matrix Spike (MS)
1202778595	314048005(WST05-12-23548) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-040 REV# 19.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 23.0.

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standards (ICV or CCV) met the acceptance criteria. All analytes were within the established retention time windows for this method.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
An ARSL sample of similar matrix in SDG 2013-225 was selected for the matrix spike and matrix spike duplicate analysis for this batch of the samples.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the MS and MSD met the acceptance limits.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns. All sample extracts were cleaned using alumina.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not performed in this SDG.

Miscellaneous Information

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception report (DER) is generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A DER was not required for this SDG.

Manual Integrations
Certain standards and samples may have required manual integration to correctly position the baseline as set in the calibration standard injections. If manual integration was performed, copies of all manual integration peak profiles are included in the raw data section of this PCB fraction.

Additional Comments
The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

The higher results from either column have been chosen and reported in the data package for the client samples, MB and LCS. The data reported for the MS and MSD are from the same analytical column as the parent sample.

Due to software issue, the surrogate recovery range was not indicated or possibly indicated incorrectly in Quantitation Report. Please see Surrogate Recovery Report for correct surrogate acceptance limits.

Due to rounding differences in the calculation between the forms, the data reported in Sample Summary (form 1) and Spike Recovery Report (form 3) may differ slightly from the data reported in Identification Summary (form 10).

Aroclors quantitated on the raw data report by ChemStation data system do not necessarily represent positive Aroclor identification. In order for positive identification to be made, the Aroclor must match in pattern and retention time; as well as quantitate relatively close between the primary and confirmation columns, as specified in SW846 method 8000. When these conditions are not met, the Aroclor is reported as a non-detect on the data report.

System Configuration

The Semi-Volatiles-PCB analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
ECD8A.I_1	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP I	30m x 0.25mm, 0.25um (Rtx-CLPesticide I)
ECD8A.I_2	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP II	30m x 0.25mm, 0.20um (Rtx-CLPesticide II)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-259 GEL Work Order: 314443

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Jimin Cao **Name: Jimin Cao**

Date: 27 NOV 2012 **Title: Data Validator**

Sample Data Summary

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**	**Date Collected:**	**10/31/2012 13:30**	**Matrix:**	**W**
Lab Sample ID:	**314443003**	**Date Received:**	**11/02/2012 09:05**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24225**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1262673**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 14:57**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/14/2012 08:57**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**111512.B\e8k1539.D**	**Column:**	**1 RTX-CLPEST1**		
	111512.B\e8k1539.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.100	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260	U	0.100	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.139	0.200	ug/L	69.7	(42%-120%)
Decachlorobiphenyl	0.159	0.200	ug/L	79.4	(41%-120%)

Quality Control Summary

PCB

Surrogate Recovery Report

SDG Number: 2013-259

Matrix Type: LIQUID

Sample ID	Client ID	4CMX 1 %REC #	4CMX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #
1202778592	MB for batch 1262672	54	55	72	72
1202778593	LCS for batch 1262672	69	70	79	79
1202778594	WST05-12-23548MS	67	69	89	86
1202778595	WST05-12-23548MSD	66	67	81	81
314443003	CAMO-13-24225	68	70	78	79

Surrogate		Acceptance Limits
4CMX	= 4cmx	(42%-120%)
DCB	= Decachlorobiphenyl	(41%-120%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **LCS for batch 1262672**
Lab Sample ID: **1202778593**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/15/2012 13:19**
Prep Batch ID: **1262672**
Batch ID: **1262673**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	LCS	Aroclor-1016	1.00	0.0	0.728	73	47-115
11096-82-5	LCS	Aroclor-1260	1.00	0.0	0.797	80	42-115

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **WST05-12-23548MS**
Lab Sample ID: **1202778594**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/15/2012 13:44**
Prep Batch ID: **1262672**
Batch ID: **1262673**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	MS	Aroclor-1016	1.00	0.00	U	0.762	76	34-123
11096-82-5	MS	Aroclor-1260	1.00	0.00	U	0.809	81	30-127

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-259**
Client ID: **WST05-12-23548MSD**
Lab Sample ID: **1202778595**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/15/2012 13:56**
Prep Batch ID: **1262672**
Batch ID: **1262673**
Dilution: 1

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
12674-11-2	MSD Aroclor-1016	1.00	0.00	U	0.703	70	34-123	8	0-30
11096-82-5	MSD Aroclor-1260	1.00	0.00	U	0.811	81	30-127	0	0-30

Method Blank Summary

SDG Number:	**2013-259**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1262672**	**Instrument ID:**	**ECD8A.I_1** **ECD8A.I_2**	**Data File:**	**111512.B\e8k1530.D** **111512.B\e8k1530.D**
Lab Sample ID:	**1202778592**				
Column:	**RTX-CLPEST1** **RTX-CLPEST2**	**Prep Date:**	**11/14/2012 08:57**	**Analyzed:**	**11/15/12 13:07**

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1262672	**1202778593**	**111512.B\e8k1531.D** **111512.B\e8k1531.D**	**11/15/12**	**1319**
02 WST05-12-23548MS	**1202778594**	**111512.B\e8k1533.D** **111512.B\e8k1533.D**	**11/15/12**	**1344**
03 WST05-12-23548MSD	**1202778595**	**111512.B\e8k1534.D** **111512.B\e8k1534.D**	**11/15/12**	**1356**
04 CAMO-13-24225	**314443003**	**111512.B\e8k1539.D** **111512.B\e8k1539.D**	**11/15/12**	**1457**

Quality Control Data

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778592**				
Client Sample:	**QC for batch 1262672**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262672**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1262673**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 13:07**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/14/2012 08:57**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**111512.B\e8k1530.D**	**Column:**	**1 RTX-CLPEST1**		
	111512.B\e8k1530.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.100	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260	U	0.100	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.109	0.200	ug/L	54.5	(42%-120%)
Decachlorobiphenyl	0.145	0.200	ug/L	72.5	(41%-120%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2013-259**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778593**				
Client Sample:	**QC for batch 1262672**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262672**	**Method:**	**SW846 3535A/8082**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1262673**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 13:19**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/14/2012 08:57**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**111512.B\e8k1531.D**	**Column:**	**1 RTX-CLPEST1**		
	111512.B\e8k1531.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		0.728	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.100	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.100	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.100	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.100	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.100	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260		0.797	ug/L	0.0333	0.100	1
37324-23-5	Aroclor-1262	U	0.100	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
Decachlorobiphenyl	0.158	0.200	ug/L	79.0	(41%-120%)
4cmx	0.140	0.200	ug/L	69.9	(42%-120%)

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-259

Sample Analysis

Sample ID	Client ID
314443002	CAMO-13-24259
314443005	CAMO-13-24225
314443007	CAMO-13-24261
1202773560	Method Blank (MB) **ICP**
1202773561	Laboratory Control Sample (LCS)
1202773564	314528002(CAMO-13-24283L) Serial Dilution (SD)
1202773562	314528002(CAMO-13-24283D) Sample Duplicate (DUP)
1202773563	314528002(CAMO-13-24283S) Matrix Spike (MS)
1202773552	Method Blank (MB) **ICP-MS**
1202773553	Laboratory Control Sample (LCS)
1202773556	314528002(CAMO-13-24283L) Serial Dilution (SD)
1202773554	314528002(CAMO-13-24283D) Sample Duplicate (DUP)
1202773555	314528002(CAMO-13-24283S) Matrix Spike (MS)
1202783062	Method Blank (MB) **CVAA**
1202783069	Laboratory Control Sample (LCS)
1202783065	314340002(CAMO-13-24255L) Serial Dilution (SD)
1202783063	314340002(CAMO-13-24255D) Sample Duplicate (DUP)
1202783067	314340002(CAMO-13-24255S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1260610, 1260607, 1264600 and 1266665
Prep Batch :	1260609, 1260605 and 1264596
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 7
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B

Prep Method : SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standards met the advisory control limits with the exception of potassium that recovered outside of the advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria for all applicable analytes except with the exception of potassium. The CCB recovered high for sodium but samples 314443002 and 314443007 were 10x greater than the PQL and sample 314443005 was less than the PQL.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 314528002 (CAMO-13-24283)-ICP and ICP-MS and 314340002 (CAMO-13-24255)-CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations 25x the IDL/MDL for CVAA, 50X the IDL/MDL for ICP and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the established criteria of less than 10% difference (%D) with the exceptions of sodium and strontium.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instruments. Dilutions were required for sample 314443007 in order to minimize tin suppression due to matrix interferences. The sample 314443007 on the ICP-MS required dilution in order to bring over range chromium concentrations within the linear calibration range of the instrument.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 11·28·12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-259 GEL Work Order: 314443

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 11.28.12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-259 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314443002 **BASIS:** As Received **DATE COLLECTED** 31-OCT-12

CLIENT ID: CAMO-13-24259 **LEVEL:** Low **DATE RECEIVED** 02-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/20/12 09:30	112012W1-10	1264600

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-259 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314443002 **BASIS:** As Received **DATE COLLECTED** 31-OCT-12

CLIENT ID: CAMO-13-24259 **LEVEL:** Low **DATE RECEIVED** 02-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/15/12 23:08	111512-1	1260610
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/15/12 20:08	121115-3	1260607
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/15/12 20:08	121115-3	1260607
7440-39-3	Barium	28	ug/L		1	5	5	1	P	HSC	11/15/12 23:08	111512-1	1260610
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/15/12 23:08	111512-1	1260610
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	11/15/12 23:08	111512-1	1260610
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/16/12 09:42	121115-8	1260607
7440-70-2	Calcium	13600	ug/L		50	200	200	1	P	HSC	11/15/12 23:08	111512-1	1260610
7440-47-3	Chromium	10.5	ug/L		2	10	10	1	MS	BAJ	11/16/12 09:42	121115-8	1260607
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/15/12 23:08	111512-1	1260610
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/15/12 23:08	111512-1	1260610
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/15/12 23:08	111512-1	1260610
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/16/12 09:42	121115-8	1260607
7439-95-4	Magnesium	3810	ug/L		110	300	300	1	P	HSC	11/15/12 23:08	111512-1	1260610
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/15/12 23:08	111512-1	1260610
7439-98-7	Molybdenum	1.13	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/16/12 09:42	121115-8	1260607
7440-02-0	Nickel	0.880	ug/L	J	0.5	2	2	1	MS	BAJ	11/16/12 09:42	121115-8	1260607
7440-09-7	Potassium	1690	ug/L		50	150	150	1	P	HSC	11/15/12 23:08	111512-1	1260610
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/15/12 20:08	121115-3	1260607
7631-86-9	Silica	71500	ug/L		53	213	213	1	P	HSC	11/15/12 23:08	111512-1	1260610
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/16/12 09:42	121115-8	1260607
7440-23-5	Sodium	10400	ug/L		100	300	300	1	P	HSC	11/15/12 23:08	111512-1	1260610
7440-24-6	Strontium	59.9	ug/L		1	5	5	1	P	HSC	11/15/12 23:08	111512-1	1260610
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/15/12 20:08	121115-3	1260607
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/15/12 23:08	111512-1	1260610
7440-61-1	Uranium	0.443	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/16/12 09:42	121115-8	1260607
7440-62-2	Vanadium	6.86	ug/L		1	5	5	1	P	HSC	11/15/12 23:08	111512-1	1260610
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	11/15/12 23:08	111512-1	1260610

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-259 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314443002 **BASIS:** As Received **DATE COLLECTED** 31-OCT-12

CLIENT ID: CAMO-13-24259 **LEVEL:** Low **DATE RECEIVED** 02-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	49.6	mg/L		0.453	1.24	1.24	1		JJ2	11/28/12 14:20		1266665

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1260607	1260605	SW846 3005A	50	mL	50	mL	11/09/12	MTM1
1260610	1260609	SW846 3005A	50	mL	50	mL	11/09/12	MTM1
1264600	1264596	EPA 245.1/245.2 Prep	20	mL	20	mL	11/19/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-259 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314443005 **BASIS:** As Received **DATE COLLECTED** 31-OCT-12

CLIENT ID: CAMO-13-24225 **LEVEL:** Low **DATE RECEIVED** 02-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/20/12 09:32	112012W1-10	1264600

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-259 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314443005 **BASIS:** As Received **DATE COLLECTED** 31-OCT-12

CLIENT ID: CAMO-13-24225 **LEVEL:** Low **DATE RECEIVED** 02-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/15/12 23:11	111512-1	1260610
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/15/12 20:23	121115-3	1260607
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/15/12 20:23	121115-3	1260607
7440-39-3	Barium	5	ug/L	U	1	5	5	1	P	HSC	11/15/12 23:11	111512-1	1260610
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/15/12 23:11	111512-1	1260610
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	11/15/12 23:11	111512-1	1260610
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/16/12 09:52	121115-8	1260607
7440-70-2	Calcium	200	ug/L	U	50	200	200	1	P	HSC	11/15/12 23:11	111512-1	1260610
7440-47-3	Chromium	10	ug/L	U	2	10	10	1	MS	BAJ	11/16/12 11:19	121116-9	1260607
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/15/12 23:11	111512-1	1260610
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/15/12 23:11	111512-1	1260610
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/15/12 23:11	111512-1	1260610
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/16/12 09:52	121115-8	1260607
7439-95-4	Magnesium	300	ug/L	U	110	300	300	1	P	HSC	11/15/12 23:11	111512-1	1260610
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/15/12 23:11	111512-1	1260610
7439-98-7	Molybdenum	0.50	ug/L	U	0.165	0.5	0.5	1	MS	BAJ	11/16/12 09:52	121115-8	1260607
7440-02-0	Nickel	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/16/12 11:19	121116-9	1260607
7440-09-7	Potassium	150	ug/L	U	50	150	150	1	P	HSC	11/15/12 23:11	111512-1	1260610
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/15/12 20:23	121115-3	1260607
7631-86-9	Silica	213	ug/L	U	53	213	213	1	P	HSC	11/15/12 23:11	111512-1	1260610
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/16/12 09:52	121115-8	1260607
7440-23-5	Sodium	231	ug/L	J	100	300	300	1	P	HSC	11/15/12 23:11	111512-1	1260610
7440-24-6	Strontium	1.34	ug/L	J	1	5	5	1	P	HSC	11/15/12 23:11	111512-1	1260610
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/15/12 20:23	121115-3	1260607
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/15/12 23:11	111512-1	1260610
7440-61-1	Uranium	0.20	ug/L	U	0.067	0.2	0.2	1	MS	BAJ	11/16/12 09:52	121115-8	1260607
7440-62-2	Vanadium	5	ug/L	U	1	5	5	1	P	HSC	11/15/12 23:11	111512-1	1260610
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	11/15/12 23:11	111512-1	1260610

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-259 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314443005 **BASIS:** As Received **DATE COLLECTED** 31-OCT-12

CLIENT ID: CAMO-13-24225 **LEVEL:** Low **DATE RECEIVED** 02-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	1.24	mg/L	U	0.453	1.24	1.24	1		JJ2	11/28/12 14:20		1266665

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1260607	1260605	SW846 3005A	50	mL	50	mL	11/09/12	MTM1
1260610	1260609	SW846 3005A	50	mL	50	mL	11/09/12	MTM1
1264600	1264596	EPA 245.1/245.2 Prep	20	mL	20	mL	11/19/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-259 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314443007 **BASIS:** As Received **DATE COLLECTED** 31-OCT-12

CLIENT ID: CAMO-13-24261 **LEVEL:** Low **DATE RECEIVED** 02-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/20/12 09:33	112012W1-10	1264600

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-259 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314443007 **BASIS:** As Received **DATE COLLECTED** 31-OCT-12

CLIENT ID: CAMO-13-24261 **LEVEL:** Low **DATE RECEIVED** 02-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/15/12 23:14	111512-1	1260610
7440-36-0	Antimony	1.26	ug/L	J	1	3	3	1	MS	BAJ	11/15/12 20:28	121115-3	1260607
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/15/12 20:28	121115-3	1260607
7440-39-3	Barium	93.3	ug/L		1	5	5	1	P	HSC	11/15/12 23:14	111512-1	1260610
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/15/12 23:14	111512-1	1260610
7440-42-8	Boron	16.2	ug/L	J	15	50	50	1	P	HSC	11/15/12 23:14	111512-1	1260610
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/16/12 09:55	121115-8	1260607
7440-70-2	Calcium	51300	ug/L		50	200	200	1	P	HSC	11/15/12 23:14	111512-1	1260610
7440-47-3	Chromium	1010	ug/L		40	200	200	20	MS	BAJ	11/16/12 11:32	121116-9	1260607
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/15/12 23:14	111512-1	1260610
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/15/12 23:14	111512-1	1260610
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/15/12 23:14	111512-1	1260610
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/16/12 09:55	121115-8	1260607
7439-95-4	Magnesium	14400	ug/L		110	300	300	1	P	HSC	11/15/12 23:14	111512-1	1260610
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/15/12 23:14	111512-1	1260610
7439-98-7	Molybdenum	0.619	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/16/12 09:55	121115-8	1260607
7440-02-0	Nickel	23.4	ug/L		0.5	2	2	1	MS	BAJ	11/16/12 11:22	121116-9	1260607
7440-09-7	Potassium	2280	ug/L		50	150	150	1	P	HSC	11/15/12 23:14	111512-1	1260610
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/15/12 20:28	121115-3	1260607
7631-86-9	Silica	74800	ug/L		53	213	213	1	P	HSC	11/15/12 23:14	111512-1	1260610
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/16/12 09:55	121115-8	1260607
7440-23-5	Sodium	16600	ug/L		100	300	300	1	P	HSC	11/15/12 23:14	111512-1	1260610
7440-24-6	Strontium	195	ug/L		1	5	5	1	P	HSC	11/15/12 23:14	111512-1	1260610
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/15/12 20:28	121115-3	1260607
7440-31-5	Tin	100	ug/L	U	25	100	100	10	P	HSC	11/21/12 10:31	112112-2	1260610
7440-61-1	Uranium	0.812	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/16/12 09:55	121115-8	1260607
7440-62-2	Vanadium	5.37	ug/L		1	5	5	1	P	HSC	11/15/12 23:14	111512-1	1260610
7440-66-6	Zinc	4.78	ug/L	J	3.3	10	10	1	P	HSC	11/15/12 23:14	111512-1	1260610

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-259 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314443007 **BASIS:** As Received **DATE COLLECTED** 31-OCT-12

CLIENT ID: CAMO-13-24261 **LEVEL:** Low **DATE RECEIVED** 02-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	187	mg/L		0.453	1.24	1.24	1		JJ2	11/28/12 14:20		1266665

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1260607	1260605	SW846 3005A	50	mL	50	mL	11/09/12	MTM1
1260610	1260609	SW846 3005A	50	mL	50	mL	11/09/12	MTM1
1264600	1264596	EPA 245.1/245.2 Prep	20	mL	20	mL	11/19/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−259

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202773552								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202773560								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	50	ug/L	+/−150	U	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	236	ug/L	+/−300	J	P	100	300
	Strontium	1.55	ug/L	+/−5	J	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202783062								
	Mercury	0.067	ug/L	+/−0.2	U	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−259 **Client ID** CAMO−13−24283S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314528002 **Spike ID:** 1202773555

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	223		1	U	200	111		MS
Arsenic	ug/L	75−125	77.7		1.7	U	80	95.8		MS
Cadmium	ug/L	75−125	9.86		0.11	U	10	98.6		MS
Chromium	ug/L	75−125	50.1		5.44	J	50	89.3		MS
Lead	ug/L	75−125	38.7		0.5	U	40	96.8		MS
Molybdenum	ug/L	75−125	54.6		1.2		50	107		MS
Nickel	ug/L	75−125	45.7		1.11	J	50	89.2		MS
Selenium	ug/L	75−125	20.1		1.5	U	20	99.1		MS
Silver	ug/L	75−125	55.2		0.2	U	50	110		MS
Thallium	ug/L	75−125	100		0.45	U	100	99.8		MS
Uranium	ug/L	75−125	51.9		0.582		50	103		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−259 **Client ID** CAMO−13−24283S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314528002 **Spike ID:** 1202773563

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Magnesium	ug/L	75−125	8870		3840		5000	101		P
Manganese	ug/L	75−125	495		2	U	500	99		P
Potassium	ug/L	75−125	6340		1690		5000	93		P
Silica	ug/L		85700		74500		10700	105	N/A	P
Sodium	ug/L	75−125	14900		9960		5000	99.5		P
Strontium	ug/L	75−125	529		50.3		500	95.7		P
Tin	ug/L	75−125	498		2.5	U	500	99.6		P
Vanadium	ug/L	75−125	517		8.72		500	102		P
Zinc	ug/L	75−125	492		3.3	U	500	98.2		P
Aluminum	ug/L	75−125	4970		68	U	5000	99		P
Barium	ug/L	75−125	513		25.8		500	97.5		P
Beryllium	ug/L	75−125	504		1	U	500	101		P
Boron	ug/L	75−125	502		15	U	500	98.4		P
Calcium	ug/L	75−125	15800		11000		5000	97.2		P
Cobalt	ug/L	75−125	493		1	U	500	98.4		P
Copper	ug/L	75−125	512		3	U	500	102		P
Iron	ug/L	75−125	5020		30	U	5000	100		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−259 **Client ID** CAMO−13−24255S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314340002 **Spike ID:** 1202783067

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.05		0.067	U	2	103		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−259 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24283D

Matrix: LIQUID **Level:** Low

Sample ID: 314528002 **Duplicate ID:** 1202773554 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	5.44	J	4.83	J	11.8		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.2		1.1		9.23		MS
Nickel	ug/L	+/−2	1.11	J	1.06	J	4.15		MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.582		0.576		1.04		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−259 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24283D

Matrix: LIQUID **Level:** Low

Sample ID: 314528002 **Duplicate ID:** 1202773562 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−20%	25.8		25		3.09		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	15	U			P
Calcium	ug/L	+/−20%	11000		10600		3.28		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L		3	U	3	U			P
Iron	ug/L		30	U	30	U			P
Magnesium	ug/L	+/−20%	3840		3560		7.62		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	1690		1660		2.19		P
Silica	ug/L	+/−20%	74500		71900		3.46		P
Sodium	ug/L	+/−20%	9960		9630		3.31		P
Strontium	ug/L	+/−20%	50.3		48.6		3.27		P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L	+/−5	8.72		8.25		5.44		P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−259 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24255D

Matrix: LIQUID **Level:** Low

Sample ID: 314340002 **Duplicate ID:** 1202783063 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−259

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202773553								
	Antimony	ug/L	50	58.9		118	80−120	MS
	Arsenic	ug/L	50	58.2		116	80−120	MS
	Cadmium	ug/L	50	54.8		110	80−120	MS
	Chromium	ug/L	50	54.8		110	80−120	MS
	Lead	ug/L	50	55.8		112	80−120	MS
	Molybdenum	ug/L	50	54.3		109	80−120	MS
	Nickel	ug/L	50	56.5		113	80−120	MS
	Selenium	ug/L	50	58.8		118	80−120	MS
	Silver	ug/L	50	57.7		115	80−120	MS
	Thallium	ug/L	50	59.7		119	80−120	MS
	Uranium	ug/L	50	56.3		113	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−259

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202773561								
	Aluminum	ug/L	5000	4910		98.1	80−120	P
	Barium	ug/L	500	479		95.8	80−120	P
	Beryllium	ug/L	500	487		97.5	80−120	P
	Boron	ug/L	500	476		95.2	80−120	P
	Calcium	ug/L	5000	4900		98.1	80−120	P
	Cobalt	ug/L	500	486		97.3	80−120	P
	Copper	ug/L	500	488		97.7	80−120	P
	Iron	ug/L	5000	4910		98.2	80−120	P
	Magnesium	ug/L	5000	5030		101	80−120	P
	Manganese	ug/L	500	488		97.6	80−120	P
	Potassium	ug/L	5000	4640		92.8	80−120	P
	Silica	ug/L	10700	10300		96.5	80−120	P
	Sodium	ug/L	5000	5070		101	80−120	P
	Strontium	ug/L	500	476		95.1	80−120	P
	Tin	ug/L	500	496		99.3	80−120	P
	Vanadium	ug/L	500	496		99.2	80−120	P
	Zinc	ug/L	500	477		95.5	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−259

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783069								
	Mercury	ug/L	2	2.08		104	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−259 **Client ID** CAMO−13−24283L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314528002 **Serial Dilution ID:** 1202773556

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	5.44	J	10	U	100			MS
Lead	.5	U	2.5	U				MS
Molybdenum	1.2		1.29	J	6.99			MS
Nickel	1.11	J	2.5	U	100			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.582		.535	J	8.08			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−259 **Client ID** CAMO−13−24283L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314528002 **Serial Dilution ID:** 1202773564

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	25.8		27.5		6.33			P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	11000		11100		.743		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	3840		3840		.095			P
Manganese	2	U	10	U				P
Potassium	1690		1740		2.67			P
Silica	74500		76100		2.23		10	P
Sodium	9960		11100		11.2	E	10	P
Strontium	50.3		57		13.5	E	10	P
Tin	2.5	U	12.5	U				P
Vanadium	8.72		11	J	26.5			P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−259 **Client ID** CAMO−13−24255L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314340002 **Serial Dilution ID:** 1202783065

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-259

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1260735 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
314443001	CAMO-13-24242
314443005	CAMO-13-24225
314443006	CAMO-13-24244
1202773871	Method Blank (MB)
1202773872	314445001(CAMO-13-24241) Sample Duplicate (DUP)
1202773874	314445001(CAMO-13-24241) Post Spike (PS)
1202773876	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314445001 (CAMO-13-24241).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1265081	**Method:**	EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
314443002	CAMO-13-24259
314443005	CAMO-13-24225
314443007	CAMO-13-24261
1202784135	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202784136	314445002(CAMO-13-24258) Sample Duplicate (DUP)
1202784137	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314340002 (CAMO-13-24255) and 314445002

(CAMO-13-24258).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1260327 **Method:** EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
314443002	CAMO-13-24259
314443005	CAMO-13-24225
314443007	CAMO-13-24261
1202772818	314445002(CAMO-13-24258) Sample Duplicate (DUP)
1202772819	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314445002 (CAMO-13-24258).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following samples from this sample group were received by the lab outside of the method specified holding time: 314443002 (CAMO-13-24259), 314443005 (CAMO-13-24225) and 314443007 (CAMO-13-24261).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1140480 314443002 (CAMO-13-24259), 314443005 (CAMO-13-24225) and 314443007 (CAMO-13-24261).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1259659	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
314443002	CAMO-13-24259
314443005	CAMO-13-24225
314443007	CAMO-13-24261
1202771231	Method Blank (MB)
1202771232	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202771233	314340002(CAMO-13-24255) Post Spike (PS)
1202771234	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The following sample in this sample group was diluted due to high concentration: 314443007 (CAMO-13-24261).

Sample Re-analysis
The following samples were re-analyzed due to CCV failure: 1202771231 (MB), 1202771232 (CAMO-13-24255), 1202771233 (CAMO-13-24255), 1202771234 (LCS), 314443002 (CAMO-13-24259), 314443005 (CAMO-13-24225) and 314443007 (CAMO-13-24261).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202771232 (CAMO-13-24255), 1202771233 (CAMO-13-24255), 314443002 (CAMO-13-24259), 314443005 (CAMO-13-24225) and 314443007 (CAMO-13-24261).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1260275	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1260272	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
314443002	CAMO-13-24259
314443005	CAMO-13-24225
314443007	CAMO-13-24261
1202772676	Method Blank (MB)
1202772677	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202772678	314341002(CAMO-13-24257) Sample Duplicate (DUP)
1202772679	314340002(CAMO-13-24255) Matrix Spike (MS)
1202772680	314341002(CAMO-13-24257) Matrix Spike (MS)
1202772681	314340002(CAMO-13-24255) Matrix Spike Duplicate (MSD)
1202772682	314341002(CAMO-13-24257) Matrix Spike Duplicate (MSD)
1202772683	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314340002 (CAMO-13-24255) and 314341002 (CAMO-13-24257).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries for this sample set were within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202772677 (CAMO-13-24255).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1260284	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1260283	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
314443001	CAMO-13-24242
314443005	CAMO-13-24225
314443006	CAMO-13-24244
1202772707	Method Blank (MB)
1202772708	314340001(CAMO-13-24238) Sample Duplicate (DUP)
1202772709	314340001(CAMO-13-24238) Matrix Spike (MS)
1202772710	314340001(CAMO-13-24238) Matrix Spike Duplicate (MSD)
1202772711	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340001 (CAMO-13-24238).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1202772709 (CAMO-13-24238).

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202772708 (CAMO-13-24238).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1137073 1202772709 (CAMO-13-24238).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1260238	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
314443002	CAMO-13-24259
314443005	CAMO-13-24225
314443007	CAMO-13-24261
1202772591	Method Blank (MB)
1202772593	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202772596	314443005(CAMO-13-24225) Post Spike (PS)
1202772598	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314443005 (CAMO-13-24225).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202772593 (CAMO-13-24225).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 314443002 (CAMO-13-24259) and 314443007 (CAMO-13-24261).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1260281	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1260280	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
314443002	CAMO-13-24259
314443005	CAMO-13-24225
314443007	CAMO-13-24261
1202772694	Method Blank (MB)
1202772696	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202772698	314340002(CAMO-13-24255) Matrix Spike (MS)
1202772700	314340002(CAMO-13-24255) Matrix Spike Duplicate (MSD)
1202772701	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following sample in this sample group was diluted due to high concentration: 314443007 (CAMO-13-24261).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Solids, Total Dissolved**		
Analytical Batch:	1260149	**Method:**	EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
314443002	CAMO-13-24259
314443005	CAMO-13-24225
314443007	CAMO-13-24261
1202772396	Method Blank (MB)
1202772397	314445004(CAMO-13-24260) Sample Duplicate (DUP)
1202772398	314529002(CASA-13-24223) Sample Duplicate (DUP)
1202772399	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314445004 (CAMO-13-24260) and 314529002 (CASA-13-24223).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Alkalinity**

Analytical Batch: 1262572 **Method:** EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
314443002	CAMO-13-24259
314443005	CAMO-13-24225
314443007	CAMO-13-24261
1202778366	Laboratory Control Sample (LCS)
1202778371	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202778372	314340002(CAMO-13-24255) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____28Nov12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-259 GEL Work Order: 314443

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

H Analytical holding time was exceeded

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-259

Client Sample ID:	CAMO-13-24242	Project:	ESHL00210
Sample ID:	314443001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	31-OCT-12 12:20		
Receive Date:	02-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average		1.01	0.330	1.00	mg/L	1	TSM	11/08/12	2117	1260735	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl		0.166	0.035	0.100	mg/L	1	KLP1	11/06/12	1417	1260284	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/05/12	1700	1260283

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-259

Client Sample ID:	CAMO-13-24259	Project:	ESHL00210
Sample ID:	314443002	Client ID:	ARSL001
Matrix:	W		
Collect Date:	31-OCT-12 12:20		
Receive Date:	02-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		153	1.00	1.00	umhos/cm	1	TXT1	11/20/12	1117	1265081	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 11.0C	H	8.08	0.010	0.100	SU	1	LXA1	11/06/12	0818	1260327	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Chloride		4.17	0.067	0.200	mg/L	1	MAR1	11/13/12	0124	1259659	3
Fluoride		0.193	0.033	0.100	mg/L	1					
Sulfate		6.48	0.133	0.400	mg/L	1					
Bromide	J	0.087	0.067	0.200	mg/L	1	MAR1	11/13/12	2023	1259659	4
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	U	ND	0.017	0.050	mg/L	1	KLP1	11/06/12	0944	1260275	5
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		2.02	0.170	0.500	mg/L	10	AXH3	11/05/12	1132	1260238	6
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	J	0.0481	0.017	0.050	mg/L	1	KLP1	11/06/12	1636	1260281	7
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		150	3.40	14.3	mg/L		LYG1	11/05/12	0758	1260149	8
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		54.7	0.725	1.00	mg/L		LXA1	11/12/12	1446	1262572	9
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/05/12	1600	1260272
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/05/12	1700	1260280

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-259
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24259	Project:	ESHL00210
Sample ID:	314443002	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 300.0	
5	EPA 350.1	
6	EPA 353.2	
7	EPA 365.4	
8	EPA 160.1	
9	EPA 310.1	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-259

Client Sample ID:	CAMO-13-24225	Project:	ESHL00210
Sample ID:	314443005	Client ID:	ARSL001
Matrix:	W		
Collect Date:	31-OCT-12 13:30		
Receive Date:	02-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.632	0.330	1.00	mg/L	1	TSM	11/08/12	2151	1260735	1
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		1.33	1.00	1.00	umhos/cm	1	TXT1	11/20/12	1118	1265081	2
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 11.4C	H	5.72	0.010	0.100	SU	1	LXA1	11/06/12	0823	1260327	3
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Chloride		0.204	0.067	0.200	mg/L	1	MAR1	11/13/12	0153	1259659	4
Fluoride	U	ND	0.033	0.100	mg/L	1					
Sulfate	U	ND	0.133	0.400	mg/L	1					
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	11/13/12	2052	1259659	5
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	U	ND	0.017	0.050	mg/L	1	KLP1	11/06/12	0945	1260275	6
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite	U	ND	0.017	0.050	mg/L	1	AXH3	11/05/12	1134	1260238	7
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	J	0.024	0.017	0.050	mg/L	1	KLP1	11/06/12	1636	1260281	8
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.035	0.100	mg/L	1	KLP1	11/06/12	1417	1260284	9
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids	U	ND	3.40	14.3	mg/L		LYG1	11/05/12	0758	1260149	10
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		63.8	0.725	1.00	mg/L		LXA1	11/12/12	1456	1262572	11
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/05/12	1600	1260272
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/05/12	1700	1260283
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/05/12	1700	1260280

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-259
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24225	Project:	ESHL00210
Sample ID:	314443005	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 120.1	
3	EPA 150.1	
4	EPA 300.0	
5	EPA 300.0	
6	EPA 350.1	
7	EPA 353.2	
8	EPA 365.4	
9	EPA 351.2	
10	EPA 160.1	
11	EPA 310.1	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-259

Client Sample ID:	CAMO-13-24244	Project:	ESHL00210
Sample ID:	314443006	Client ID:	ARSL001
Matrix:	W		
Collect Date:	31-OCT-12 10:42		
Receive Date:	02-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.744	0.330	1.00	mg/L	1	TSM	11/09/12	0930	1260735	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl		0.188	0.035	0.100	mg/L	1	KLP1	11/06/12	1418	1260284	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/05/12	1700	1260283

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-259

Client Sample ID:	CAMO-13-24261	Project:	ESHL00210
Sample ID:	314443007	Client ID:	ARSL001
Matrix:	W		
Collect Date:	31-OCT-12 10:42		
Receive Date:	02-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		488	1.00	1.00	umhos/cm	1	TXT1	11/20/12	1119	1265081	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 11.6C	H	7.84	0.010	0.100	SU	1	LXA1	11/06/12	0825	1260327	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Fluoride		0.283	0.033	0.100	mg/L	1	MAR1	11/13/12	0222	1259659	3
Chloride		41.9	0.335	1.00	mg/L	5	MAR1	11/13/12	2121	1259659	4
Sulfate		77.7	0.665	2.00	mg/L	5					
Bromide		0.257	0.067	0.200	mg/L	1	MAR1	11/13/12	2150	1259659	5
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	U	ND	0.017	0.050	mg/L	1	KLP1	11/06/12	0945	1260275	6
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		5.61	0.170	0.500	mg/L	10	AXH3	11/05/12	1142	1260238	7
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		4.03	0.085	0.250	mg/L	5	KLP1	11/06/12	1646	1260281	8
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		347	3.40	14.3	mg/L		LYG1	11/05/12	0758	1260149	9
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3	U	ND	0.725	1.00	mg/L		LXA1	11/12/12	1503	1262572	10
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/05/12	1600	1260272
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/05/12	1700	1260280

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-259
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24261	Project:	ESHL00210
Sample ID:	314443007	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 300.0	
5	EPA 300.0	
6	EPA 350.1	
7	EPA 353.2	
8	EPA 365.4	
9	EPA 160.1	
10	EPA 310.1	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 28, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **314443**

Parmname	NOM		Sample	Qual	QC	Units	RPD%		REC%	Range	Anlst	Date Time
Carbon Analysis												
Batch 1260735												
QC1202773872 314445001 DUP												
Total Organic Carbon Average		J	0.680	J	0.815	mg/L	18.1	^		(+/-1.00)	TSM	11/08/12 23:32
QC1202773876 LCS												
Total Organic Carbon Average	10.0				9.75	mg/L			97.5	(85%-115%)		11/08/12 18:41
QC1202773871 MB												
Total Organic Carbon Average				J	0.488	mg/L						11/08/12 18:32
QC1202773874 314445001 PS												
Total Organic Carbon Average	10.0	J	0.680		10.4	mg/L			97.7	(65%-120%)		11/08/12 23:52
Conductivity Analysis												
Batch 1265081												
QC1202784135 314340002 DUP												
Conductivity			195		196	umhos/cm	0.307			(0%-10%)	TXT1	11/20/12 11:15
QC1202784136 314445002 DUP												
Conductivity			141		140	umhos/cm	0.142			(0%-10%)		11/20/12 11:23
QC1202784137 LCS												
Conductivity	1410				1420	umhos/cm			101	(95%-105%)		11/20/12 10:55
Electrode Analysis												
Batch 1260327												
QC1202772818 314445002 DUP												
pH		H	8.06	H	8.04	SU	0.248			(0%-10%)	LXA1	11/06/12 08:30
QC1202772819 LCS												
pH	7.00				7.03	SU			100	(99%-101%)		11/06/12 08:15
Ion Chromatography												
Batch 1259659												
QC1202771232 314340002 DUP												
Bromide		J	0.143	J	0.143	mg/L	0.00	^		(+/-0.200)	MAR1	11/13/12 18:56
Chloride			7.86		7.94	mg/L	1.03			(0%-20%)		11/12/12 23:00
Fluoride			0.224		0.220	mg/L	1.44	^		(+/-0.100)		
Sulfate			13.3		13.2	mg/L	0.107			(0%-20%)		
QC1202771234 LCS												
Bromide	2.50				2.47	mg/L			98.8	(90%-110%)		11/13/12 17:58
Chloride	10.0				9.24	mg/L			92.4	(90%-110%)		11/12/12 22:02
Fluoride	5.00				4.82	mg/L			96.5	(90%-110%)		
Sulfate	20.0				18.9	mg/L			94.7	(90%-110%)		
QC1202771231 MB												
Bromide				U	ND	mg/L						11/13/12 17:29
Chloride				U	ND	mg/L						11/12/12 21:33
Fluoride				U	ND	mg/L						
Sulfate				U	ND	mg/L						
QC1202771233 314340002 PS												

QC Summary

Workorder: 314443

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1259659											
Bromide	2.50	J	0.143		2.68	mg/L		101	(90%-110%)		11/13/12 19:25
Chloride	10.0		7.86		18.5	mg/L		107	(90%-110%)	MAR1	11/12/12 23:29
Fluoride	5.00		0.224		5.11	mg/L		97.7	(90%-110%)		
Sulfate	20.0		13.3		34.1	mg/L		104	(90%-110%)		
Nutrient Analysis											
Batch 1260238											
QC1202772593 314443005 DUP											
Nitrogen, Nitrate/Nitrite		U	ND	U	ND	mg/L	N/A			AXH3	11/05/12 11:39
QC1202772598 LCS											
Nitrogen, Nitrate/Nitrite	1.00				0.973	mg/L		97.3	(90%-110%)		11/05/12 11:15
QC1202772591 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					11/05/12 11:13
QC1202772596 314443005 PS											
Nitrogen, Nitrate/Nitrite	1.00	U	ND		0.998	mg/L		98.3	(90%-110%)		11/05/12 11:41
Batch 1260275											
QC1202772677 314340002 DUP											
Nitrogen, Ammonia		U	ND	U	ND	mg/L	N/A			KLP1	11/06/12 09:34
QC1202772678 314341002 DUP											
Nitrogen, Ammonia		U	ND	U	ND	mg/L	N/A				11/06/12 09:37
QC1202772683 LCS											
Nitrogen, Ammonia	1.00				1.06	mg/L		106	(90%-110%)		11/06/12 09:30
QC1202772676 MB											
Nitrogen, Ammonia				U	ND	mg/L					11/06/12 09:29
QC1202772679 314340002 MS											
Nitrogen, Ammonia	1.00	U	ND		1.09	mg/L		108	(90%-110%)		11/06/12 09:34
QC1202772680 314341002 MS											
Nitrogen, Ammonia	1.00	U	ND		1.02	mg/L		101	(90%-110%)		11/06/12 09:42
QC1202772681 314340002 MSD											
Nitrogen, Ammonia	1.00	U	ND		1.08	mg/L	0.922	107	(0%-15%)		11/06/12 09:35
QC1202772682 314341002 MSD											
Nitrogen, Ammonia	1.00	U	ND		0.980	mg/L	4.00	97.4	(0%-15%)		11/06/12 09:43
Batch 1260281											
QC1202772696 314340002 DUP											
Phosphorus, Total as P			0.327		0.331	mg/L	1.22		(0%-31%)	KLP1	11/06/12 16:31
QC1202772701 LCS											
Phosphorus, Total as P	1.00				1.07	mg/L		107	(76%-120%)		11/06/12 16:21
QC1202772694 MB											
Phosphorus, Total as P				J	0.0459	mg/L					11/06/12 16:20
QC1202772698 314340002 MS											
Phosphorus, Total as P	1.00		0.327		1.20	mg/L		87.3	(62%-139%)		11/06/12 16:32
QC1202772700 314340002 MSD											
Phosphorus, Total as P	1.00		0.327		1.18	mg/L	1.68	85.3	(0%-20%)		11/06/12 16:33
Batch 1260284											
QC1202772708 314340001 DUP											
Nitrogen, Total Kjeldahl		J	0.0596	J	0.0894	mg/L	40.0 ^		(+/-0.100)	KLP1	11/06/12 14:13
QC1202772711 LCS											

QC Summary

Workorder: 314443

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis											
Batch 1260284											
Nitrogen, Total Kjeldahl	1.00				0.942	mg/L		94.2	(90%-110%)		11/06/12 14:12
QC1202772707 MB											
Nitrogen, Total Kjeldahl				J	0.0602	mg/L				KLP1	11/06/12 14:11
QC1202772709 314340001 MS											
Nitrogen, Total Kjeldahl	1.00	J	0.0596		0.908	mg/L		84.8 *	(90%-110%)		11/06/12 14:14
QC1202772710 314340001 MSD											
Nitrogen, Total Kjeldahl	1.00	J	0.0596		1.02	mg/L	11.6	96	(0%-20%)		11/06/12 14:15
Solids Analysis											
Batch 1260149											
QC1202772397 314445004 DUP											
Total Dissolved Solids			303		317	mg/L	4.61		(0%-10%)	LYG1	11/05/12 07:58
QC1202772398 314529002 DUP											
Total Dissolved Solids			456		439	mg/L	3.83		(0%-10%)		11/05/12 07:58
QC1202772399 LCS											
Total Dissolved Solids	300				287	mg/L		95.7	(95%-105%)		11/05/12 07:58
QC1202772396 MB											
Total Dissolved Solids				U	ND	mg/L					11/05/12 07:58
Titration Analysis											
Batch 1262572											
QC1202778371 314340002 DUP											
Alkalinity, Total as CaCO3			53.1		53.6	mg/L	1.01		(0%-20%)	LXA1	11/12/12 14:32
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A				
QC1202778366 LCS											
Alkalinity, Total as CaCO3	50.0				53.1	mg/L		106	(90%-110%)		11/12/12 12:31
QC1202778372 314340002 MS											
Alkalinity, Total as CaCO3	50.0		53.1		105	mg/L		104	(80%-120%)		11/12/12 14:34

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E Organics--Concentration of the target analyte exceeds the instrument calibration range
- F Estimated Value
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed

QC Summary

Workorder: 314443

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

	invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DER Report No.: 1137073
Revision No.:

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
06-NOV-12	Industrial	Specifications	Process
Instrument Type: LACHAT Flow Injection Analyzer	**Test / Method:** EPA 351.2	**Matrix Type:** Liquid	**Client Code:** ESHL
Batch ID: 1260284	**Sample Numbers:** See Below		

Potentially affected work order(s)(SDG): 314340(2013-246),314341(2013-247),314443(2013-259),314445(2013-258),314528(2013-265),314529(2013-264)

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS/PS: QC 1202772709MS	1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits.

Originator's Name:
Kristen Parson 06-NOV-12

Data Validator/Group Leader:
Thomas Lewis 27-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
15-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ESHL, FBWP, TRIA
Batch ID:	**Sample Numbers:**		
1260327	See below.		

Potentially affected work order(s)(SDG): **314440(2013-263),314443(2013-259),314445(2013-258),314506,314519,314528(2013-265),314529(2013-264)**

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 314440 001 314443 002,005,007 314445 002,004 314506 001 314519 006,013 314528 002 314529 002	1. Samples were received out of holding.

Originator's Name:
Lisa Gregory 15-NOV-12

Data Validator/Group Leader:
Julia Hamilton 15-NOV-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-259
Work Order 314443

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1259850

Sample ID	Client ID
314443005	CAMO-13-24225
314443006	CAMO-13-24244
1202771681	Method Blank (MB)
1202771682	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202771683	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202771681 (MB) and 1202771683 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314443005 (CAMO-13-24225). The QC was from ARSL work order 314443.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1259851

Sample ID	Client ID
314443005	CAMO-13-24225
314443006	CAMO-13-24244
1202771684	Method Blank (MB)
1202771686	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202771688	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202771684 (MB) and 1202771688 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314443005 (CAMO-13-24225). The QC was from ARSL work order 314443.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER 1142000 was generated due to RDL less than MDA. 1. Samples 314443006, 314445001, 314445003, and 314529001 did not meet the detection limits for Pu-239/240 due to the high standard deviation and lower tracer yield recovery. 1. When a blank population is performed, the MDA is greater than the RDL due to the high standard deviation. Samples do meet the client requested yield requirements and were counted for 1000 minutes. Reporting results.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1259852

Sample ID	Client ID
314443005	CAMO-13-24225
314443006	CAMO-13-24244
1202771689	Method Blank (MB)
1202771691	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202771693	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202771689 (MB) and 1202771693 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314443005 (CAMO-13-24225). The QC was from ARSL work order

314443.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1260199

Sample ID	Client ID
314443005	CAMO-13-24225
314443006	CAMO-13-24244
1202772494	Method Blank (MB)
1202772495	314528001(CAMO-13-24279) Sample Duplicate (DUP)
1202772496	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in June 2012, July 2012 and August 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314528001 (CAMO-13-24279). The QC was from ARSL work order 314528.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank 1202772494 (MB) result is greater than 1.65 times the CSU but less than the MDC for Co-60.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank 1202772494 (MB) result is greater than the decision level but less than the MDC for Co-60.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1260884

Sample ID	Client ID
314443005	CAMO-13-24225
314443006	CAMO-13-24244
1202774230	Method Blank (MB)
1202774231	314445001(CAMO-13-24241) Sample Duplicate (DUP)
1202774232	314445001(CAMO-13-24241) Matrix Spike (MS)
1202774233	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202774230 (MB) and 1202774233 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314445001 (CAMO-13-24241). The QC was from ARSL work order 314445.

QC Information

All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202774231 (CAMO-13-24241) was recounted due to high MDC. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202774232 (CAMO-13-24241), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1260898

Sample ID	Client ID
314443005	CAMO-13-24225
314443006	CAMO-13-24244
1202774275	Method Blank (MB)
1202774276	314136001(CAPA-12-23808) Sample Duplicate (DUP)
1202774277	314136001(CAPA-12-23808) Matrix Spike (MS)
1202774278	314136001(CAPA-12-23808) Matrix Spike Duplicate (MSD)
1202774279	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in September 2011. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202774275 (MB) and 1202774279 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314136001 (CAPA-12-23808). The QC was from ARSL work order 314136.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202774276 (CAPA-12-23808) was recounted due to high MDC. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike and matrix spike duplicate, 1202774277 (CAPA-12-23808) and 1202774278 (CAPA-12-23808), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-H-3**
Analytical Method:	EPA 906.0 Modified
Analytical Batch Number:	1260474

Sample ID	Client ID
314443005	CAMO-13-24225
314443006	CAMO-13-24244
1202773257	Method Blank (MB)
1202773258	314529001(CASA-13-24215) Sample Duplicate (DUP)
1202773259	314529001(CASA-13-24215) Matrix Spike (MS)
1202773260	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-002 REV# 20.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in August 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314529001 (CASA-13-24215). The QC was from ARSL work order 314529.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 314443006 (CAMO-13-24244) was recounted to verify sample results. The recount is similar to the original count. The original count is being reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-259 GEL Work Order: 314443

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Heather M. McCarty **Name:** **Heather McCarty**

Date: **27 NOV 2012** **Title:** **Analyst II**

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
19-NOV-12	Radiochemistry	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ALPHA SPECTROMETER	DOE EML HASL-300, Pu-11-RC Modified	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1259851	See Below		

Potentially affected work order(s)(SDG): **314340(2013-246),314341(2013-247),314443(2013-259),314445(2013-258),314528(2013-265),314529(2013-264)**

Application Issues:

RDL less than MDA

Specification and Requirements Exception Description:	DER Disposition:
1. Samples 314443006, 314445001, 314445003, and 314529001 did not meet the detection limits for Pu-239/240 due to the high standard deviation and lower tracer yield recovery.	1. When a blank population is performed, the MDA is greater than the RDL due to the high standard deviation. Samples do meet the client requested yield requirements and were counted for 1000 minutes. Reporting results.

Originator's Name:
Jessica Downey 19-NOV-12

Data Validator/Group Leader:
Jessica Davis 21-NOV-12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 27, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24225
Sample ID: 314443005
Matrix: W
Collect Date: 31-OCT-12
Receive Date: 02-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.00252	+/-0.00564	0.0287	+/-0.00564	0.050	pCi/L		LYS1	11/12/12	1058	1259852	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.00497	+/-0.00497	0.0239	+/-0.00497	0.050	pCi/L		LYS1	11/12/12	1059	1259851	2
Plutonium-239/240	U	-0.00248	+/-0.00555	0.0397	+/-0.00556	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234	U	-0.0173	+/-0.00984	0.0688	+/-0.00984	1.00	pCi/L		LYS1	11/12/12	1050	1259850	3
Uranium-235/236	U	0.00733	+/-0.00733	0.043	+/-0.00735	1.00	pCi/L						
Uranium-238	U	0.00	+/-0.00593	0.0467	+/-0.00594	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-0.716	+/-1.63	5.77	+/-1.63	8.00	pCi/L		KXG3	11/07/12	1012	1260199	4
Cobalt-60	U	-1.54	+/-1.64	5.78	+/-1.64	8.00	pCi/L						
Neptunium-237	U	-4.26	+/-3.35	11.0	+/-3.35	10.0	pCi/L						
Potassium-40	U	-4.66	+/-16.3	62.5	+/-16.3	10.0	pCi/L						
Sodium-22	U	-0.613	+/-1.79	6.59	+/-1.79	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	-0.228	+/-0.136	0.482	+/-0.136	0.500	pCi/L		VXC2	11/20/12	1625	1260884	5
WSP-GrossA/B "As Received"													
Beta	U	-1.44	+/-0.740	2.98	+/-0.740	3.00	pCi/L		BXF1	11/15/12	1317	1260898	6
Alpha	U	-0.315	+/-0.541	2.52	+/-0.541	3.00	pCi/L		BXF1	11/17/12	1625	1260898	7
Rad Liquid Scintillation Analysis													
WSP-H-3 "As Received"													
Tritium	U	57.2	+/-46.2	154	+/-46.6	200	pCi/L		BYS1	11/09/12	2024	1260474	8

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310
8	EPA 906.0 Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1259852	93.1	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1259851	89.0	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 27, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24225
Sample ID: 314443005

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1259850	75.3	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1260884	89.3	(50%-105%)

Notes:
TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 27, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24244
Sample ID: 314443006
Matrix: W
Collect Date: 31-OCT-12
Receive Date: 02-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.00286	+/-0.00756	0.0325	+/-0.00756	0.050	pCi/L		LYS1	11/12/12	1058	1259852	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.00723	+/-0.00723	0.0347	+/-0.00724	0.050	pCi/L		LYS1	11/12/12	1059	1259851	2
Plutonium-239/240	U	0.00	+/-0.00511	0.0577	+/-0.00511	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.590	+/-0.0449	0.0704	+/-0.0597	1.00	pCi/L		LYS1	11/12/12	1050	1259850	3
Uranium-235/236	U	0.00	+/-0.00919	0.044	+/-0.00919	1.00	pCi/L						
Uranium-238		0.222	+/-0.0273	0.0478	+/-0.031	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	0.508	+/-1.71	6.24	+/-1.71	8.00	pCi/L		KXG3	11/07/12	1012	1260199	4
Cobalt-60	U	-0.544	+/-1.58	5.82	+/-1.58	8.00	pCi/L						
Neptunium-237	U	1.57	+/-3.24	11.4	+/-3.24	10.0	pCi/L						
Potassium-40	U	-34.6	+/-16.0	53.0	+/-16.0	10.0	pCi/L						
Sodium-22	U	-0.711	+/-1.44	5.30	+/-1.44	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.235	+/-0.145	0.481	+/-0.146	0.500	pCi/L		VXC2	11/20/12	1625	1260884	5
WSP-GrossA/B "As Received"													
Beta	U	0.769	+/-0.700	2.44	+/-0.703	3.00	pCi/L		BXF1	11/15/12	1312	1260898	6
Alpha	U	0.526	+/-0.703	2.64	+/-0.706	3.00	pCi/L		BXF1	11/17/12	1639	1260898	7
Rad Liquid Scintillation Analysis													
WSP-H-3 "As Received"													
Tritium		317	+/-52.0	157	+/-60.7	200	pCi/L		BYS1	11/09/12	2225	1260474	8

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310
8	EPA 906.0 Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1259852	78.2	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1259851	60.0	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1259850	71.6	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 27, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24244
Sample ID: 314443006

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1260884	82.3	(50%-105%)

Notes:
TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

QC Summary

Report Date: November 27, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico
Contact: **Keith Greene**

Workorder: **314443**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1259850										
QC1202771682 314443005 DUP										
Uranium-234	U	-0.0173	U	-0.00844	pCi/L	0.187		(0-1)	LYS1	11/12/1210:50
	Uncert:	+/-0.00984		+/-0.0139						
	TPU:	+/-0.00984		+/-0.0139						
Uranium-235/236	U	0.00733	U	0.00735	pCi/L	0.000488		(0-1)		
	Uncert:	+/-0.00733		+/-0.009						
	TPU:	+/-0.00735		+/-0.00901						
Uranium-238	U	0.00	U	0.00	pCi/L	0.00		(0-1)		
	Uncert:	+/-0.00593		+/-0.00841						
	TPU:	+/-0.00594		+/-0.00841						
**Uranium-232 Tracer	2.73	2.06		1.93	pCi/L		70.8	(50%-105%)		
	Uncert:	+/-0.0913		+/-0.0907						
	TPU:	+/-0.201		+/-0.201						
QC1202771683 LCS										
Uranium-234				2.73	pCi/L				LYS1	11/12/1210:50
	Uncert:			+/-0.0831						
	TPU:			+/-0.199						
Uranium-235/236				0.117	pCi/L					
	Uncert:			+/-0.0204						
	TPU:			+/-0.0218						
Uranium-238	2.70			2.80	pCi/L		103	(80%-120%)		
	Uncert:			+/-0.0836						
	TPU:			+/-0.202						
**Uranium-232 Tracer	2.19			1.49	pCi/L		68.4	(50%-105%)		
	Uncert:			+/-0.0746						
	TPU:			+/-0.162						
QC1202771681 MB										
Uranium-234			U	-0.0191	pCi/L				LYS1	11/12/1210:50
	Uncert:			+/-0.00958						
	TPU:			+/-0.00958						
Uranium-235/236			U	0.00611	pCi/L					
	Uncert:			+/-0.00611						
	TPU:			+/-0.00613						
Uranium-238			U	0.00	pCi/L					
	Uncert:			+/-0.00606						
	TPU:			+/-0.00606						
**Uranium-232 Tracer	2.19			1.56	pCi/L		71.4	(50%-105%)		
	Uncert:			+/-0.0742						
	TPU:			+/-0.162						
Batch 1259851										
QC1202771686 314443005 DUP										
Plutonium-238	U	0.00497	U	-0.00289	pCi/L	0.344		(0-1)	LYS1	11/12/1210:59
	Uncert:	+/-0.00497		+/-0.00647						

QC Summary

Workorder: 314443

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1259851										
	TPU:	+/-0.00497		+/-0.00647						
Plutonium-239/240	U	-0.00248	U	0.00868	pCi/L	0.464		(0-1)		
	Uncert:	+/-0.00555		+/-0.00647						
	TPU:	+/-0.00556		+/-0.00648						
**Plutonium-242 Tracer	2.43	2.16		1.87	pCi/L		77.1	(50%-105%)		
	Uncert:	+/-0.0779		+/-0.0843						
	TPU:	+/-0.130		+/-0.138						
QC1202771688 LCS										
Plutonium-238			U	0.00506	pCi/L			(80%-120%)	LYS1	11/12/1210:59
	Uncert:			+/-0.0062						
	TPU:			+/-0.0062						
Plutonium-239/240	2.03			2.27	pCi/L		112	(80%-120%)		
	Uncert:			+/-0.0759						
	TPU:			+/-0.130						
**Plutonium-242 Tracer	1.94			1.36	pCi/L		70.1	(50%-105%)		
	Uncert:			+/-0.0705						
	TPU:			+/-0.114						
QC1202771684 MB										
Plutonium-238			U	-0.00491	pCi/L				LYS1	11/12/1210:59
	Uncert:			+/-0.00491						
	TPU:			+/-0.00491						
Plutonium-239/240			U	-0.00245	pCi/L					
	Uncert:			+/-0.00425						
	TPU:			+/-0.00425						
**Plutonium-242 Tracer	1.94			1.41	pCi/L		72.3	(50%-105%)		
	Uncert:			+/-0.0692						
	TPU:			+/-0.113						
Batch 1259852										
QC1202771691 314443005 DUP										
Americium-241	U	0.00252	U	-0.00298	pCi/L	0.255		(0-1)	LYS1	11/12/1210:59
	Uncert:	+/-0.00564		+/-0.00516						
	TPU:	+/-0.00564		+/-0.00517						
**Americium-243 Tracer	2.60	2.42		1.96	pCi/L		75.3	(50%-105%)		
	Uncert:	+/-0.0808		+/-0.0877						
	TPU:	+/-0.138		+/-0.146						
QC1202771693 LCS										
Americium-241	1.41			1.49	pCi/L		106	(80%-120%)	LYS1	11/12/1210:59
	Uncert:			+/-0.0544						
	TPU:			+/-0.0833						
**Americium-243 Tracer	2.08			1.83	pCi/L		88.1	(50%-105%)		
	Uncert:			+/-0.0638						
	TPU:			+/-0.109						
QC1202771689 MB										
Americium-241			U	0.00	pCi/L				LYS1	11/12/1210:59
	Uncert:			+/-0.00561						
	TPU:			+/-0.00561						
**Americium-243 Tracer	2.08			1.84	pCi/L		88.5	(50%-105%)		
	Uncert:			+/-0.0639						
	TPU:			+/-0.109						

QC Summary

Workorder: 314443

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1260199										
QC1202772495 314528001 DUP										
Cesium-137	U	1.76	U	-0.106	pCi/L	0.378		(0-1)	KXG3	11/08/1208:59
	Uncert:	+/-1.34		+/-1.13						
	TPU:	+/-1.34		+/-1.13						
Cobalt-60	U	0.442	U	-1.04	pCi/L	0.293		(0-1)		
	Uncert:	+/-1.30		+/-1.24						
	TPU:	+/-1.30		+/-1.24						
Neptunium-237	U	-0.20	U	1.91	pCi/L	0.217		(0-1)		
	Uncert:	+/-2.48		+/-2.37						
	TPU:	+/-2.48		+/-2.37						
Potassium-40	U	-29.9	U	-1.61	pCi/L	0.459		(0-1)		
	Uncert:	+/-16.8		+/-14.0						
	TPU:	+/-16.8		+/-14.0						
Sodium-22	U	-1.35	U	-1.23	pCi/L	0.0237		(0-1)		
	Uncert:	+/-1.46		+/-0.974						
	TPU:	+/-1.46		+/-0.974						
QC1202772496 LCS										
Americium-241	2780			2920	pCi/L		105	(80%-120%)	KXG3	11/08/1212:19
	Uncert:			+/-163						
	TPU:			+/-163						
Cesium-137	6090			6310	pCi/L		104	(80%-120%)		
	Uncert:			+/-264						
	TPU:			+/-264						
Cobalt-60	5670			5730	pCi/L		101	(80%-120%)		
	Uncert:			+/-241						
	TPU:			+/-241						
Neptunium-237			U	32.7	pCi/L					
	Uncert:			+/-21.0						
	TPU:			+/-21.0						
Potassium-40			U	-60.9	pCi/L					
	Uncert:			+/-46.6						
	TPU:			+/-46.6						
Sodium-22			U	-0.12	pCi/L					
	Uncert:			+/-6.61						
	TPU:			+/-6.61						
QC1202772494 MB										
Cesium-137			U	-0.192	pCi/L				KXG3	11/07/1210:58
	Uncert:			+/-1.11						
	TPU:			+/-1.11						
Cobalt-60			U	2.16	pCi/L					
	Uncert:			+/-1.07						
	TPU:			+/-1.07						
Neptunium-237			U	-0.975	pCi/L					
	Uncert:			+/-2.08						
	TPU:			+/-2.08						
Potassium-40			U	-6.92	pCi/L					
	Uncert:			+/-13.7						
	TPU:			+/-13.7						
Sodium-22			U	0.849	pCi/L					

QC Summary

Workorder: 314443

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1260199										
Uncert:				+/-0.975						
TPU:				+/-0.975						
Rad Gas Flow										
Batch 1260884										
QC1202774231 314445001 DUP										
Strontium-90	U	0.224	U	-0.222	pCi/L	0.800		(0-1)	VXC2	11/24/1211:55
Uncert:		+/-0.147		+/-0.130						
TPU:		+/-0.148		+/-0.130						
**Strontium Carrier	7.17	6.40		6.20	mg		86.5	(50%-105%)		
QC1202774233 LCS										
Strontium-90	24.8			24.1	pCi/L		96.9	(80%-120%)	VXC2	11/21/1217:03
Uncert:				+/-0.597						
TPU:				+/-2.04						
**Strontium Carrier	7.17			6.00	mg		83.7	(50%-105%)		
QC1202774230 MB										
Strontium-90			U	-0.0606	pCi/L				VXC2	11/21/1217:02
Uncert:				+/-0.0614						
TPU:				+/-0.0614						
**Strontium Carrier	7.17			6.60	mg		92.1	(50%-105%)		
QC1202774232 314445001 MS										
Strontium-90	124 U	0.224		126	pCi/L		101	(75%-125%)	VXC2	11/21/1217:03
Uncert:		+/-0.147		+/-2.95						
TPU:		+/-0.148		+/-10.4						
**Strontium Carrier	7.17	6.40		6.40	mg		89.3	(50%-105%)		
Batch 1260898										
QC1202774276 314136001 DUP										
Alpha	U	0.899	U	0.189	pCi/L	0.288		(0-1)	BXF1	11/17/1216:40
Uncert:		+/-0.682		+/-0.545						
TPU:		+/-0.686		+/-0.545						
Beta	U	0.924	U	-1.31	pCi/L	0.667		(0-1)		11/16/1208:56
Uncert:		+/-0.855		+/-0.816						
TPU:		+/-0.859		+/-0.816						
QC1202774279 LCS										
Alpha	12.0			11.5	pCi/L		96	(80%-120%)	BXF1	11/18/1219:49
Uncert:				+/-0.620						
TPU:				+/-1.15						
Beta	49.7			45.8	pCi/L		92.2	(80%-120%)		11/15/1213:21
Uncert:				+/-0.882						
TPU:				+/-3.90						
QC1202774275 MB										
Alpha			U	0.00668	pCi/L				BXF1	11/17/1216:41
Uncert:				+/-0.0924						
TPU:				+/-0.0925						
Beta			U	0.0423	pCi/L					11/15/1213:19
Uncert:				+/-0.096						
TPU:				+/-0.0961						
QC1202774277 314136001 MS										
Alpha	481 U	0.899		408	pCi/L		84.7	(75%-125%)	BXF1	11/17/1216:40

QC Summary

Workorder: 314443

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1260898										
	Uncert:	+/-0.682		+/-23.0						
	TPU:	+/-0.686		+/-41.4						
Beta	1990 U	0.924		1730	pCi/L		87.2	(75%-125%)		11/15/1213:20
	Uncert:	+/-0.855		+/-34.2						
	TPU:	+/-0.859		+/-151						
QC1202774278 314136001 MSD										
Alpha	481 U	0.899		370	pCi/L	0.236	76.9	(0-1)	BXF1	11/17/1216:40
	Uncert:	+/-0.682		+/-21.5						
	TPU:	+/-0.686		+/-37.6						
Beta	1990 U	0.924		1850	pCi/L	0.193	93.2	(0-1)		11/15/1213:21
	Uncert:	+/-0.855		+/-36.3						
	TPU:	+/-0.859		+/-158						
Rad Liquid Scintillation										
Batch 1260474										
QC1202773258 314529001 DUP										
Tritium	U	56.6	U	55.7	pCi/L	0.00467		(0-1)	BYS1	11/11/1221:23
	Uncert:	+/-45.7		+/-46.7						
	TPU:	+/-46.0		+/-47.0						
QC1202773260 LCS										
Tritium	2010			2150	pCi/L		107	(80%-120%)	BYS1	11/11/1223:40
	Uncert:			+/-200						
	TPU:			+/-291						
QC1202773257 MB										
Tritium			U	-17.1	pCi/L				BYS1	11/11/1219:21
	Uncert:			+/-45.2						
	TPU:			+/-45.2						
QC1202773259 314529001 MS										
Tritium	2010 U	56.6		1650	pCi/L		82.1	(75%-125%)	BYS1	11/11/1223:24
	Uncert:	+/-45.7		+/-178						
	TPU:	+/-46.0		+/-241						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value

QC Summary

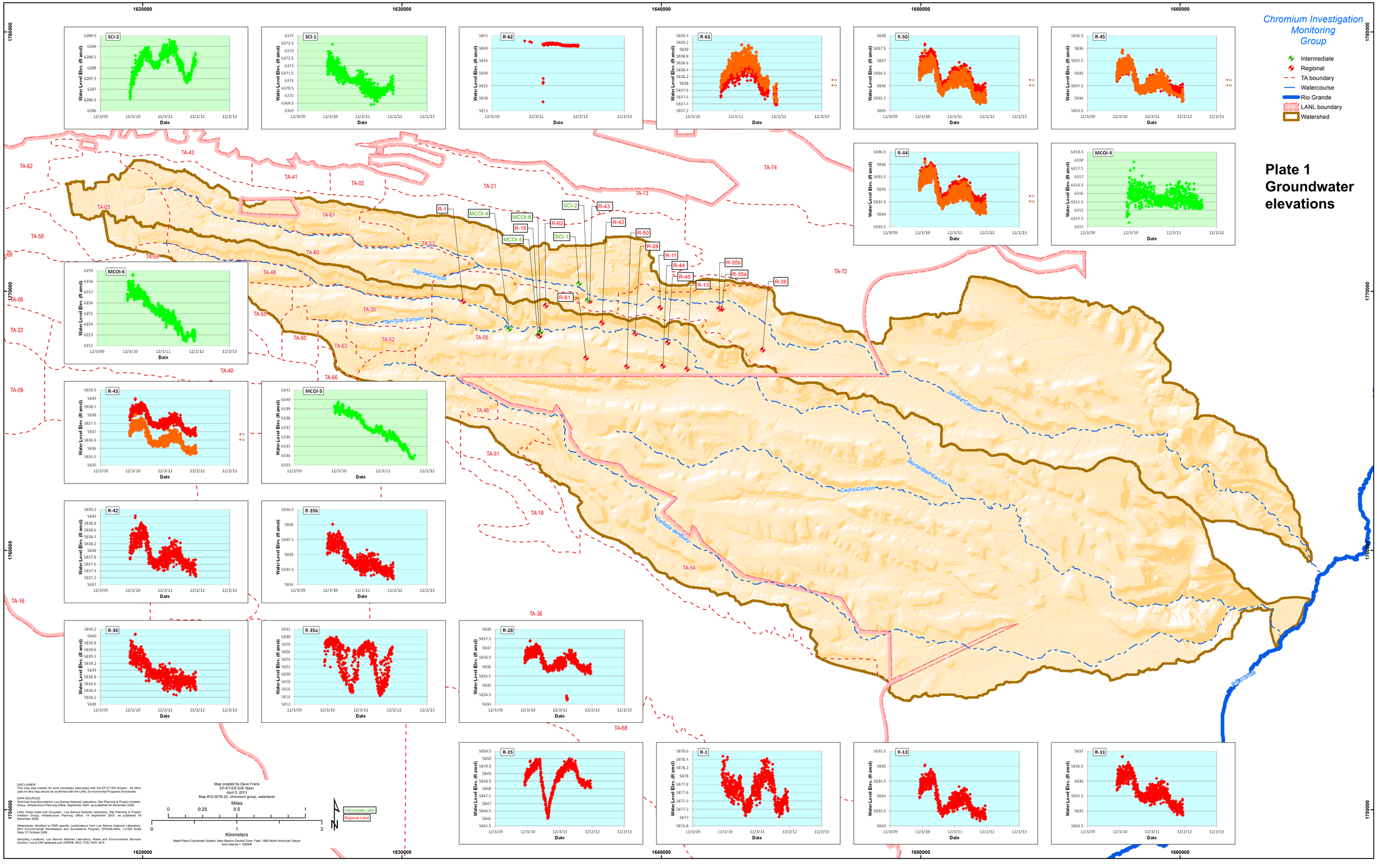
Workorder: **314443**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.


Chromium Investigation Monitoring Group
Intermediate
Regional
TA boundary
Watercourse
Rio Grande
LANL boundary
Watershed
Plate 1
Groundwater elevations
SCI-2
SCI-1
R-62
R-61
R-50
R-45
R-44
MCOI-4
MCOI-6
R-43
MCOI-5
R-42
R-35b
R-36
R-35a
R-28
R-15
R-1
R-13
R-11
Sigma Canyon
Ten Site Canyon
Sandia Canyon
Mortandad Canyon
Cedro Canyon
Canada del Buey
Rio Grande
TA-43
TA-41
TA-02
TA-21
TA-73
TA-74
TA-62
TA-03
TA-61
TA-58
TA-59
TA-60
TA-53
TA-48
TA-06
TA-22
TA-55
TA-35
TA-50
TA-63
TA-52
TA-05
TA-72
TA-40
TA-09
TA-66
TA-46
TA-51
TA-18
TA-54
TA-16
TA-36
TA-68
Water Level Elev. (ft amsl)
Date
12/3/09
12/3/10
12/3/11
12/2/12
12/2/13
1620000
1630000
1640000
1650000
1660000
1780000
1770000
1760000
1750000
DISCLAIMER:
This map was created for work processes associated with the EP-ET-ER division. All other uses for this map should be confirmed with the LANL Environmental Programs Directorate.
DATA SOURCES:
Technical Area Boundaries; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Office; September 2007; as published 04 December 2008.
LANL Areas Used and Occupied ; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Office; 19 September 2007; as published 04 December 2008.
Watersheds: Modified to PMR specific combinations from Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; EP2006-0842; 1:2,500 Scale Data; 27 October 2006
Sampling Locations; Los Alamos National Laboratory, Waste and Environmental Services Division; Locus EIM database pull; ERRPM_PKG-1729, PKG-1872.
Map created by Dave Frank
EP-ET-ER GIS Team
April 3, 2013
Map #12-0076-22, chromium group, waterlevel
Miles
0
0.25
0.5
1
Kilometers
0
1
2
Intermediate Label
Regional Label
State Plane Coordinate System, New Mexico Central Zone, Feet, 1983 North American Datum
Grid interval = 10000ft

LA-UR-13-23334
May 2013
EP2013-0084

Periodic Monitoring Report for Material Disposal Area C Monitoring Group, October 30–November 16, 2012

Los Alamos
NATIONAL LABORATORY

Prepared by the Environmental Programs Directorate

Los Alamos National Laboratory, operated by Los Alamos National Security, LLC, for the U.S. Department of Energy under Contract No. DE-AC52-06NA25396, has prepared this document pursuant to the Compliance Order on Consent, signed March 1, 2005. The Compliance Order on Consent contains requirements for the investigation and cleanup, including corrective action, of contamination at Los Alamos National Laboratory. The U.S. government has rights to use, reproduce, and distribute this document. The public may copy and use this document without charge, provided that this notice and any statement of authorship are reproduced on all copies.

EP2013-0084

Periodic Monitoring Report for Material Disposal Area C Monitoring Group, October 30–November 16, 2012

May 2013

Responsible project manager:

Printed Name	Signature	Title	Organization	Date
Steve Paris		Project Manager	Environmental Programs	5/21/13

Responsible LANS representative:

Printed Name	Signature	Title	Organization	Date
Jeff Mousseau		Associate Director	Environmental Programs	5/20/13

Responsible DOE representative:

Printed Name	Signature	Title	Organization	Date
Peter Maggiore		Assistant Manager	DOE-NA-00-LA	5-28-2013

EXECUTIVE SUMMARY

This periodic monitoring report (PMR) provides the results of the fiscal year 2013, first quarter, periodic monitoring event (PME) conducted by Los Alamos National Laboratory in the Material Disposal Area (MDA) C monitoring group. This PME was conducted pursuant to the Interim Facility-Wide Groundwater Monitoring Plan for the 2013 Monitoring Year, October 2012–September 2013, prepared in accordance with the Compliance Order on Consent.

The PME documented in this report occurred from October 30 to November 16, 2012, and included the monitoring of groundwater wells and well screens. Any additional results from sampling that occurred outside the time frame of a PME are also included in this report. No results from samples collected during previous PMEs that were unreported in their respective PMRs are included in this report.

Water samples collected from various locations during this PME were analyzed for metals; volatile organic compounds; semivolatile organic compounds; high explosives; radionuclides; low-level tritium; general inorganic chemicals, including perchlorate; stable isotopes; and field parameters (alkalinity, dissolved oxygen, pH, specific conductance, temperature, and turbidity).

No surface-water locations are sampled for this monitoring group.

No results from previous sampling of MDA C monitoring group PME monitoring locations are reported in this PMR. One result from current PME groundwater samples reported in this PMR was above screening levels.

CONTENTS

1.0 INTRODUCTION 1
1.1 Background 1
2.0 SCOPE OF ACTIVITIES 2
3.0 MONITORING RESULTS 2
3.1 Methods and Procedures 2
3.2 Field Parameter Results 2
3.3 Groundwater Elevations 2
3.4 Deviations from Planned Scope 2
4.0 ANALYTICAL DATA RESULTS 2
4.1 Methods and Procedures 2
4.2 Analytical Data 4
4.2.1 Surface Water (Base Flow) 5
4.2.2 Groundwater 5
4.3 Sampling Program Modifications 6
5.0 SUMMARY AND INTERPRETATIONS 6
5.1 Monitoring Results 6
5.2 Analytical Results 6
5.2.1 Surface Water (Base Flow) 6
5.2.2 Groundwater 6
5.3 Data Gaps 6
5.4 Remediation System Monitoring 6
6.0 REFERENCES 6

Figures

Figure 2.0-1 Locations scheduled to be monitored for this PME 9
Figure 3.3-1 Groundwater elevations 10

Tables

Table 2.0-1 MDA C Monitoring Group Locations and General Information 11
Table 3.4-1 MDA C Monitoring Group PME Observations and Deviations 11
Table 3.4-2 Analytes with PQLs above Screening Levels 11
Table 4.2-1 Sources of Screening Levels for Groundwater and Surface Water at Los Alamos National Laboratory 13
Table 4.2-2 MDA C Monitoring Group Groundwater Results above Screening Levels 13

Appendixes

Appendix A	Field Parameter Results, Including Results from Previous Four Monitoring Events if Available
Appendix B	Groundwater-Elevation Measurements (on CD included with this document)
Appendix C	Analytical Chemistry Results, Including Results from Previous Four Monitoring Events if Available
Appendix D	Groundwater Results Greater Than Half of Screening Levels
Appendix E	Analytical Chemistry Graphs of Screening-Level Exceedances
Appendix F	Analytical Reports (on CD included with this document)

Acronyms and Abbreviations

amsl	above mean sea level
AQA	Analytical Quality Associates, Inc.
BCG	Biota Concentration Guide (DOE)
CAS	Chemical Abstracts Service
CFR	Code of Federal Regulations (U.S.)
Consent Order	Compliance Order on Consent
DCG	Derived Concentration Guide (DOE)
DOE	Department of Energy (U.S.)
EPA	Environmental Protection Agency (U.S.)
gpm	gallons per minute
IFGMP	Interim Facility-Wide Groundwater Monitoring Plan
LANL	Los Alamos National Laboratory
MCL	maximum contaminant level (EPA)
MCPA	2-methyl-4-chlorophenoxyacetic acid
MCPP	2-(4-chloro-2-methylphenoxy)propanoic acid
MDA	material disposal area
MDL	method detection limit
N	no (best value flag code)
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NMWQCC	New Mexico Water Quality Control Commission
PME	periodic monitoring event
PMR	periodic monitoring report
PQL	practical quantitation limit
QC	quality control
RPF	Records Processing Facility
SOP	standard operating procedure
TA	technical area
UF	unfiltered
Y	yes (best value flag code)

1.0 INTRODUCTION

This periodic monitoring report (PMR) provides documentation of fiscal year 2013, first quarter, semiannual groundwater monitoring conducted by Los Alamos National Laboratory (LANL or the Laboratory) in the Material Disposal Area (MDA) C monitoring group pursuant to the Interim Facility-Wide Groundwater Monitoring Plan for the 2013 Monitoring Year, October 2012–September 2013 (2013 IFGMP) (LANL 2012, 225493), prepared in accordance with the Compliance Order on Consent (the Consent Order). The periodic monitoring event (PME) occurred from October 30 to November 16, 2012, and included sampling of groundwater wells and well screens.

Any additional results from sampling that occurred outside the time frame of a PME are also included in this report. No results from samples collected during previous PMEs that were unreported in their respective PMRs are included in this report.

Sections VIII.A and VIII.C of the Consent Order identify New Mexico Water Quality Control Commission (NMWQCC) groundwater and surface-water standards, including alternative abatement standards and U.S. Environmental Protection Agency (EPA) drinking water maximum contaminant levels (MCLs), as cleanup levels for groundwater when corrective action is implemented. NMWQCC groundwater standards, MCLs, and EPA regional screening levels for tap water are used as screening levels for monitoring data and are provided in this report.

This report presents the following information:

- general background information on the monitoring group
- field-measurement monitoring results
- water-quality monitoring results
- screening analysis results (comparing these PME results with regulatory standards and results from previous reports)
- a summary based on the data and the screening analysis

Information on radioactive materials and radionuclides, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to the New Mexico Environment Department (NMED) in accordance with U.S. Department of Energy (DOE) policy.

1.1 Background

MDA C is located on Mesita del Buey in Technical Area 50 (TA-50), at the head of Ten Site Canyon. The MDA C monitoring group includes nearby regional monitoring wells on the mesa top and in Mortandad Canyon. TA-50 is bounded on the north by Effluent and Mortandad Canyons, on the east by the upper reaches of Ten Site Canyon, on the south by Twomile Canyon, and on the west by TA-55.

MDA C is an inactive 11.8-acre landfill consisting of 7 disposal pits and 108 shafts. Solid low-level radioactive wastes and chemical wastes were disposed of in the landfill between 1948 and 1974. The depths of the 7 pits at MDA C range from 12 ft to 25 ft below the original ground surface. The depths of the 108 shafts range from 10 ft to 25 ft below the original ground surface. The original ground surface is defined as beneath the cover that was placed over the site in 1984. The pits and shafts are constructed in the Tshirege Member of the Bandelier Tuff. The regional aquifer is estimated to be approximately 1330 ft deep based on the water level in well R-46 (LANL 2009, 105592). The topography of MDA C is relatively

flat, although the slope steepens to the north where the northeast corner of MDA C abuts the south wall of Ten Site Canyon.

Vapor-phase volatile organic compounds and tritium are present in the upper 500 ft of the unsaturated zone beneath MDA C (LANL 2011, 204370). The primary vapor-phase contaminants beneath MDA C are trichloroethene, tetrachloroethene, and tritium. There is no evidence of groundwater contamination in the regional aquifer. MDA C is located on a mesa top above thick, unsaturated units of the Bandelier Tuff; therefore, present-day aqueous-phase transport is generally believed to be minimal.

2.0 SCOPE OF ACTIVITIES

The PME for the MDA C monitoring group was conducted pursuant to the 2013 IFGMP (LANL 2012, 225493).

Table 2.0-1 provides the location name, sample collection date, screened interval, top and bottom screen depths, casing volume, purge volume, and purge rate for each of the locations scheduled to be monitored. These locations are shown in Figure 2.0-1. Some locations on this map may not have been sampled.

3.0 MONITORING RESULTS

3.1 Methods and Procedures

All methods and procedures used to perform the field activities associated with the PME are documented in the 2013 IFGMP (LANL 2012, 225493).

3.2 Field Parameter Results

Appendix A contains the field parameter results for this PME and the four previous PMEs.

3.3 Groundwater Elevations

The periodic monitoring water-level data for the previous 2 yr are presented in Appendix B (on CD included with this document). For wells equipped with transducers, the reported water level is the water-level measurement taken earliest on the day of sampling. All manual measurements were recorded immediately before sampling. The groundwater-elevation measurements are shown graphically in Figure 3.3-1. No surface-water locations are sampled for this monitoring group.

3.4 Deviations from Planned Scope

Table 3.4-1 describes the fieldwork deviations from the planned scope of the PME. Table 3.4-2 presents a list of analytes for which the practical quantitation limits (PQLs) are greater than screening levels.

4.0 ANALYTICAL DATA RESULTS

4.1 Methods and Procedures

All methods and procedures used to perform the analytical activities of the PME are documented in the 2013 IFGMP (LANL 2012, 225493). Purge water is managed and characterized in accordance with waste

profile form 39268, a copy of which was included in Appendix F of a previous PMR (LANL 2008, 103737), and ENV-RCRA-QP-010.2, Land Application of Groundwater. ENV-RCRA-QP-010.2 implements the NMED-approved Notice of Intent Decision Tree for land application of drilling, development, rehabilitation, and sampling of purge water.

All sampling, data reviews, and data package validations were conducted using standard operating procedures (SOPs) that are part of a comprehensive quality assurance program. The procedures are available at http://www.lanl.gov/community-environment/environmental-stewardship/plans-procedures.php. Completed chain-of-custody forms serve as analytical request forms and include the requester or owner, sample number, program code, date and time of sample collection, total number of bottles, list of analytes to be measured, bottle sizes, and preservatives for each required analysis.

The required analytical laboratory batch quality control (QC) is defined by the analytical method, the analytical statement of work, and generally accepted laboratory practices. The analytical laboratory assigns qualifiers to the data to indicate the quality of the analytical results. The laboratory batch QC is used in the secondary data validation process to evaluate the quality of individual analytical results, evaluate the appropriateness of the analytical methodologies, and measure the routine performance of the analytical laboratory.

In addition to batch QC performed by laboratories, the Laboratory submitted field QC samples to test the overall sampling and analytical laboratory process and to spot-check for analytical problems. These results are used in secondary validation along with information provided by the analytical laboratory.

After the Laboratory receives the analytical laboratory data packages, the packages receive secondary validation. For data collected before March 2012, validation was done by an independent contractor, Analytical Quality Associates, Inc. (AQA). After that date, validation is done by an automated process after data are loaded.

Data validation determines the quality of an analytical data set. Data validation focuses on specific quality assurance samples, such as matrix spikes, duplicates, surrogates, method banks, laboratory control samples, and holding times, which indicate the accuracy and precision of the analyses. Based on the results, data qualifiers are applied to indicate data quality issues as well as the usability of results. This process also includes a description of the reasons for any failure to meet method, procedural, or contractual requirements and an evaluation of the impact of such failure on the overall data set.

AQA's reviews follow the guidelines set in the DOE model SOP for data validation, which includes reviewing the data quality and the documentation's correctness and completeness, verifying that holding times were met, and ensuring that analytical laboratory QC measures were applied, documented, and kept within contract requirements. As a result of secondary validation, a second set of qualifiers was assigned to the analytical results.

Auto validation (1) ensures that the electronic data deliverable contains all the required fields, (2) verifies that results of all QC checks and procedures are within valid criteria limits, and (3) applies specific qualifiers and reason codes per the EPA's National Functional Guidelines for data review as well as the Laboratory's SOPs. Once auto validation is complete, the data are uploaded into the Laboratory's database system and the public database (http://intellusnmdata.com/).

The Laboratory assigns detection status to the analytical result based on the analytical laboratory and secondary validation qualifiers. A detect flag of "N" indicates that, based on the qualifiers, the result was not detected.

4.2 Analytical Data

Appendix C presents the analytical data from this PME and from the four sampling events at these locations immediately before the PME. The analytical laboratory reports (including chain-of-custody forms and data validation forms) are provided in Appendix F (on CD included with this document).

Appendix C contains all data collected during the PME (i.e., all data that have been independently reviewed for conformance with Laboratory requirements) with the following constraints.

- All data
  - Data that are R-qualified (rejected because of noncompliance regarding QC acceptance criteria) during independent validation are considered unusable but are still reported.
  - Analytical laboratory QC results, including matrix spike and matrix spike duplicates, and field blanks, trip blanks, and equipment blanks are not included in the data set.
  - Field duplicates, reanalyses, and results from different analytical methods are reported.
- Radionuclides
  - Only cesium-137, cobalt-60, neptunium-237, potassium-40, and sodium-22 are reported (or analyzed) for the gamma spectroscopy suite.
  - Americium-241 and uranium-235 are reported only by chemical separation alpha spectroscopy. No gamma spectroscopy results are presented for these analytes.
  - Otherwise, all results are reported at all locations.
- Nonradionuclides
  - All detected results are reported.

Multiple analyses of a sample, including dilutions and reanalyses, create redundant results. These multiple results have the same sample ID, analytical laboratory code, and analytical method. The analytical and validation information is used to designate the preferred result, which is marked with a best value flag of “Y” (yes). The redundant values of lower quality are assigned a best value flag of “N” (no). In cases where a reanalysis gives a significantly different result than an earlier value, the original result may be rejected and assigned a best value flag of N, and the reanalysis result may be marked with a best value flag of Y. The best value flag is included in Appendix C.

Data for PMRs are evaluated using the following screening process. The sources of screening levels with which the results are compared are listed in Table 4.2-1.

- The base-flow monitoring locations are assigned to one of two screening categories—perennial or ephemeral. Along with a hardness value, this category determines the screening levels used for data at each monitoring location. Hardness-dependent screening levels used to screen data at each base-flow monitoring location are determined using the geometric mean of hardness data (mg/L as calcium carbonate) collected from 2006 to 2010 at each location. Hardness-dependent acute and chronic criteria were used for total aluminum and dissolved cadmium, chromium, copper, lead, manganese, nickel, silver, and zinc in accordance with the requirements of 20 New Mexico Administrative Code (NMAC) 6.4.
- Surface-water and groundwater perchlorate data were compared with the screening level of 4 µg/L established in Section VIII.A.1.a of the Consent Order.

- Other groundwater data are screened to Groundwater Cleanup Levels described in Section VIII.A.1 of the Consent Order; for an individual substance, the lesser of the EPA MCL or the NMWQCC groundwater standard is used.
- If an NMWQCC standard or an MCL has not been established for a specific substance for which toxicological information is published, the EPA Regional Screening Levels for Tap Water (formerly Region 6 Screening Levels for Tap Water) are used as the Groundwater Cleanup Level. These screening levels are for either a cancer or noncancer risk type. The Consent Order specifies screening at a 10^{-5} excess cancer risk. The EPA screening levels are for 10^{-6} excess cancer risk, so 10 times the EPA 10^{-6} screening levels are used for screening.
- The NMWQCC groundwater standards apply to the dissolved (filtered) portion of specified contaminants; however, the standards for mercury, organic compounds, and nonaqueous-phase liquids apply to the total unfiltered concentrations of the contaminants. EPA MCLs are applied to both filtered and unfiltered sample results.
- The analytical results for radioactivity are compared with the DOE Biota Concentration Guides (BCGs) for surface water and Derived Concentration Guides (DCGs) for groundwater.

The results of data screening for this PMR are presented in Appendix D. This appendix shows all analytical results greater than half the lowest applicable screening levels. Results with a best value flag of N are included in Appendix D but not discussed in the text.

Table 4.2-2 provides groundwater analytical results (by hydrogeologic zone for a specific analytical suite) that are above screening levels. Multiple detections of a particular constituent at a location are counted as one result. For example, if aluminum is detected above a screening level in both a primary sample and a field duplicate, only the highest result is shown.

Graphs in Appendix E display concentration histories of analytes for locations where the analyte was above its screening level at least once during the three most recent PMEs. Concentrations of the analyte are plotted for a 3-yr period. If 3 yr of data are not available, then all available results for the analyte are plotted. When shown, the solid red lines depict applicable screening levels. Results with a best value flag of N are not included in Appendix E.

No analytes from the current PME exceeded their screening level at more than one sampling location, so no maps showing concentrations are included.

4.2.1 Surface Water (Base Flow)

No surface-water locations are included in this monitoring group.

4.2.2 Groundwater

No results from previous sampling of MDA C monitoring group PME monitoring locations are reported in this PMR.

A gross-alpha result of 62.8 pCi/L in MDA C regional aquifer well R-60 was above the 15-pCi/L EPA MCL screening level. One result of 3.6 pCi/L from a year earlier was a detection, and four other previous results were nondetects.

4.3 Sampling Program Modifications

No modifications to the periodic monitoring sampling for the MDA C monitoring group are proposed at this time.

5.0 SUMMARY AND INTERPRETATIONS

5.1 Monitoring Results

The field parameter monitoring results are presented in Appendix A.

5.2 Analytical Results

5.2.1 Surface Water (Base Flow)

No surface-water locations are included in this monitoring group.

5.2.2 Groundwater

No results from previous sampling of PME monitoring locations are reported in this PMR. One result from current PME groundwater samples reported in this PMR was above screening levels.

For results above screening levels, except for the gross-alpha result at R-60, the types of contaminants detected and their concentrations are consistent with data reported from previous monitoring events in this monitoring group.

5.3 Data Gaps

Table 3.4-1 summarizes the field deviations encountered during the PME. The table also provides a detailed account of sampling event deviations.

5.4 Remediation System Monitoring

Remediation system monitoring is not applicable to the MDA C monitoring group because no systems are installed in the monitoring group area.

6.0 REFERENCES

The following list includes all documents cited in this report. Parenthetical information following each reference provides the author(s), publication date, and ER ID. This information is also included in text citations. ER IDs are assigned by the Environmental Programs Directorate's Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

Copies of the master reference set are maintained at the NMED Hazardous Waste Bureau and the Directorate. The set was developed to ensure that the administrative authority has all material needed to review this document, and it is updated with every document submitted to the administrative authority. Documents previously submitted to the administrative authority are not included.

LANL (Los Alamos National Laboratory), September 2008. "Periodic Monitoring Report for White Rock Watershed, April 23–April 30, 2008," Los Alamos National Laboratory document LA-UR-08-5847, Los Alamos, New Mexico. (LANL 2008, 103737)

LANL (Los Alamos National Laboratory), March 2009. "Completion Report for Regional Aquifer Well R-46," Los Alamos National Laboratory document LA-UR-09-1338, Los Alamos, New Mexico. (LANL 2009, 105592)

LANL (Los Alamos National Laboratory), June 2011. "Phase III Investigation Report for Material Disposal Area C, Solid Waste Management Unit 50-009, at Technical Area 50," Los Alamos National Laboratory document LA-UR-11-3429, Los Alamos, New Mexico. (LANL 2011, 204370)

LANL (Los Alamos National Laboratory), August 2012. "Interim Facility-Wide Groundwater Monitoring Plan for the 2013 Monitoring Year, October 2012–September 2013," Los Alamos National Laboratory document LA-UR-12-21331, Los Alamos, New Mexico. (LANL 2012, 225493)

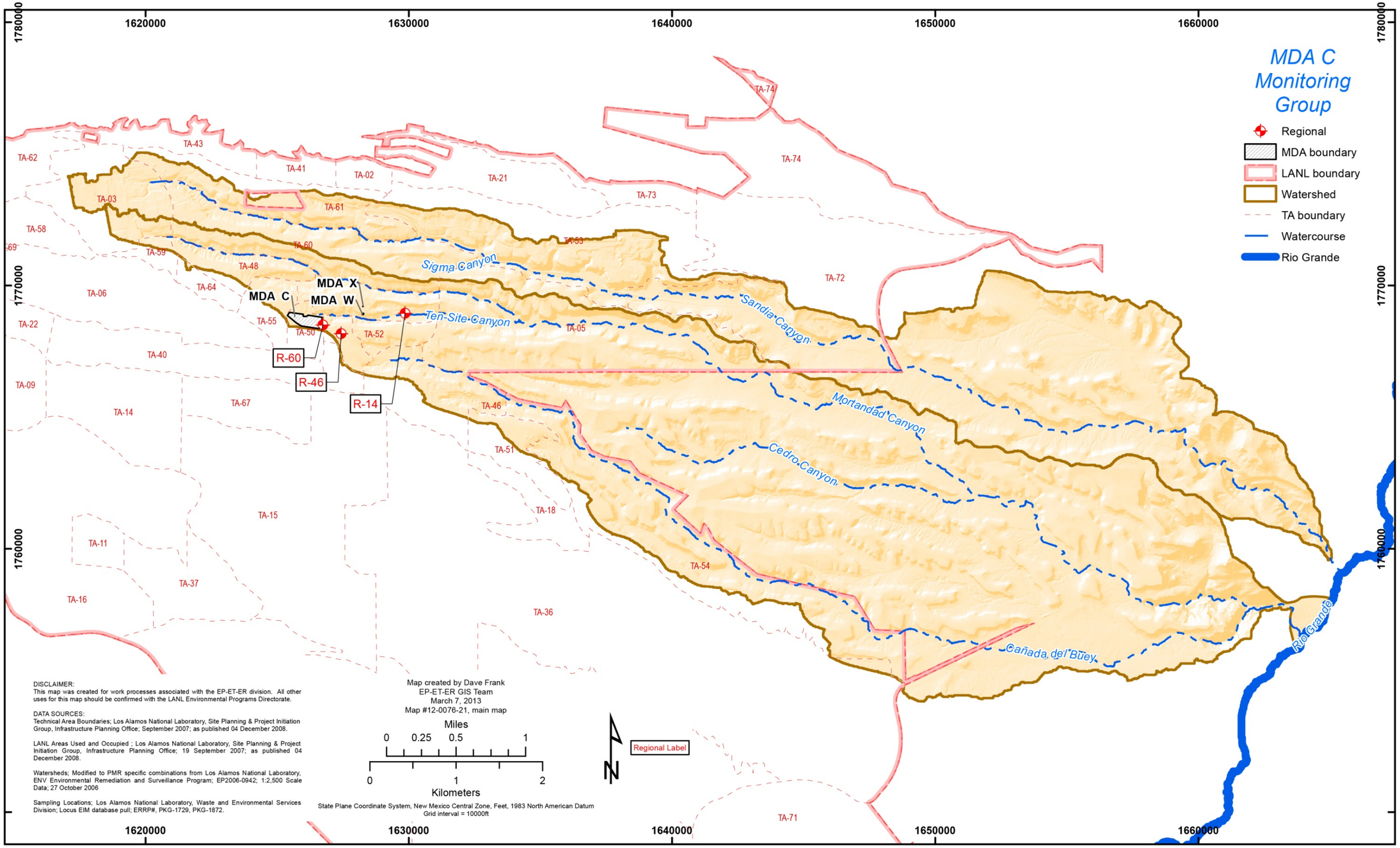


Figure 2.0-1 Locations scheduled to be monitored for this PME (see Table 3.4-1)

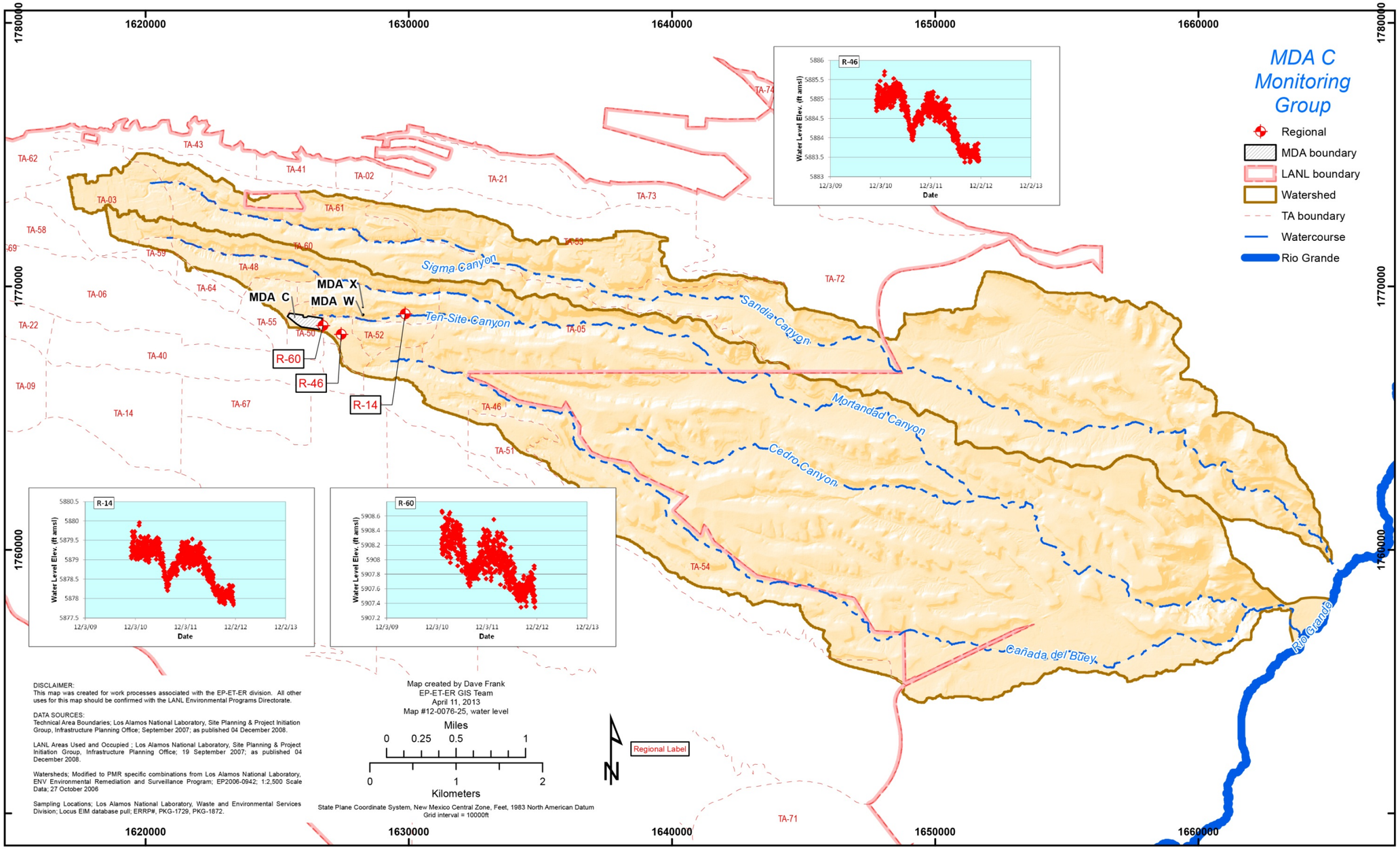


Figure 3.3-1 Groundwater elevations

Table 2.0-1
MDA C Monitoring Group Locations and General Information

Location Name	Sample Collection Date	Screened Interval (ft)	Screen Top Depth (ft)	Screen Bottom Depth (ft)	Calculated Single Casing Volume (gal.)	Purge Volume (gal.)	Purge Rate gpm*
R-14 S1	11/05/12	32.6	1200.6	1233.2	49.9	170	6.8
R-46	11/16/12	20.7	1340	1360.7	53.3	160	4.76
R-60	11/01/12	20.9	1330	1350.9	41.07	124	1

*gpm = Gallons per minute.

Table 3.4-1
MDA C Monitoring Group PME Observations and Deviations

Location	Deviation	Cause	Comment
n/a*	n/a	n/a	No deviations for this PME

*n/a = Not applicable.

Table 3.4-2
Analytes with PQLs above Screening Levels

Analyte or CAS[a] No.	Analyte Name	MDL[b]	PQL	Screening Level	Unit	Screening-Level Type
Herbicides						
94-74-6	MCPA[c]	12	53	18	µg/L	EPA Regional Tap
93-65-2	MCPP[d]	11	53	37	µg/L	EPA Regional Tap
Metals						
Be	Beryllium	1	5	4	µg/L	EPA MCL
Semivolatile Organic Compounds						
1912-24-9	Atrazine	3	10	3	µg/L	EPA MCL
103-33-3	Azobenzene	2	10	1.3	µg/L	EPA Regional Tap
92-87-5	Benzidine	3	10	0.00094	µg/L	EPA Regional Tap
56-55-3	Benzo(a)anthracene	0.2	1	0.29	µg/L	EPA Regional Tap
50-32-8	Benzo(a)pyrene	0.2	1	0.2	µg/L	EPA MCL
205-99-2	Benzo(b)fluoranthene	0.2	1	0.29	µg/L	EPA Regional Tap
111-44-4	Bis(2-chloroethyl)ether	2	10	0.12	µg/L	EPA Regional Tap
117-81-7	Bis(2-ethylhexyl)phthalate	2	10	6	µg/L	EPA MCL
106-47-8	Chloroaniline[4-]	2	10	3.4	µg/L	EPA Regional Tap
53-70-3	Dibenz(a,h)anthracene	0.2	1	0.029	µg/L	EPA Regional Tap
91-94-1	Dichlorobenzidine[3,3'-]	2	10	1.5	µg/L	EPA Regional Tap
534-52-1	Dinitro-2-methylphenol[4,6-]	3	10	2.9	µg/L	EPA Regional Tap
123-91-1	Dioxane[1,4-]	2	10	6.7	µg/L	EPA Regional Tap

Table 3.4-2 (continued)

Analyte or CAS[a] No.	Analyte Name	MDL[b]	PQL	Screening Level	Unit	Screening-Level Type
118-74-1	Hexachlorobenzene	2	10	1	µg/L	EPA MCL
193-39-5	Indeno(1,2,3-cd)pyrene	0.2	1	0.29	µg/L	EPA Regional Tap
55-18-5	Nitrosodiethylamine[N-]	2	10	0.0014	µg/L	EPA Regional Tap
62-75-9	Nitrosodimethylamine[N-]	2	10	0.0042	µg/L	EPA Regional Tap
924-16-3	Nitroso-di-n-butylamine[N-]	3	10	0.024	µg/L	EPA Regional Tap
621-64-7	Nitroso-di-n-propylamine[N-]	2	10	0.096	µg/L	EPA Regional Tap
930-55-2	Nitrosopyrrolidine[N-]	2	10	0.32	µg/L	EPA Regional Tap
108-60-1	Oxybis(1-chloropropane) [2,2'-]	2	10	3.2	µg/L	EPA Regional Tap
87-86-5	Pentachlorophenol	2	10	1	µg/L	EPA MCL
108-95-2	Phenol	1	10	5	µg/L	NMWQCC Groundwater Standard
Volatile Organic Compounds						
107-02-8	Acrolein	1.3	5	0.042	µg/L	EPA Regional Tap
107-13-1	Acrylonitrile	1	5	0.45	µg/L	EPA Regional Tap
126-99-8	Chloro-1,3-butadiene[2-]	0.3	1	0.16	µg/L	EPA Regional Tap
96-12-8	Dibromo-3-chloropropane[1,2-]	0.3	1	0.2	µg/L	EPA MCL
106-93-4	Dibromoethane[1,2-]	0.25	1	0.05	µg/L	EPA MCL
126-98-7	Methacrylonitrile	1	5	1	µg/L	EPA Regional Tap
75-09-2	Methylene chloride	3	10	5	µg/L	EPA MCL
96-18-4	Trichloropropane[1,2,3-]	0.3	1	0.0072	µg/L	EPA Regional Tap

Note: This table is applicable to all samples reported in all PMRs.

[a] CAS = Chemical Abstracts Service.

[b] MDL = Method detection limit.

[c] MCPA = 2-Methyl-4-chlorophenoxyacetic acid.

[d] MCPP = 2-(4-Chloro-2-methylphenoxy)propanoic acid.

Table 4.2-1
Sources of Screening Levels for Groundwater and Surface Water at Los Alamos National Laboratory

Standard Source	Standard Type	Groundwater	Surface Water
DOE Order 5400.5	DOE BCGs	n/a[a]	X[b]
DOE Order 5400.5	DOE 100-mrem Public Dose DCG	X	n/a
DOE Order 5400.5	DOE 4-mrem Drinking Water DCG	X	n/a
40 CFR[c] 141	EPA Primary Drinking Water Standard	X	n/a
EPA Regional Screening Levels for Chemical Contaminants at Superfund Sites	EPA Regional Screening Levels for Tap Water	X	n/a
20 NMAC.3.4	New Mexico Environmental Improvement Board Radiation Protection Standards	X	X
20 NMAC 6.2	NMWQCC Groundwater Standard	X	n/a
20 NMAC 6.4	NMWQCC Irrigation Standard	n/a	X
20 NMAC 6.4	NMWQCC Livestock Watering Standard	n/a	X
20 NMAC 6.4	NMWQCC Wildlife Habitat Standard	n/a	X
20 NMAC 6.4	NMWQCC Aquatic Life Standards Acute	n/a	X
20 NMAC 6.4	NMWQCC Aquatic Life Standards Chronic	n/a	X
20 NMAC 6.4	NMWQCC Human Health Standard	n/a	X

[a] n/a = Not applicable.

[b] X = Applied to data screen for this report.

[c] CFR = Code of Federal Regulations.

Table 4.2-2
MDA C Monitoring Group Groundwater Results above Screening Levels

Location	Date	Analyte	Field Prep Code	Result	Unit	Screening Level	Screening-Level Type
Regional Aquifer							
R-60	11/01/12	Gross alpha	UF*	62.8	pCi/L	15	EPA MCL

*UF = Unfiltered.

Appendix A

Field Parameter Results, Including Results from Previous Four Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-14 S1	1200.6	11/05/12	WG[a]	Dissolved Oxygen	5.64	mg/L	CAMO-13-24276
R-14 S1	1200.6	05/29/12	WG	Dissolved Oxygen	5.51	mg/L	CAMO-12-14044
R-14 S1	1200.6	11/08/11	WG	Dissolved Oxygen	5.17	mg/L	CAMO-12-1526
R-14 S1	1200.6	08/03/11	WG	Dissolved Oxygen	5.25	mg/L	CAMO-11-24652
R-14 S1	1200.6	05/18/11	WG	Dissolved Oxygen	5.1	mg/L	CAMO-11-10729
R-14 S1	1200.6	11/05/12	WG	Oxidation-Reduction Potential	184.3	mV	CAMO-13-24276
R-14 S1	1200.6	05/29/12	WG	Oxidation-Reduction Potential	167.1	mV	CAMO-12-14044
R-14 S1	1200.6	11/08/11	WG	Oxidation-Reduction Potential	167.1	mV	CAMO-12-1526
R-14 S1	1200.6	08/03/11	WG	Oxidation-Reduction Potential	139.2	mV	CAMO-11-24652
R-14 S1	1200.6	05/18/11	WG	Oxidation-Reduction Potential	156	mV	CAMO-11-10729
R-14 S1	1200.6	11/05/12	WG	pH	8.26	SU[b]	CAMO-13-24276
R-14 S1	1200.6	05/29/12	WG	pH	8.31	SU	CAMO-12-14044
R-14 S1	1200.6	11/08/11	WG	pH	8.43	SU	CAMO-12-1526
R-14 S1	1200.6	08/03/11	WG	pH	8.37	SU	CAMO-11-24652
R-14 S1	1200.6	05/18/11	WG	pH	8.4	SU	CAMO-11-10729
R-14 S1	1200.6	11/05/12	WG	Specific Conductance	134	µS/cm	CAMO-13-24276
R-14 S1	1200.6	05/29/12	WG	Specific Conductance	131	µS/cm	CAMO-12-14044
R-14 S1	1200.6	11/08/11	WG	Specific Conductance	130	µS/cm	CAMO-12-1526
R-14 S1	1200.6	08/03/11	WG	Specific Conductance	133	µS/cm	CAMO-11-24652
R-14 S1	1200.6	05/18/11	WG	Specific Conductance	131	µS/cm	CAMO-11-10729
R-14 S1	1200.6	11/05/12	WG	Temperature	22.09	deg C	CAMO-13-24276
R-14 S1	1200.6	05/29/12	WG	Temperature	23.63	deg C	CAMO-12-14044
R-14 S1	1200.6	11/08/11	WG	Temperature	23.17	deg C	CAMO-12-1526
R-14 S1	1200.6	08/03/11	WG	Temperature	23.76	deg C	CAMO-11-24652
R-14 S1	1200.6	05/18/11	WG	Temperature	22.87	deg C	CAMO-11-10729
R-14 S1	1200.6	11/05/12	WG	Turbidity	0.51	NTU[c]	CAMO-13-24276
R-14 S1	1200.6	05/29/12	WG	Turbidity	0.5	NTU	CAMO-12-14044
R-14 S1	1200.6	11/08/11	WG	Turbidity	0.51	NTU	CAMO-12-1526
R-14 S1	1200.6	08/03/11	WG	Turbidity	0.36	NTU	CAMO-11-24652

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-14 S1	1200.6	05/18/11	WG	Turbidity	0.51	NTU	CAMO-11-10729
R-46	1340	11/16/12	WG	Dissolved Oxygen	0.5	mg/L	CAMO-13-24278
R-46	1340	06/01/12	WG	Dissolved Oxygen	6.22	mg/L	CAMO-12-17127
R-46	1340	05/21/12	WG	Dissolved Oxygen	6.43	mg/L	CAMO-12-14045
R-46	1340	11/08/11	WG	Dissolved Oxygen	6.49	mg/L	CAMO-12-1530
R-46	1340	08/03/11	WG	Dissolved Oxygen	6.39	mg/L	CAMO-11-24656
R-46	1340	11/16/12	WG	Oxidation-Reduction Potential	176.3	mV	CAMO-13-24278
R-46	1340	06/01/12	WG	Oxidation-Reduction Potential	187.5	mV	CAMO-12-17127
R-46	1340	05/21/12	WG	Oxidation-Reduction Potential	142.8	mV	CAMO-12-14045
R-46	1340	11/08/11	WG	Oxidation-Reduction Potential	130.4	mV	CAMO-12-1530
R-46	1340	08/03/11	WG	Oxidation-Reduction Potential	167.9	mV	CAMO-11-24656
R-46	1340	11/16/12	WG	pH	8.01	SU	CAMO-13-24278
R-46	1340	06/01/12	WG	pH	8.08	SU	CAMO-12-17127
R-46	1340	05/21/12	WG	pH	7.87	SU	CAMO-12-14045
R-46	1340	11/08/11	WG	pH	8.02	SU	CAMO-12-1530
R-46	1340	08/03/11	WG	pH	7.62	SU	CAMO-11-24656
R-46	1340	11/16/12	WG	Specific Conductance	121	µS/cm	CAMO-13-24278
R-46	1340	06/01/12	WG	Specific Conductance	123	µS/cm	CAMO-12-17127
R-46	1340	05/21/12	WG	Specific Conductance	120	µS/cm	CAMO-12-14045
R-46	1340	11/08/11	WG	Specific Conductance	122	µS/cm	CAMO-12-1530
R-46	1340	08/03/11	WG	Specific Conductance	126	µS/cm	CAMO-11-24656
R-46	1340	11/16/12	WG	Temperature	18.59	deg C	CAMO-13-24278
R-46	1340	06/01/12	WG	Temperature	21.42	deg C	CAMO-12-17127
R-46	1340	05/21/12	WG	Temperature	21.93	deg C	CAMO-12-14045
R-46	1340	11/08/11	WG	Temperature	21.41	deg C	CAMO-12-1530
R-46	1340	08/03/11	WG	Temperature	21.52	deg C	CAMO-11-24656
R-46	1340	11/16/12	WG	Turbidity	0.5	NTU	CAMO-13-24278
R-46	1340	06/01/12	WG	Turbidity	0.4	NTU	CAMO-12-17127
R-46	1340	05/21/12	WG	Turbidity	1.03	NTU	CAMO-12-14045

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-46	1340	11/08/11	WG	Turbidity	1.23	NTU	CAMO-12-1530
R-46	1340	08/03/11	WG	Turbidity	1.51	NTU	CAMO-11-24656
R-60	1330	11/01/12	WG	Dissolved Oxygen	5.85	mg/L	CAMO-13-24279
R-60	1330	05/31/12	WG	Dissolved Oxygen	5.51	mg/L	CAMO-12-14046
R-60	1330	11/22/11	WG	Dissolved Oxygen	5.23	mg/L	CAMO-12-1522
R-60	1330	07/26/11	WG	Dissolved Oxygen	4.52	mg/L	CAPA-11-14772
R-60	1330	07/26/11	WG	Dissolved Oxygen	4.52	mg/L	CAPA-11-14773
R-60	1330	07/26/11	WG	Dissolved Oxygen	4.56	mg/L	CAPA-11-14774
R-60	1330	07/26/11	WG	Dissolved Oxygen	4.5	mg/L	CAPA-11-14776
R-60	1330	07/26/11	WG	Dissolved Oxygen	4.5	mg/L	CAPA-11-23020
R-60	1330	04/27/11	WG	Dissolved Oxygen	3.34	mg/L	CAPA-11-9591
R-60	1330	11/01/12	WG	Oxidation-Reduction Potential	132.2	mV	CAMO-13-24279
R-60	1330	05/31/12	WG	Oxidation-Reduction Potential	203.1	mV	CAMO-12-14046
R-60	1330	11/22/11	WG	Oxidation-Reduction Potential	96.2	mV	CAMO-12-1522
R-60	1330	07/26/11	WG	Oxidation-Reduction Potential	33.7	mV	CAPA-11-14774
R-60	1330	07/26/11	WG	Oxidation-Reduction Potential	45.9	mV	CAPA-11-14776
R-60	1330	07/26/11	WG	Oxidation-Reduction Potential	45.9	mV	CAPA-11-23020
R-60	1330	04/27/11	WG	Oxidation-Reduction Potential	63.2	mV	CAPA-11-9591
R-60	1330	11/01/12	WG	pH	8.3	SU	CAMO-13-24279
R-60	1330	05/31/12	WG	pH	8.35	SU	CAMO-12-14046
R-60	1330	11/22/11	WG	pH	8.45	SU	CAMO-12-1522
R-60	1330	07/26/11	WG	pH	8.33	SU	CAPA-11-14772
R-60	1330	07/26/11	WG	pH	8.33	SU	CAPA-11-14773
R-60	1330	07/26/11	WG	pH	8.17	SU	CAPA-11-14774
R-60	1330	07/26/11	WG	pH	8.09	SU	CAPA-11-14776
R-60	1330	07/26/11	WG	pH	8.09	SU	CAPA-11-23020
R-60	1330	04/27/11	WG	pH	8.15	SU	CAPA-11-9591
R-60	1330	11/01/12	WG	Specific Conductance	116	µS/cm	CAMO-13-24279
R-60	1330	05/31/12	WG	Specific Conductance	131	µS/cm	CAMO-12-14046

Location	Depth (ft)	Date	Field Matrix	Analyte	Result	Unit	Sample
R-60	1330	11/22/11	WG	Specific Conductance	124	µS/cm	CAMO-12-1522
R-60	1330	07/26/11	WG	Specific Conductance	133	µS/cm	CAPA-11-14772
R-60	1330	07/26/11	WG	Specific Conductance	133	µS/cm	CAPA-11-14773
R-60	1330	07/26/11	WG	Specific Conductance	134	µS/cm	CAPA-11-14774
R-60	1330	07/26/11	WG	Specific Conductance	128	µS/cm	CAPA-11-14776
R-60	1330	07/26/11	WG	Specific Conductance	128	µS/cm	CAPA-11-23020
R-60	1330	04/27/11	WG	Specific Conductance	142	µS/cm	CAPA-11-9591
R-60	1330	11/01/12	WG	Temperature	23.72	deg C	CAMO-13-24279
R-60	1330	05/31/12	WG	Temperature	24.39	deg C	CAMO-12-14046
R-60	1330	11/22/11	WG	Temperature	22.65	deg C	CAMO-12-1522
R-60	1330	07/26/11	WG	Temperature	22.82	deg C	CAPA-11-14772
R-60	1330	07/26/11	WG	Temperature	22.82	deg C	CAPA-11-14773
R-60	1330	07/26/11	WG	Temperature	24.25	deg C	CAPA-11-14774
R-60	1330	07/26/11	WG	Temperature	24.64	deg C	CAPA-11-14776
R-60	1330	07/26/11	WG	Temperature	24.64	deg C	CAPA-11-23020
R-60	1330	04/27/11	WG	Temperature	22.89	deg C	CAPA-11-9591
R-60	1330	11/01/12	WG	Turbidity	1.49	NTU	CAMO-13-24279
R-60	1330	05/31/12	WG	Turbidity	2.77	NTU	CAMO-12-14046
R-60	1330	11/22/11	WG	Turbidity	1.82	NTU	CAMO-12-1522
R-60	1330	07/26/11	WG	Turbidity	2.75	NTU	CAPA-11-14772
R-60	1330	07/26/11	WG	Turbidity	2.75	NTU	CAPA-11-14773
R-60	1330	07/26/11	WG	Turbidity	2.73	NTU	CAPA-11-14774
R-60	1330	07/26/11	WG	Turbidity	1.3	NTU	CAPA-11-14776
R-60	1330	07/26/11	WG	Turbidity	1.3	NTU	CAPA-11-23020
R-60	1330	04/27/11	WG	Turbidity	2.54	NTU	CAPA-11-9591

[a] WG = Groundwater.

[b] SU = Standard unit.

[c] NTU = Nephelometric turbidity unit.

Appendix B

Groundwater-Elevation Measurements
(on CD included with this document)

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-14 S1	11/16/12	5877.84	Transducer	1200.6	1233.2	Regional
R-14 S1	11/15/12	5877.96	Transducer	1200.6	1233.2	Regional
R-14 S1	11/14/12	5877.88	Transducer	1200.6	1233.2	Regional
R-14 S1	11/13/12	5877.9	Transducer	1200.6	1233.2	Regional
R-14 S1	11/12/12	5877.91	Transducer	1200.6	1233.2	Regional
R-14 S1	11/11/12	5878.32	Transducer	1200.6	1233.2	Regional
R-14 S1	11/10/12	5878.33	Transducer	1200.6	1233.2	Regional
R-14 S1	11/09/12	5878.17	Transducer	1200.6	1233.2	Regional
R-14 S1	11/08/12	5878.05	Transducer	1200.6	1233.2	Regional
R-14 S1	11/07/12	5877.9	Transducer	1200.6	1233.2	Regional
R-14 S1	11/06/12	5877.94	Transducer	1200.6	1233.2	Regional
R-14 S1	11/05/12	5877.91	Transducer	1200.6	1233.2	Regional
R-14 S1	11/04/12	5877.94	Transducer	1200.6	1233.2	Regional
R-14 S1	11/03/12	5878.05	Transducer	1200.6	1233.2	Regional
R-14 S1	11/02/12	5878.11	Transducer	1200.6	1233.2	Regional
R-14 S1	11/01/12	5878.03	Transducer	1200.6	1233.2	Regional
R-14 S1	10/31/12	5878.05	Transducer	1200.6	1233.2	Regional
R-14 S1	10/30/12	5878.02	Transducer	1200.6	1233.2	Regional
R-14 S1	10/29/12	5878.02	Transducer	1200.6	1233.2	Regional
R-14 S1	10/28/12	5878.09	Transducer	1200.6	1233.2	Regional
R-14 S1	10/27/12	5878.01	Transducer	1200.6	1233.2	Regional
R-14 S1	10/26/12	5878.08	Transducer	1200.6	1233.2	Regional
R-14 S1	10/25/12	5878.28	Transducer	1200.6	1233.2	Regional
R-14 S1	10/24/12	5878.23	Transducer	1200.6	1233.2	Regional
R-14 S1	10/23/12	5878.2	Transducer	1200.6	1233.2	Regional
R-14 S1	10/22/12	5878.24	Transducer	1200.6	1233.2	Regional
R-14 S1	10/21/12	5878.28	Transducer	1200.6	1233.2	Regional
R-14 S1	10/20/12	5878.17	Transducer	1200.6	1233.2	Regional
R-14 S1	10/19/12	5878.06	Transducer	1200.6	1233.2	Regional
R-14 S1	10/18/12	5878.18	Transducer	1200.6	1233.2	Regional
R-14 S1	10/17/12	5878.35	Transducer	1200.6	1233.2	Regional
R-14 S1	10/16/12	5878.18	Transducer	1200.6	1233.2	Regional
R-14 S1	10/15/12	5878	Transducer	1200.6	1233.2	Regional
R-14 S1	10/14/12	5878.05	Transducer	1200.6	1233.2	Regional
R-14 S1	10/13/12	5878.2	Transducer	1200.6	1233.2	Regional
R-14 S1	10/12/12	5878.1	Transducer	1200.6	1233.2	Regional
R-14 S1	10/11/12	5878.14	Transducer	1200.6	1233.2	Regional
R-14 S1	10/10/12	5878.12	Transducer	1200.6	1233.2	Regional
R-14 S1	10/09/12	5878.2	Transducer	1200.6	1233.2	Regional
R-14 S1	10/08/12	5878.17	Transducer	1200.6	1233.2	Regional
R-14 S1	10/07/12	5878.16	Transducer	1200.6	1233.2	Regional
R-14 S1	10/06/12	5878.19	Transducer	1200.6	1233.2	Regional
R-14 S1	10/05/12	5878.13	Transducer	1200.6	1233.2	Regional
R-14 S1	10/04/12	5878.1	Transducer	1200.6	1233.2	Regional
R-14 S1	10/03/12	5878.2	Transducer	1200.6	1233.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-14 S1	10/02/12	5878.06	Transducer	1200.6	1233.2	Regional
R-14 S1	10/01/12	5878.07	Transducer	1200.6	1233.2	Regional
R-14 S1	09/30/12	5878.07	Transducer	1200.6	1233.2	Regional
R-14 S1	09/29/12	5878.06	Transducer	1200.6	1233.2	Regional
R-14 S1	09/28/12	5878.11	Transducer	1200.6	1233.2	Regional
R-14 S1	09/27/12	5878.14	Transducer	1200.6	1233.2	Regional
R-14 S1	09/26/12	5878.22	Transducer	1200.6	1233.2	Regional
R-14 S1	09/25/12	5878.15	Transducer	1200.6	1233.2	Regional
R-14 S1	09/24/12	5878.06	Transducer	1200.6	1233.2	Regional
R-14 S1	09/23/12	5878.03	Transducer	1200.6	1233.2	Regional
R-14 S1	09/22/12	5878.07	Transducer	1200.6	1233.2	Regional
R-14 S1	09/21/12	5878.1	Transducer	1200.6	1233.2	Regional
R-14 S1	09/20/12	5878.07	Transducer	1200.6	1233.2	Regional
R-14 S1	09/19/12	5878.06	Transducer	1200.6	1233.2	Regional
R-14 S1	09/18/12	5878.05	Transducer	1200.6	1233.2	Regional
R-14 S1	09/17/12	5878.17	Transducer	1200.6	1233.2	Regional
R-14 S1	09/16/12	5878.05	Transducer	1200.6	1233.2	Regional
R-14 S1	09/15/12	5877.91	Transducer	1200.6	1233.2	Regional
R-14 S1	09/14/12	5877.86	Transducer	1200.6	1233.2	Regional
R-14 S1	09/13/12	5878.02	Transducer	1200.6	1233.2	Regional
R-14 S1	09/12/12	5878.15	Transducer	1200.6	1233.2	Regional
R-14 S1	09/11/12	5878.12	Transducer	1200.6	1233.2	Regional
R-14 S1	09/10/12	5878.01	Transducer	1200.6	1233.2	Regional
R-14 S1	09/09/12	5877.94	Transducer	1200.6	1233.2	Regional
R-14 S1	09/08/12	5877.95	Transducer	1200.6	1233.2	Regional
R-14 S1	09/07/12	5878.09	Transducer	1200.6	1233.2	Regional
R-14 S1	09/06/12	5878.08	Transducer	1200.6	1233.2	Regional
R-14 S1	09/05/12	5878.08	Transducer	1200.6	1233.2	Regional
R-14 S1	09/04/12	5878.04	Transducer	1200.6	1233.2	Regional
R-14 S1	09/03/12	5878.06	Transducer	1200.6	1233.2	Regional
R-14 S1	09/02/12	5878.05	Transducer	1200.6	1233.2	Regional
R-14 S1	09/01/12	5878.04	Transducer	1200.6	1233.2	Regional
R-14 S1	08/31/12	5878.07	Transducer	1200.6	1233.2	Regional
R-14 S1	08/30/12	5878.04	Transducer	1200.6	1233.2	Regional
R-14 S1	08/29/12	5877.95	Transducer	1200.6	1233.2	Regional
R-14 S1	08/28/12	5877.9	Transducer	1200.6	1233.2	Regional
R-14 S1	08/27/12	5877.97	Transducer	1200.6	1233.2	Regional
R-14 S1	08/26/12	5878.13	Transducer	1200.6	1233.2	Regional
R-14 S1	08/25/12	5878.27	Transducer	1200.6	1233.2	Regional
R-14 S1	08/24/12	5878.22	Transducer	1200.6	1233.2	Regional
R-14 S1	08/23/12	5878.12	Transducer	1200.6	1233.2	Regional
R-14 S1	08/22/12	5878.06	Transducer	1200.6	1233.2	Regional
R-14 S1	08/21/12	5878.08	Transducer	1200.6	1233.2	Regional
R-14 S1	08/20/12	5878.06	Transducer	1200.6	1233.2	Regional
R-14 S1	08/19/12	5878.14	Transducer	1200.6	1233.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-14 S1	08/18/12	5878.1	Transducer	1200.6	1233.2	Regional
R-14 S1	08/17/12	5878.03	Transducer	1200.6	1233.2	Regional
R-14 S1	08/16/12	5878.12	Transducer	1200.6	1233.2	Regional
R-14 S1	08/15/12	5878.1	Transducer	1200.6	1233.2	Regional
R-14 S1	08/14/12	5878.02	Transducer	1200.6	1233.2	Regional
R-14 S1	08/13/12	5877.92	Transducer	1200.6	1233.2	Regional
R-14 S1	08/12/12	5878.05	Transducer	1200.6	1233.2	Regional
R-14 S1	08/11/12	5878.05	Transducer	1200.6	1233.2	Regional
R-14 S1	08/10/12	5878	Transducer	1200.6	1233.2	Regional
R-14 S1	08/09/12	5877.98	Transducer	1200.6	1233.2	Regional
R-14 S1	08/08/12	5878.02	Transducer	1200.6	1233.2	Regional
R-14 S1	08/07/12	5878.01	Transducer	1200.6	1233.2	Regional
R-14 S1	08/06/12	5877.94	Transducer	1200.6	1233.2	Regional
R-14 S1	08/06/12	5877.91	Manual	1200.6	1233.2	Regional
R-14 S1	08/05/12	5878.05	Transducer	1200.6	1233.2	Regional
R-14 S1	08/04/12	5878.23	Transducer	1200.6	1233.2	Regional
R-14 S1	08/03/12	5878.15	Transducer	1200.6	1233.2	Regional
R-14 S1	08/02/12	5878.18	Transducer	1200.6	1233.2	Regional
R-14 S1	08/01/12	5878.12	Transducer	1200.6	1233.2	Regional
R-14 S1	07/31/12	5878.2	Transducer	1200.6	1233.2	Regional
R-14 S1	07/30/12	5878.19	Transducer	1200.6	1233.2	Regional
R-14 S1	07/29/12	5878.1	Transducer	1200.6	1233.2	Regional
R-14 S1	07/28/12	5878.11	Transducer	1200.6	1233.2	Regional
R-14 S1	07/27/12	5878.21	Transducer	1200.6	1233.2	Regional
R-14 S1	07/26/12	5878.33	Transducer	1200.6	1233.2	Regional
R-14 S1	07/25/12	5878.32	Transducer	1200.6	1233.2	Regional
R-14 S1	07/24/12	5878.2	Transducer	1200.6	1233.2	Regional
R-14 S1	07/23/12	5878.16	Transducer	1200.6	1233.2	Regional
R-14 S1	07/22/12	5878.14	Transducer	1200.6	1233.2	Regional
R-14 S1	07/21/12	5878.11	Transducer	1200.6	1233.2	Regional
R-14 S1	07/20/12	5878.1	Transducer	1200.6	1233.2	Regional
R-14 S1	07/19/12	5878.16	Transducer	1200.6	1233.2	Regional
R-14 S1	07/18/12	5878.27	Transducer	1200.6	1233.2	Regional
R-14 S1	07/17/12	5878.31	Transducer	1200.6	1233.2	Regional
R-14 S1	07/16/12	5878.27	Transducer	1200.6	1233.2	Regional
R-14 S1	07/15/12	5878.21	Transducer	1200.6	1233.2	Regional
R-14 S1	07/14/12	5878.18	Transducer	1200.6	1233.2	Regional
R-14 S1	07/13/12	5878.17	Transducer	1200.6	1233.2	Regional
R-14 S1	07/12/12	5878.15	Transducer	1200.6	1233.2	Regional
R-14 S1	07/11/12	5878.1	Transducer	1200.6	1233.2	Regional
R-14 S1	07/10/12	5878.09	Transducer	1200.6	1233.2	Regional
R-14 S1	07/09/12	5878.11	Transducer	1200.6	1233.2	Regional
R-14 S1	07/08/12	5878.11	Transducer	1200.6	1233.2	Regional
R-14 S1	07/07/12	5878.16	Transducer	1200.6	1233.2	Regional
R-14 S1	07/06/12	5878.22	Transducer	1200.6	1233.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-14 S1	07/05/12	5878.29	Transducer	1200.6	1233.2	Regional
R-14 S1	07/04/12	5878.29	Transducer	1200.6	1233.2	Regional
R-14 S1	07/03/12	5878.29	Transducer	1200.6	1233.2	Regional
R-14 S1	07/02/12	5878.3	Transducer	1200.6	1233.2	Regional
R-14 S1	07/01/12	5878.29	Transducer	1200.6	1233.2	Regional
R-14 S1	06/30/12	5878.28	Transducer	1200.6	1233.2	Regional
R-14 S1	06/29/12	5878.17	Transducer	1200.6	1233.2	Regional
R-14 S1	06/28/12	5878.2	Transducer	1200.6	1233.2	Regional
R-14 S1	06/27/12	5878.32	Transducer	1200.6	1233.2	Regional
R-14 S1	06/26/12	5878.27	Transducer	1200.6	1233.2	Regional
R-14 S1	06/25/12	5878.2	Transducer	1200.6	1233.2	Regional
R-14 S1	06/24/12	5878.29	Transducer	1200.6	1233.2	Regional
R-14 S1	06/23/12	5878.42	Transducer	1200.6	1233.2	Regional
R-14 S1	06/22/12	5878.29	Transducer	1200.6	1233.2	Regional
R-14 S1	06/21/12	5878.38	Transducer	1200.6	1233.2	Regional
R-14 S1	06/20/12	5878.62	Transducer	1200.6	1233.2	Regional
R-14 S1	06/19/12	5878.6	Transducer	1200.6	1233.2	Regional
R-14 S1	06/18/12	5878.54	Transducer	1200.6	1233.2	Regional
R-14 S1	06/17/12	5878.27	Transducer	1200.6	1233.2	Regional
R-14 S1	06/16/12	5878.41	Transducer	1200.6	1233.2	Regional
R-14 S1	06/15/12	5878.55	Transducer	1200.6	1233.2	Regional
R-14 S1	06/14/12	5878.58	Transducer	1200.6	1233.2	Regional
R-14 S1	06/13/12	5878.5	Transducer	1200.6	1233.2	Regional
R-14 S1	06/12/12	5878.38	Transducer	1200.6	1233.2	Regional
R-14 S1	06/11/12	5878.5	Transducer	1200.6	1233.2	Regional
R-14 S1	06/10/12	5878.69	Transducer	1200.6	1233.2	Regional
R-14 S1	06/09/12	5878.61	Transducer	1200.6	1233.2	Regional
R-14 S1	06/08/12	5878.51	Transducer	1200.6	1233.2	Regional
R-14 S1	06/07/12	5878.62	Transducer	1200.6	1233.2	Regional
R-14 S1	06/06/12	5878.59	Transducer	1200.6	1233.2	Regional
R-14 S1	06/06/12	5878.588	Transducer	1200.6	1233.2	Regional
R-14 S1	06/05/12	5878.513	Transducer	1200.6	1233.2	Regional
R-14 S1	06/04/12	5878.481	Transducer	1200.6	1233.2	Regional
R-14 S1	06/03/12	5878.563	Transducer	1200.6	1233.2	Regional
R-14 S1	06/02/12	5878.579	Transducer	1200.6	1233.2	Regional
R-14 S1	06/01/12	5878.55	Transducer	1200.6	1233.2	Regional
R-14 S1	05/31/12	5878.625	Transducer	1200.6	1233.2	Regional
R-14 S1	05/30/12	5878.607	Transducer	1200.6	1233.2	Regional
R-14 S1	05/29/12	5878.594	Transducer	1200.6	1233.2	Regional
R-14 S1	05/28/12	5878.628	Transducer	1200.6	1233.2	Regional
R-14 S1	05/27/12	5878.729	Transducer	1200.6	1233.2	Regional
R-14 S1	05/26/12	5878.746	Transducer	1200.6	1233.2	Regional
R-14 S1	05/25/12	5878.877	Transducer	1200.6	1233.2	Regional
R-14 S1	05/24/12	5879.054	Transducer	1200.6	1233.2	Regional
R-14 S1	05/23/12	5878.85	Transducer	1200.6	1233.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-14 S1	05/22/12	5878.546	Transducer	1200.6	1233.2	Regional
R-14 S1	05/21/12	5878.441	Transducer	1200.6	1233.2	Regional
R-14 S1	05/20/12	5878.604	Transducer	1200.6	1233.2	Regional
R-14 S1	05/19/12	5878.817	Transducer	1200.6	1233.2	Regional
R-14 S1	05/18/12	5878.819	Transducer	1200.6	1233.2	Regional
R-14 S1	05/17/12	5878.642	Transducer	1200.6	1233.2	Regional
R-14 S1	05/16/12	5878.465	Transducer	1200.6	1233.2	Regional
R-14 S1	05/15/12	5878.505	Transducer	1200.6	1233.2	Regional
R-14 S1	05/14/12	5878.557	Transducer	1200.6	1233.2	Regional
R-14 S1	05/13/12	5878.478	Transducer	1200.6	1233.2	Regional
R-14 S1	05/12/12	5878.55	Transducer	1200.6	1233.2	Regional
R-14 S1	05/11/12	5878.819	Transducer	1200.6	1233.2	Regional
R-14 S1	05/10/12	5878.708	Transducer	1200.6	1233.2	Regional
R-14 S1	05/09/12	5878.563	Transducer	1200.6	1233.2	Regional
R-14 S1	05/08/12	5878.61	Transducer	1200.6	1233.2	Regional
R-14 S1	05/07/12	5878.715	Transducer	1200.6	1233.2	Regional
R-14 S1	05/06/12	5878.747	Transducer	1200.6	1233.2	Regional
R-14 S1	05/05/12	5878.754	Transducer	1200.6	1233.2	Regional
R-14 S1	05/04/12	5878.741	Transducer	1200.6	1233.2	Regional
R-14 S1	05/03/12	5878.821	Transducer	1200.6	1233.2	Regional
R-14 S1	05/02/12	5878.897	Transducer	1200.6	1233.2	Regional
R-14 S1	05/01/12	5878.909	Transducer	1200.6	1233.2	Regional
R-14 S1	04/30/12	5878.783	Transducer	1200.6	1233.2	Regional
R-14 S1	04/29/12	5878.895	Transducer	1200.6	1233.2	Regional
R-14 S1	04/28/12	5878.913	Transducer	1200.6	1233.2	Regional
R-14 S1	04/27/12	5878.976	Transducer	1200.6	1233.2	Regional
R-14 S1	04/26/12	5878.78	Transducer	1200.6	1233.2	Regional
R-14 S1	04/25/12	5878.842	Transducer	1200.6	1233.2	Regional
R-14 S1	04/24/12	5878.789	Transducer	1200.6	1233.2	Regional
R-14 S1	04/23/12	5878.64	Transducer	1200.6	1233.2	Regional
R-14 S1	04/22/12	5878.71	Transducer	1200.6	1233.2	Regional
R-14 S1	04/21/12	5878.802	Transducer	1200.6	1233.2	Regional
R-14 S1	04/20/12	5878.911	Transducer	1200.6	1233.2	Regional
R-14 S1	04/19/12	5878.97	Transducer	1200.6	1233.2	Regional
R-14 S1	04/18/12	5878.832	Transducer	1200.6	1233.2	Regional
R-14 S1	04/17/12	5878.78	Transducer	1200.6	1233.2	Regional
R-14 S1	04/16/12	5878.92	Transducer	1200.6	1233.2	Regional
R-14 S1	04/15/12	5879.257	Transducer	1200.6	1233.2	Regional
R-14 S1	04/14/12	5879.269	Transducer	1200.6	1233.2	Regional
R-14 S1	04/13/12	5879.062	Transducer	1200.6	1233.2	Regional
R-14 S1	04/12/12	5879.064	Transducer	1200.6	1233.2	Regional
R-14 S1	04/11/12	5878.89	Transducer	1200.6	1233.2	Regional
R-14 S1	04/10/12	5878.856	Transducer	1200.6	1233.2	Regional
R-14 S1	04/09/12	5878.782	Transducer	1200.6	1233.2	Regional
R-14 S1	04/08/12	5878.64	Transducer	1200.6	1233.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-14 S1	04/07/12	5878.923	Transducer	1200.6	1233.2	Regional
R-14 S1	04/06/12	5879.056	Transducer	1200.6	1233.2	Regional
R-14 S1	04/05/12	5879.06	Transducer	1200.6	1233.2	Regional
R-14 S1	04/04/12	5879.032	Transducer	1200.6	1233.2	Regional
R-14 S1	04/03/12	5879.191	Transducer	1200.6	1233.2	Regional
R-14 S1	04/02/12	5879.308	Transducer	1200.6	1233.2	Regional
R-14 S1	04/01/12	5879.078	Transducer	1200.6	1233.2	Regional
R-14 S1	03/31/12	5878.993	Transducer	1200.6	1233.2	Regional
R-14 S1	03/30/12	5879.033	Transducer	1200.6	1233.2	Regional
R-14 S1	03/29/12	5879.061	Transducer	1200.6	1233.2	Regional
R-14 S1	03/28/12	5878.998	Transducer	1200.6	1233.2	Regional
R-14 S1	03/27/12	5879.025	Transducer	1200.6	1233.2	Regional
R-14 S1	03/26/12	5879.075	Transducer	1200.6	1233.2	Regional
R-14 S1	03/25/12	5878.966	Transducer	1200.6	1233.2	Regional
R-14 S1	03/24/12	5878.976	Transducer	1200.6	1233.2	Regional
R-14 S1	03/23/12	5879.054	Transducer	1200.6	1233.2	Regional
R-14 S1	03/22/12	5879.114	Transducer	1200.6	1233.2	Regional
R-14 S1	03/21/12	5879.121	Transducer	1200.6	1233.2	Regional
R-14 S1	03/20/12	5879.442	Transducer	1200.6	1233.2	Regional
R-14 S1	03/19/12	5879.415	Transducer	1200.6	1233.2	Regional
R-14 S1	03/18/12	5879.304	Transducer	1200.6	1233.2	Regional
R-14 S1	03/17/12	5879.126	Transducer	1200.6	1233.2	Regional
R-14 S1	03/16/12	5879.018	Transducer	1200.6	1233.2	Regional
R-14 S1	03/15/12	5878.958	Transducer	1200.6	1233.2	Regional
R-14 S1	03/14/12	5879.044	Transducer	1200.6	1233.2	Regional
R-14 S1	03/13/12	5878.987	Transducer	1200.6	1233.2	Regional
R-14 S1	03/12/12	5879.155	Transducer	1200.6	1233.2	Regional
R-14 S1	03/11/12	5879.229	Transducer	1200.6	1233.2	Regional
R-14 S1	03/10/12	5878.918	Transducer	1200.6	1233.2	Regional
R-14 S1	03/09/12	5878.729	Transducer	1200.6	1233.2	Regional
R-14 S1	03/08/12	5879.172	Transducer	1200.6	1233.2	Regional
R-14 S1	03/07/12	5879.368	Transducer	1200.6	1233.2	Regional
R-14 S1	03/06/12	5879.035	Transducer	1200.6	1233.2	Regional
R-14 S1	03/05/12	5878.884	Transducer	1200.6	1233.2	Regional
R-14 S1	03/04/12	5878.883	Transducer	1200.6	1233.2	Regional
R-14 S1	03/03/12	5879.078	Transducer	1200.6	1233.2	Regional
R-14 S1	03/02/12	5879.329	Transducer	1200.6	1233.2	Regional
R-14 S1	03/01/12	5879.212	Transducer	1200.6	1233.2	Regional
R-14 S1	02/29/12	5879.086	Transducer	1200.6	1233.2	Regional
R-14 S1	02/28/12	5879.216	Transducer	1200.6	1233.2	Regional
R-14 S1	02/27/12	5879.051	Transducer	1200.6	1233.2	Regional
R-14 S1	02/26/12	5879.172	Transducer	1200.6	1233.2	Regional
R-14 S1	02/25/12	5878.898	Transducer	1200.6	1233.2	Regional
R-14 S1	02/24/12	5879.068	Transducer	1200.6	1233.2	Regional
R-14 S1	02/23/12	5879.277	Transducer	1200.6	1233.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-14 S1	02/22/12	5879.003	Transducer	1200.6	1233.2	Regional
R-14 S1	02/21/12	5879.012	Transducer	1200.6	1233.2	Regional
R-14 S1	02/20/12	5879.33	Transducer	1200.6	1233.2	Regional
R-14 S1	02/19/12	5879.124	Transducer	1200.6	1233.2	Regional
R-14 S1	02/18/12	5879.116	Transducer	1200.6	1233.2	Regional
R-14 S1	02/17/12	5879.041	Transducer	1200.6	1233.2	Regional
R-14 S1	02/16/12	5879.042	Transducer	1200.6	1233.2	Regional
R-14 S1	02/15/12	5879.351	Transducer	1200.6	1233.2	Regional
R-14 S1	02/14/12	5879.258	Transducer	1200.6	1233.2	Regional
R-14 S1	02/13/12	5879.314	Transducer	1200.6	1233.2	Regional
R-14 S1	02/12/12	5878.98	Transducer	1200.6	1233.2	Regional
R-14 S1	02/11/12	5878.94	Transducer	1200.6	1233.2	Regional
R-14 S1	02/10/12	5878.966	Transducer	1200.6	1233.2	Regional
R-14 S1	02/09/12	5878.967	Transducer	1200.6	1233.2	Regional
R-14 S1	02/08/12	5878.869	Transducer	1200.6	1233.2	Regional
R-14 S1	02/07/12	5879.068	Transducer	1200.6	1233.2	Regional
R-14 S1	02/06/12	5878.983	Transducer	1200.6	1233.2	Regional
R-14 S1	02/05/12	5878.862	Transducer	1200.6	1233.2	Regional
R-14 S1	02/04/12	5878.988	Transducer	1200.6	1233.2	Regional
R-14 S1	02/03/12	5879.279	Transducer	1200.6	1233.2	Regional
R-14 S1	02/02/12	5879.073	Transducer	1200.6	1233.2	Regional
R-14 S1	02/01/12	5878.983	Transducer	1200.6	1233.2	Regional
R-14 S1	01/31/12	5879.143	Transducer	1200.6	1233.2	Regional
R-14 S1	01/30/12	5878.975	Transducer	1200.6	1233.2	Regional
R-14 S1	01/29/12	5878.854	Transducer	1200.6	1233.2	Regional
R-14 S1	01/28/12	5878.928	Transducer	1200.6	1233.2	Regional
R-14 S1	01/27/12	5879.187	Transducer	1200.6	1233.2	Regional
R-14 S1	01/26/12	5879.031	Transducer	1200.6	1233.2	Regional
R-14 S1	01/25/12	5879.033	Transducer	1200.6	1233.2	Regional
R-14 S1	01/24/12	5879.285	Transducer	1200.6	1233.2	Regional
R-14 S1	01/23/12	5879.15	Transducer	1200.6	1233.2	Regional
R-14 S1	01/22/12	5879.535	Transducer	1200.6	1233.2	Regional
R-14 S1	01/21/12	5879.165	Transducer	1200.6	1233.2	Regional
R-14 S1	01/20/12	5879.306	Transducer	1200.6	1233.2	Regional
R-14 S1	01/19/12	5879.153	Transducer	1200.6	1233.2	Regional
R-14 S1	01/18/12	5879.071	Transducer	1200.6	1233.2	Regional
R-14 S1	01/17/12	5879.275	Transducer	1200.6	1233.2	Regional
R-14 S1	01/16/12	5879.264	Transducer	1200.6	1233.2	Regional
R-14 S1	01/15/12	5879.041	Transducer	1200.6	1233.2	Regional
R-14 S1	01/14/12	5879.039	Transducer	1200.6	1233.2	Regional
R-14 S1	01/13/12	5879.217	Transducer	1200.6	1233.2	Regional
R-14 S1	01/12/12	5879.217	Transducer	1200.6	1233.2	Regional
R-14 S1	01/11/12	5879.316	Transducer	1200.6	1233.2	Regional
R-14 S1	01/10/12	5879.124	Transducer	1200.6	1233.2	Regional
R-14 S1	01/09/12	5879.13	Transducer	1200.6	1233.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-14 S1	01/08/12	5879.325	Transducer	1200.6	1233.2	Regional
R-14 S1	01/07/12	5879.245	Transducer	1200.6	1233.2	Regional
R-14 S1	01/06/12	5879.236	Transducer	1200.6	1233.2	Regional
R-14 S1	01/05/12	5878.909	Transducer	1200.6	1233.2	Regional
R-14 S1	01/04/12	5879.01	Transducer	1200.6	1233.2	Regional
R-14 S1	01/03/12	5878.875	Transducer	1200.6	1233.2	Regional
R-14 S1	01/02/12	5878.805	Transducer	1200.6	1233.2	Regional
R-14 S1	01/01/12	5878.938	Transducer	1200.6	1233.2	Regional
R-14 S1	12/31/11	5879.226	Transducer	1200.6	1233.2	Regional
R-14 S1	12/30/11	5879.189	Transducer	1200.6	1233.2	Regional
R-14 S1	12/29/11	5879.125	Transducer	1200.6	1233.2	Regional
R-14 S1	12/28/11	5879.178	Transducer	1200.6	1233.2	Regional
R-14 S1	12/27/11	5879.098	Transducer	1200.6	1233.2	Regional
R-14 S1	12/26/11	5879.173	Transducer	1200.6	1233.2	Regional
R-14 S1	12/25/11	5878.98	Transducer	1200.6	1233.2	Regional
R-14 S1	12/24/11	5879.082	Transducer	1200.6	1233.2	Regional
R-14 S1	12/23/11	5879.186	Transducer	1200.6	1233.2	Regional
R-14 S1	12/22/11	5879.459	Transducer	1200.6	1233.2	Regional
R-14 S1	12/21/11	5879.453	Transducer	1200.6	1233.2	Regional
R-14 S1	12/20/11	5879.371	Transducer	1200.6	1233.2	Regional
R-14 S1	12/19/11	5879.477	Transducer	1200.6	1233.2	Regional
R-14 S1	12/18/11	5879.03	Transducer	1200.6	1233.2	Regional
R-14 S1	12/17/11	5878.937	Transducer	1200.6	1233.2	Regional
R-14 S1	12/16/11	5879.09	Transducer	1200.6	1233.2	Regional
R-14 S1	12/15/11	5879.212	Transducer	1200.6	1233.2	Regional
R-14 S1	12/14/11	5879.424	Transducer	1200.6	1233.2	Regional
R-14 S1	12/13/11	5879.291	Transducer	1200.6	1233.2	Regional
R-14 S1	12/12/11	5879.273	Transducer	1200.6	1233.2	Regional
R-14 S1	12/11/11	5879.104	Transducer	1200.6	1233.2	Regional
R-14 S1	12/10/11	5878.959	Transducer	1200.6	1233.2	Regional
R-14 S1	12/09/11	5879.156	Transducer	1200.6	1233.2	Regional
R-14 S1	12/08/11	5879.182	Transducer	1200.6	1233.2	Regional
R-14 S1	12/07/11	5879.072	Transducer	1200.6	1233.2	Regional
R-14 S1	12/06/11	5879.161	Transducer	1200.6	1233.2	Regional
R-14 S1	12/05/11	5879.322	Transducer	1200.6	1233.2	Regional
R-14 S1	12/04/11	5879.227	Transducer	1200.6	1233.2	Regional
R-14 S1	12/03/11	5879.444	Transducer	1200.6	1233.2	Regional
R-14 S1	12/02/11	5879.071	Transducer	1200.6	1233.2	Regional
R-14 S1	12/01/11	5879.249	Transducer	1200.6	1233.2	Regional
R-14 S1	12/01/11	5879.341	Transducer	1200.6	1233.2	Regional
R-14 S1	11/30/11	5878.997	Transducer	1200.6	1233.2	Regional
R-14 S1	11/29/11	5878.971	Transducer	1200.6	1233.2	Regional
R-14 S1	11/28/11	5878.877	Transducer	1200.6	1233.2	Regional
R-14 S1	11/27/11	5878.767	Transducer	1200.6	1233.2	Regional
R-14 S1	11/26/11	5879.205	Transducer	1200.6	1233.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-14 S1	11/25/11	5879.161	Transducer	1200.6	1233.2	Regional
R-14 S1	11/24/11	5879.006	Transducer	1200.6	1233.2	Regional
R-14 S1	11/23/11	5878.905	Transducer	1200.6	1233.2	Regional
R-14 S1	11/22/11	5879.065	Transducer	1200.6	1233.2	Regional
R-14 S1	11/21/11	5879.14	Transducer	1200.6	1233.2	Regional
R-14 S1	11/20/11	5879.245	Transducer	1200.6	1233.2	Regional
R-14 S1	11/19/11	5879.43	Transducer	1200.6	1233.2	Regional
R-14 S1	11/18/11	5879.22	Transducer	1200.6	1233.2	Regional
R-14 S1	11/17/11	5878.979	Transducer	1200.6	1233.2	Regional
R-14 S1	11/16/11	5879.261	Transducer	1200.6	1233.2	Regional
R-14 S1	11/15/11	5879.289	Transducer	1200.6	1233.2	Regional
R-14 S1	11/14/11	5879.345	Transducer	1200.6	1233.2	Regional
R-14 S1	11/13/11	5879.325	Transducer	1200.6	1233.2	Regional
R-14 S1	11/12/11	5879.265	Transducer	1200.6	1233.2	Regional
R-14 S1	11/11/11	5878.998	Transducer	1200.6	1233.2	Regional
R-14 S1	11/10/11	5878.83	Transducer	1200.6	1233.2	Regional
R-14 S1	11/09/11	5878.996	Transducer	1200.6	1233.2	Regional
R-14 S1	11/08/11	5879.361	Transducer	1200.6	1233.2	Regional
R-14 S1	11/07/11	5879.267	Transducer	1200.6	1233.2	Regional
R-14 S1	11/06/11	5879.339	Transducer	1200.6	1233.2	Regional
R-14 S1	11/05/11	5879.46	Transducer	1200.6	1233.2	Regional
R-14 S1	11/04/11	5879.148	Transducer	1200.6	1233.2	Regional
R-14 S1	11/03/11	5878.937	Transducer	1200.6	1233.2	Regional
R-14 S1	11/02/11	5879.369	Transducer	1200.6	1233.2	Regional
R-14 S1	11/01/11	5879.149	Transducer	1200.6	1233.2	Regional
R-14 S1	10/31/11	5878.966	Transducer	1200.6	1233.2	Regional
R-14 S1	10/30/11	5879.114	Transducer	1200.6	1233.2	Regional
R-14 S1	10/29/11	5879.031	Transducer	1200.6	1233.2	Regional
R-14 S1	10/28/11	5879.122	Transducer	1200.6	1233.2	Regional
R-14 S1	10/27/11	5879.259	Transducer	1200.6	1233.2	Regional
R-14 S1	10/26/11	5879.152	Transducer	1200.6	1233.2	Regional
R-14 S1	10/25/11	5879.062	Transducer	1200.6	1233.2	Regional
R-14 S1	10/24/11	5878.938	Transducer	1200.6	1233.2	Regional
R-14 S1	10/23/11	5878.99	Transducer	1200.6	1233.2	Regional
R-14 S1	10/22/11	5878.979	Transducer	1200.6	1233.2	Regional
R-14 S1	10/21/11	5878.974	Transducer	1200.6	1233.2	Regional
R-14 S1	10/20/11	5879.1	Transducer	1200.6	1233.2	Regional
R-14 S1	10/19/11	5878.92	Transducer	1200.6	1233.2	Regional
R-14 S1	10/18/11	5878.986	Transducer	1200.6	1233.2	Regional
R-14 S1	10/17/11	5879.05	Transducer	1200.6	1233.2	Regional
R-14 S1	10/16/11	5878.935	Transducer	1200.6	1233.2	Regional
R-14 S1	10/15/11	5878.944	Transducer	1200.6	1233.2	Regional
R-14 S1	10/14/11	5879.001	Transducer	1200.6	1233.2	Regional
R-14 S1	10/13/11	5878.906	Transducer	1200.6	1233.2	Regional
R-14 S1	10/12/11	5879.017	Transducer	1200.6	1233.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-14 S1	10/11/11	5879.058	Transducer	1200.6	1233.2	Regional
R-14 S1	10/10/11	5878.974	Transducer	1200.6	1233.2	Regional
R-14 S1	10/09/11	5878.976	Transducer	1200.6	1233.2	Regional
R-14 S1	10/08/11	5879.114	Transducer	1200.6	1233.2	Regional
R-14 S1	10/07/11	5879.049	Transducer	1200.6	1233.2	Regional
R-14 S1	10/06/11	5879.082	Transducer	1200.6	1233.2	Regional
R-14 S1	10/05/11	5878.919	Transducer	1200.6	1233.2	Regional
R-14 S1	10/04/11	5878.747	Transducer	1200.6	1233.2	Regional
R-14 S1	10/03/11	5878.715	Transducer	1200.6	1233.2	Regional
R-14 S1	10/02/11	5878.733	Transducer	1200.6	1233.2	Regional
R-14 S1	10/01/11	5878.705	Transducer	1200.6	1233.2	Regional
R-14 S1	09/30/11	5878.605	Transducer	1200.6	1233.2	Regional
R-14 S1	09/29/11	5878.747	Transducer	1200.6	1233.2	Regional
R-14 S1	09/28/11	5878.683	Transducer	1200.6	1233.2	Regional
R-14 S1	09/27/11	5878.789	Transducer	1200.6	1233.2	Regional
R-14 S1	09/26/11	5878.861	Transducer	1200.6	1233.2	Regional
R-14 S1	09/25/11	5878.823	Transducer	1200.6	1233.2	Regional
R-14 S1	09/24/11	5878.692	Transducer	1200.6	1233.2	Regional
R-14 S1	09/23/11	5878.67	Transducer	1200.6	1233.2	Regional
R-14 S1	09/22/11	5878.793	Transducer	1200.6	1233.2	Regional
R-14 S1	09/21/11	5878.824	Transducer	1200.6	1233.2	Regional
R-14 S1	09/20/11	5878.811	Transducer	1200.6	1233.2	Regional
R-14 S1	09/19/11	5878.745	Transducer	1200.6	1233.2	Regional
R-14 S1	09/18/11	5878.828	Transducer	1200.6	1233.2	Regional
R-14 S1	09/17/11	5878.896	Transducer	1200.6	1233.2	Regional
R-14 S1	09/16/11	5878.914	Transducer	1200.6	1233.2	Regional
R-14 S1	09/15/11	5878.891	Transducer	1200.6	1233.2	Regional
R-14 S1	09/14/11	5878.892	Transducer	1200.6	1233.2	Regional
R-14 S1	09/13/11	5878.804	Transducer	1200.6	1233.2	Regional
R-14 S1	09/12/11	5878.731	Transducer	1200.6	1233.2	Regional
R-14 S1	09/11/11	5878.729	Transducer	1200.6	1233.2	Regional
R-14 S1	09/10/11	5878.788	Transducer	1200.6	1233.2	Regional
R-14 S1	09/09/11	5878.756	Transducer	1200.6	1233.2	Regional
R-14 S1	09/08/11	5878.674	Transducer	1200.6	1233.2	Regional
R-14 S1	09/07/11	5878.844	Transducer	1200.6	1233.2	Regional
R-14 S1	09/06/11	5878.837	Transducer	1200.6	1233.2	Regional
R-14 S1	09/05/11	5878.74	Transducer	1200.6	1233.2	Regional
R-14 S1	09/04/11	5878.828	Transducer	1200.6	1233.2	Regional
R-14 S1	09/03/11	5878.91	Transducer	1200.6	1233.2	Regional
R-14 S1	09/02/11	5878.837	Transducer	1200.6	1233.2	Regional
R-14 S1	09/01/11	5878.82	Transducer	1200.6	1233.2	Regional
R-14 S1	08/31/11	5878.885	Transducer	1200.6	1233.2	Regional
R-14 S1	08/30/11	5878.89	Transducer	1200.6	1233.2	Regional
R-14 S1	08/29/11	5878.831	Transducer	1200.6	1233.2	Regional
R-14 S1	08/28/11	5878.735	Transducer	1200.6	1233.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-14 S1	08/27/11	5878.629	Transducer	1200.6	1233.2	Regional
R-14 S1	08/26/11	5878.608	Transducer	1200.6	1233.2	Regional
R-14 S1	08/25/11	5878.653	Transducer	1200.6	1233.2	Regional
R-14 S1	08/24/11	5878.731	Transducer	1200.6	1233.2	Regional
R-14 S1	08/23/11	5878.733	Transducer	1200.6	1233.2	Regional
R-14 S1	08/22/11	5878.643	Transducer	1200.6	1233.2	Regional
R-14 S1	08/21/11	5878.718	Transducer	1200.6	1233.2	Regional
R-14 S1	08/20/11	5878.758	Transducer	1200.6	1233.2	Regional
R-14 S1	08/19/11	5878.72	Transducer	1200.6	1233.2	Regional
R-14 S1	08/19/11	5878.736	Transducer	1200.6	1233.2	Regional
R-14 S1	08/18/11	5878.57	Transducer	1200.6	1233.2	Regional
R-14 S1	08/17/11	5878.6	Transducer	1200.6	1233.2	Regional
R-14 S1	08/16/11	5878.76	Transducer	1200.6	1233.2	Regional
R-14 S1	08/15/11	5878.69	Transducer	1200.6	1233.2	Regional
R-14 S1	08/14/11	5878.52	Transducer	1200.6	1233.2	Regional
R-14 S1	08/13/11	5878.65	Transducer	1200.6	1233.2	Regional
R-14 S1	08/12/11	5878.69	Transducer	1200.6	1233.2	Regional
R-14 S1	08/11/11	5878.66	Transducer	1200.6	1233.2	Regional
R-14 S1	08/10/11	5878.72	Transducer	1200.6	1233.2	Regional
R-14 S1	08/09/11	5878.69	Transducer	1200.6	1233.2	Regional
R-14 S1	08/08/11	5878.69	Transducer	1200.6	1233.2	Regional
R-14 S1	08/07/11	5878.65	Transducer	1200.6	1233.2	Regional
R-14 S1	08/06/11	5878.59	Transducer	1200.6	1233.2	Regional
R-14 S1	08/05/11	5878.56	Transducer	1200.6	1233.2	Regional
R-14 S1	08/04/11	5878.54	Transducer	1200.6	1233.2	Regional
R-14 S1	08/03/11	5878.53	Transducer	1200.6	1233.2	Regional
R-14 S1	08/02/11	5878.49	Transducer	1200.6	1233.2	Regional
R-14 S1	08/01/11	5878.39	Transducer	1200.6	1233.2	Regional
R-14 S1	07/31/11	5878.35	Transducer	1200.6	1233.2	Regional
R-14 S1	07/30/11	5878.32	Transducer	1200.6	1233.2	Regional
R-14 S1	07/29/11	5878.37	Transducer	1200.6	1233.2	Regional
R-14 S1	07/28/11	5878.4	Transducer	1200.6	1233.2	Regional
R-14 S1	07/27/11	5878.35	Transducer	1200.6	1233.2	Regional
R-14 S1	07/26/11	5878.3	Transducer	1200.6	1233.2	Regional
R-14 S1	07/25/11	5878.21	Transducer	1200.6	1233.2	Regional
R-14 S1	07/24/11	5878.3	Transducer	1200.6	1233.2	Regional
R-14 S1	07/23/11	5878.41	Transducer	1200.6	1233.2	Regional
R-14 S1	07/22/11	5878.47	Transducer	1200.6	1233.2	Regional
R-14 S1	07/21/11	5878.45	Transducer	1200.6	1233.2	Regional
R-14 S1	07/20/11	5878.41	Transducer	1200.6	1233.2	Regional
R-14 S1	07/19/11	5878.33	Transducer	1200.6	1233.2	Regional
R-14 S1	07/18/11	5878.28	Transducer	1200.6	1233.2	Regional
R-14 S1	07/17/11	5878.38	Transducer	1200.6	1233.2	Regional
R-14 S1	07/16/11	5878.52	Transducer	1200.6	1233.2	Regional
R-14 S1	07/15/11	5878.58	Transducer	1200.6	1233.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-14 S1	07/14/11	5878.56	Transducer	1200.6	1233.2	Regional
R-14 S1	07/13/11	5878.52	Transducer	1200.6	1233.2	Regional
R-14 S1	07/12/11	5878.49	Transducer	1200.6	1233.2	Regional
R-14 S1	07/11/11	5878.48	Transducer	1200.6	1233.2	Regional
R-14 S1	07/10/11	5878.56	Transducer	1200.6	1233.2	Regional
R-14 S1	07/09/11	5878.6	Transducer	1200.6	1233.2	Regional
R-14 S1	07/08/11	5878.61	Transducer	1200.6	1233.2	Regional
R-14 S1	07/07/11	5878.56	Transducer	1200.6	1233.2	Regional
R-14 S1	07/06/11	5878.55	Transducer	1200.6	1233.2	Regional
R-14 S1	07/05/11	5878.58	Transducer	1200.6	1233.2	Regional
R-14 S1	07/04/11	5878.68	Transducer	1200.6	1233.2	Regional
R-14 S1	07/03/11	5878.63	Transducer	1200.6	1233.2	Regional
R-14 S1	07/02/11	5878.69	Transducer	1200.6	1233.2	Regional
R-14 S1	07/01/11	5878.72	Transducer	1200.6	1233.2	Regional
R-14 S1	06/30/11	5878.7	Transducer	1200.6	1233.2	Regional
R-14 S1	06/29/11	5878.57	Transducer	1200.6	1233.2	Regional
R-14 S1	06/28/11	5878.56	Transducer	1200.6	1233.2	Regional
R-14 S1	06/27/11	5878.79	Transducer	1200.6	1233.2	Regional
R-14 S1	06/26/11	5878.82	Transducer	1200.6	1233.2	Regional
R-14 S1	06/25/11	5878.88	Transducer	1200.6	1233.2	Regional
R-14 S1	06/24/11	5878.87	Transducer	1200.6	1233.2	Regional
R-14 S1	06/23/11	5878.81	Transducer	1200.6	1233.2	Regional
R-14 S1	06/22/11	5878.84	Transducer	1200.6	1233.2	Regional
R-14 S1	06/21/11	5878.96	Transducer	1200.6	1233.2	Regional
R-14 S1	06/20/11	5879.17	Transducer	1200.6	1233.2	Regional
R-14 S1	06/19/11	5879.06	Transducer	1200.6	1233.2	Regional
R-14 S1	06/18/11	5878.98	Transducer	1200.6	1233.2	Regional
R-14 S1	06/17/11	5879.11	Transducer	1200.6	1233.2	Regional
R-14 S1	06/16/11	5879.08	Transducer	1200.6	1233.2	Regional
R-14 S1	06/15/11	5878.95	Transducer	1200.6	1233.2	Regional
R-14 S1	06/14/11	5879.01	Transducer	1200.6	1233.2	Regional
R-14 S1	06/13/11	5879.04	Transducer	1200.6	1233.2	Regional
R-14 S1	06/12/11	5879.07	Transducer	1200.6	1233.2	Regional
R-14 S1	06/11/11	5879.02	Transducer	1200.6	1233.2	Regional
R-14 S1	06/10/11	5879.09	Transducer	1200.6	1233.2	Regional
R-14 S1	06/09/11	5879.13	Transducer	1200.6	1233.2	Regional
R-14 S1	06/08/11	5879.15	Transducer	1200.6	1233.2	Regional
R-14 S1	06/07/11	5879.15	Transducer	1200.6	1233.2	Regional
R-14 S1	06/06/11	5878.99	Transducer	1200.6	1233.2	Regional
R-14 S1	06/05/11	5878.89	Transducer	1200.6	1233.2	Regional
R-14 S1	06/04/11	5879.06	Transducer	1200.6	1233.2	Regional
R-14 S1	06/03/11	5879.16	Transducer	1200.6	1233.2	Regional
R-14 S1	06/02/11	5879.09	Transducer	1200.6	1233.2	Regional
R-14 S1	06/01/11	5878.9	Transducer	1200.6	1233.2	Regional
R-14 S1	05/31/11	5879.01	Transducer	1200.6	1233.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-14 S1	05/30/11	5879.45	Transducer	1200.6	1233.2	Regional
R-14 S1	05/29/11	5879.42	Transducer	1200.6	1233.2	Regional
R-14 S1	05/28/11	5879.31	Transducer	1200.6	1233.2	Regional
R-14 S1	05/27/11	5879.27	Transducer	1200.6	1233.2	Regional
R-14 S1	05/26/11	5879.1	Transducer	1200.6	1233.2	Regional
R-14 S1	05/25/11	5879.21	Transducer	1200.6	1233.2	Regional
R-14 S1	05/24/11	5879.39	Transducer	1200.6	1233.2	Regional
R-14 S1	05/23/11	5879.28	Transducer	1200.6	1233.2	Regional
R-14 S1	05/22/11	5879.23	Transducer	1200.6	1233.2	Regional
R-14 S1	05/21/11	5879.3	Transducer	1200.6	1233.2	Regional
R-14 S1	05/20/11	5879.39	Transducer	1200.6	1233.2	Regional
R-14 S1	05/19/11	5879.55	Transducer	1200.6	1233.2	Regional
R-14 S1	05/18/11	5879.48	Transducer	1200.6	1233.2	Regional
R-14 S1	05/17/11	5879.43	Transducer	1200.6	1233.2	Regional
R-14 S1	05/16/11	5879.26	Transducer	1200.6	1233.2	Regional
R-14 S1	05/15/11	5879.28	Transducer	1200.6	1233.2	Regional
R-14 S1	05/14/11	5879.15	Transducer	1200.6	1233.2	Regional
R-14 S1	05/13/11	5879.15	Transducer	1200.6	1233.2	Regional
R-14 S1	05/12/11	5879.34	Transducer	1200.6	1233.2	Regional
R-14 S1	05/11/11	5879.57	Transducer	1200.6	1233.2	Regional
R-14 S1	05/10/11	5879.55	Transducer	1200.6	1233.2	Regional
R-14 S1	05/09/11	5879.54	Transducer	1200.6	1233.2	Regional
R-14 S1	05/08/11	5879.4	Transducer	1200.6	1233.2	Regional
R-14 S1	05/07/11	5879.35	Transducer	1200.6	1233.2	Regional
R-14 S1	05/06/11	5879.19	Transducer	1200.6	1233.2	Regional
R-14 S1	05/05/11	5879.15	Transducer	1200.6	1233.2	Regional
R-14 S1	05/04/11	5879.12	Transducer	1200.6	1233.2	Regional
R-14 S1	05/03/11	5879.02	Transducer	1200.6	1233.2	Regional
R-14 S1	05/02/11	5879.17	Transducer	1200.6	1233.2	Regional
R-14 S1	05/01/11	5879.43	Transducer	1200.6	1233.2	Regional
R-14 S1	04/30/11	5879.53	Transducer	1200.6	1233.2	Regional
R-14 S1	04/29/11	5879.42	Transducer	1200.6	1233.2	Regional
R-14 S1	04/28/11	5879.18	Transducer	1200.6	1233.2	Regional
R-14 S1	04/27/11	5879.47	Transducer	1200.6	1233.2	Regional
R-14 S1	04/26/11	5879.49	Transducer	1200.6	1233.2	Regional
R-14 S1	04/25/11	5879.4	Transducer	1200.6	1233.2	Regional
R-14 S1	04/24/11	5879.34	Transducer	1200.6	1233.2	Regional
R-14 S1	04/23/11	5879.41	Transducer	1200.6	1233.2	Regional
R-14 S1	04/22/11	5879.4	Transducer	1200.6	1233.2	Regional
R-14 S1	04/21/11	5879.3	Transducer	1200.6	1233.2	Regional
R-14 S1	04/20/11	5879.29	Transducer	1200.6	1233.2	Regional
R-14 S1	04/19/11	5879.48	Transducer	1200.6	1233.2	Regional
R-14 S1	04/18/11	5879.35	Transducer	1200.6	1233.2	Regional
R-14 S1	04/17/11	5879.29	Transducer	1200.6	1233.2	Regional
R-14 S1	04/16/11	5879.22	Transducer	1200.6	1233.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-14 S1	04/15/11	5879.27	Transducer	1200.6	1233.2	Regional
R-14 S1	04/14/11	5879.41	Transducer	1200.6	1233.2	Regional
R-14 S1	04/13/11	5879.3	Transducer	1200.6	1233.2	Regional
R-14 S1	04/12/11	5879.13	Transducer	1200.6	1233.2	Regional
R-14 S1	04/11/11	5879.14	Transducer	1200.6	1233.2	Regional
R-14 S1	04/10/11	5879.39	Transducer	1200.6	1233.2	Regional
R-14 S1	04/09/11	5879.44	Transducer	1200.6	1233.2	Regional
R-14 S1	04/08/11	5879.46	Transducer	1200.6	1233.2	Regional
R-14 S1	04/07/11	5879.35	Transducer	1200.6	1233.2	Regional
R-14 S1	04/06/11	5879.36	Transducer	1200.6	1233.2	Regional
R-14 S1	04/05/11	5879.12	Transducer	1200.6	1233.2	Regional
R-14 S1	04/04/11	5879.3	Transducer	1200.6	1233.2	Regional
R-14 S1	04/03/11	5879.35	Transducer	1200.6	1233.2	Regional
R-14 S1	04/02/11	5879.18	Transducer	1200.6	1233.2	Regional
R-14 S1	04/01/11	5879.31	Transducer	1200.6	1233.2	Regional
R-14 S1	03/31/11	5879.29	Transducer	1200.6	1233.2	Regional
R-14 S1	03/30/11	5879.23	Transducer	1200.6	1233.2	Regional
R-14 S1	03/29/11	5879.39	Transducer	1200.6	1233.2	Regional
R-14 S1	03/28/11	5879.4	Transducer	1200.6	1233.2	Regional
R-14 S1	03/27/11	5879.48	Transducer	1200.6	1233.2	Regional
R-14 S1	03/26/11	5879.44	Transducer	1200.6	1233.2	Regional
R-14 S1	03/25/11	5879.35	Transducer	1200.6	1233.2	Regional
R-14 S1	03/24/11	5879.34	Transducer	1200.6	1233.2	Regional
R-14 S1	03/23/11	5879.32	Transducer	1200.6	1233.2	Regional
R-14 S1	03/22/11	5879.49	Transducer	1200.6	1233.2	Regional
R-14 S1	03/21/11	5879.25	Transducer	1200.6	1233.2	Regional
R-14 S1	03/20/11	5879.23	Transducer	1200.6	1233.2	Regional
R-14 S1	03/19/11	5879.1	Transducer	1200.6	1233.2	Regional
R-14 S1	03/18/11	5879.18	Transducer	1200.6	1233.2	Regional
R-14 S1	03/17/11	5879.25	Transducer	1200.6	1233.2	Regional
R-14 S1	03/16/11	5879.15	Transducer	1200.6	1233.2	Regional
R-14 S1	03/15/11	5879.16	Transducer	1200.6	1233.2	Regional
R-14 S1	03/14/11	5879.01	Transducer	1200.6	1233.2	Regional
R-14 S1	03/13/11	5879.23	Transducer	1200.6	1233.2	Regional
R-14 S1	03/12/11	5879.21	Transducer	1200.6	1233.2	Regional
R-14 S1	03/11/11	5879.13	Transducer	1200.6	1233.2	Regional
R-14 S1	03/10/11	5878.94	Transducer	1200.6	1233.2	Regional
R-14 S1	03/09/11	5879.18	Transducer	1200.6	1233.2	Regional
R-14 S1	03/08/11	5879.61	Transducer	1200.6	1233.2	Regional
R-14 S1	03/07/11	5879.48	Transducer	1200.6	1233.2	Regional
R-14 S1	03/06/11	5879.13	Transducer	1200.6	1233.2	Regional
R-14 S1	03/05/11	5878.97	Transducer	1200.6	1233.2	Regional
R-14 S1	03/04/11	5879.32	Transducer	1200.6	1233.2	Regional
R-14 S1	03/03/11	5879.19	Transducer	1200.6	1233.2	Regional
R-14 S1	03/02/11	5879.13	Transducer	1200.6	1233.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-14 S1	03/01/11	5879.03	Transducer	1200.6	1233.2	Regional
R-14 S1	02/28/11	5879.27	Transducer	1200.6	1233.2	Regional
R-14 S1	02/27/11	5879.57	Transducer	1200.6	1233.2	Regional
R-14 S1	02/26/11	5879.45	Transducer	1200.6	1233.2	Regional
R-14 S1	02/25/11	5879.34	Transducer	1200.6	1233.2	Regional
R-14 S1	02/24/11	5879.5	Transducer	1200.6	1233.2	Regional
R-14 S1	02/23/11	5879.37	Transducer	1200.6	1233.2	Regional
R-14 S1	02/22/11	5879.39	Transducer	1200.6	1233.2	Regional
R-14 S1	02/21/11	5879.49	Transducer	1200.6	1233.2	Regional
R-14 S1	02/20/11	5879.54	Transducer	1200.6	1233.2	Regional
R-14 S1	02/19/11	5879.17	Transducer	1200.6	1233.2	Regional
R-14 S1	02/18/11	5879.26	Transducer	1200.6	1233.2	Regional
R-14 S1	02/17/11	5879.45	Transducer	1200.6	1233.2	Regional
R-14 S1	02/16/11	5879.26	Transducer	1200.6	1233.2	Regional
R-14 S1	02/15/11	5879.2	Transducer	1200.6	1233.2	Regional
R-14 S1	02/14/11	5879.08	Transducer	1200.6	1233.2	Regional
R-14 S1	02/13/11	5878.99	Transducer	1200.6	1233.2	Regional
R-14 S1	02/12/11	5879	Transducer	1200.6	1233.2	Regional
R-14 S1	02/11/11	5879.29	Transducer	1200.6	1233.2	Regional
R-14 S1	02/10/11	5879.32	Transducer	1200.6	1233.2	Regional
R-14 S1	02/09/11	5879.42	Transducer	1200.6	1233.2	Regional
R-14 S1	02/08/11	5879.57	Transducer	1200.6	1233.2	Regional
R-14 S1	02/07/11	5879.17	Transducer	1200.6	1233.2	Regional
R-14 S1	02/06/11	5879.5	Transducer	1200.6	1233.2	Regional
R-14 S1	02/05/11	5879.4	Transducer	1200.6	1233.2	Regional
R-14 S1	02/04/11	5879.32	Transducer	1200.6	1233.2	Regional
R-14 S1	02/03/11	5879.21	Transducer	1200.6	1233.2	Regional
R-14 S1	02/02/11	5879.42	Transducer	1200.6	1233.2	Regional
R-14 S1	02/01/11	5879.56	Transducer	1200.6	1233.2	Regional
R-14 S1	01/31/11	5879.42	Transducer	1200.6	1233.2	Regional
R-14 S1	01/30/11	5879.32	Transducer	1200.6	1233.2	Regional
R-14 S1	01/29/11	5879.33	Transducer	1200.6	1233.2	Regional
R-14 S1	01/28/11	5879.18	Transducer	1200.6	1233.2	Regional
R-14 S1	01/27/11	5879.14	Transducer	1200.6	1233.2	Regional
R-14 S1	01/26/11	5879.33	Transducer	1200.6	1233.2	Regional
R-14 S1	01/25/11	5879.23	Transducer	1200.6	1233.2	Regional
R-14 S1	01/24/11	5879.36	Transducer	1200.6	1233.2	Regional
R-14 S1	01/23/11	5879.42	Transducer	1200.6	1233.2	Regional
R-14 S1	01/22/11	5879.32	Transducer	1200.6	1233.2	Regional
R-14 S1	01/21/11	5879.31	Transducer	1200.6	1233.2	Regional
R-14 S1	01/20/11	5879.44	Transducer	1200.6	1233.2	Regional
R-14 S1	01/19/11	5879.38	Transducer	1200.6	1233.2	Regional
R-14 S1	01/18/11	5879.44	Transducer	1200.6	1233.2	Regional
R-14 S1	01/17/11	5879.29	Transducer	1200.6	1233.2	Regional
R-14 S1	01/16/11	5879.22	Transducer	1200.6	1233.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-14 S1	01/15/11	5879.08	Transducer	1200.6	1233.2	Regional
R-14 S1	01/14/11	5879.17	Transducer	1200.6	1233.2	Regional
R-14 S1	01/13/11	5879.06	Transducer	1200.6	1233.2	Regional
R-14 S1	01/12/11	5879.08	Transducer	1200.6	1233.2	Regional
R-14 S1	01/11/11	5879.16	Transducer	1200.6	1233.2	Regional
R-14 S1	01/10/11	5879.58	Transducer	1200.6	1233.2	Regional
R-14 S1	01/09/11	5879.6	Transducer	1200.6	1233.2	Regional
R-14 S1	01/08/11	5879.41	Transducer	1200.6	1233.2	Regional
R-14 S1	01/07/11	5879.23	Transducer	1200.6	1233.2	Regional
R-14 S1	01/06/11	5879.13	Transducer	1200.6	1233.2	Regional
R-14 S1	01/05/11	5879.22	Transducer	1200.6	1233.2	Regional
R-14 S1	01/04/11	5879.29	Transducer	1200.6	1233.2	Regional
R-14 S1	01/03/11	5879.26	Transducer	1200.6	1233.2	Regional
R-14 S1	01/02/11	5879.16	Transducer	1200.6	1233.2	Regional
R-14 S1	01/01/11	5879.47	Transducer	1200.6	1233.2	Regional
R-14 S1	12/31/10	5879.96	Transducer	1200.6	1233.2	Regional
R-14 S1	12/30/10	5879.89	Transducer	1200.6	1233.2	Regional
R-14 S1	12/29/10	5879.44	Transducer	1200.6	1233.2	Regional
R-14 S1	12/28/10	5879.25	Transducer	1200.6	1233.2	Regional
R-14 S1	12/27/10	5879.26	Transducer	1200.6	1233.2	Regional
R-14 S1	12/26/10	5879.05	Transducer	1200.6	1233.2	Regional
R-14 S1	12/25/10	5879.02	Transducer	1200.6	1233.2	Regional
R-14 S1	12/24/10	5879.19	Transducer	1200.6	1233.2	Regional
R-14 S1	12/23/10	5879.2	Transducer	1200.6	1233.2	Regional
R-14 S1	12/22/10	5879.17	Transducer	1200.6	1233.2	Regional
R-14 S1	12/21/10	5879.32	Transducer	1200.6	1233.2	Regional
R-14 S1	12/20/10	5879.41	Transducer	1200.6	1233.2	Regional
R-14 S1	12/19/10	5879.36	Transducer	1200.6	1233.2	Regional
R-14 S1	12/18/10	5879.34	Transducer	1200.6	1233.2	Regional
R-14 S1	12/17/10	5879.49	Transducer	1200.6	1233.2	Regional
R-14 S1	12/16/10	5879.49	Transducer	1200.6	1233.2	Regional
R-14 S1	12/15/10	5879.48	Transducer	1200.6	1233.2	Regional
R-14 S1	12/14/10	5879.22	Transducer	1200.6	1233.2	Regional
R-14 S1	12/13/10	5879.06	Transducer	1200.6	1233.2	Regional
R-14 S1	12/12/10	5879.07	Transducer	1200.6	1233.2	Regional
R-14 S1	12/11/10	5879.29	Transducer	1200.6	1233.2	Regional
R-14 S1	12/10/10	5879.29	Transducer	1200.6	1233.2	Regional
R-14 S1	12/09/10	5879.19	Transducer	1200.6	1233.2	Regional
R-14 S1	12/08/10	5879.04	Transducer	1200.6	1233.2	Regional
R-14 S1	12/07/10	5879.2	Transducer	1200.6	1233.2	Regional
R-14 S1	12/06/10	5879.02	Transducer	1200.6	1233.2	Regional
R-14 S1	12/05/10	5879.11	Transducer	1200.6	1233.2	Regional
R-14 S1	12/04/10	5879.16	Transducer	1200.6	1233.2	Regional
R-14 S1	12/03/10	5879.17	Transducer	1200.6	1233.2	Regional
R-14 S1	12/02/10	5879.19	Transducer	1200.6	1233.2	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-14 S1	12/01/10	5879.12	Transducer	1200.6	1233.2	Regional
R-14 S1	11/30/10	5879.25	Transducer	1200.6	1233.2	Regional
R-14 S1	11/29/10	5879.73	Transducer	1200.6	1233.2	Regional
R-14 S1	11/28/10	5879.58	Transducer	1200.6	1233.2	Regional
R-14 S1	11/27/10	5879.24	Transducer	1200.6	1233.2	Regional
R-14 S1	11/26/10	5879.26	Transducer	1200.6	1233.2	Regional
R-14 S1	11/25/10	5879.61	Transducer	1200.6	1233.2	Regional
R-14 S1	11/24/10	5879.63	Transducer	1200.6	1233.2	Regional
R-14 S1	11/23/10	5879.31	Transducer	1200.6	1233.2	Regional
R-14 S1	11/22/10	5879.56	Transducer	1200.6	1233.2	Regional
R-14 S1	11/21/10	5879.47	Transducer	1200.6	1233.2	Regional
R-14 S1	11/20/10	5879.37	Transducer	1200.6	1233.2	Regional
R-14 S1	11/19/10	5879.28	Transducer	1200.6	1233.2	Regional
R-14 S1	11/18/10	5879.12	Transducer	1200.6	1233.2	Regional
R-14 S1	11/17/10	5879.61	Transducer	1200.6	1233.2	Regional
R-14 S1	11/16/10	5879.48	Transducer	1200.6	1233.2	Regional
R-14 S1	11/15/10	5879.63	Transducer	1200.6	1233.2	Regional
R-14 S1	11/14/10	5879.44	Transducer	1200.6	1233.2	Regional
R-14 S1	11/13/10	5879.21	Transducer	1200.6	1233.2	Regional
R-14 S1	11/12/10	5879.36	Transducer	1200.6	1233.2	Regional
R-14 S1	11/11/10	5879.61	Transducer	1200.6	1233.2	Regional
R-14 S1	11/10/10	5879.61	Transducer	1200.6	1233.2	Regional
R-14 S1	11/09/10	5879.73	Transducer	1200.6	1233.2	Regional
R-14 S1	11/08/10	5879.43	Transducer	1200.6	1233.2	Regional
R-14 S1	11/07/10	5879.31	Transducer	1200.6	1233.2	Regional
R-14 S1	11/06/10	5879.3	Transducer	1200.6	1233.2	Regional
R-14 S1	11/05/10	5879.23	Transducer	1200.6	1233.2	Regional
R-14 S1	11/04/10	5879.04	Transducer	1200.6	1233.2	Regional
R-14 S1	11/03/10	5879.11	Transducer	1200.6	1233.2	Regional
R-14 S1	11/02/10	5879.1	Transducer	1200.6	1233.2	Regional
R-14 S1	11/01/10	5879.32	Transducer	1200.6	1233.2	Regional
R-46	11/16/12	5883.4	Transducer	1340	1360.7	Regional
R-46	11/15/12	5883.5	Transducer	1340	1360.7	Regional
R-46	11/14/12	5883.43	Transducer	1340	1360.7	Regional
R-46	11/13/12	5883.44	Transducer	1340	1360.7	Regional
R-46	11/12/12	5883.46	Transducer	1340	1360.7	Regional
R-46	11/11/12	5883.86	Transducer	1340	1360.7	Regional
R-46	11/10/12	5883.85	Transducer	1340	1360.7	Regional
R-46	11/09/12	5883.69	Transducer	1340	1360.7	Regional
R-46	11/08/12	5883.58	Transducer	1340	1360.7	Regional
R-46	11/07/12	5883.45	Transducer	1340	1360.7	Regional
R-46	11/06/12	5883.47	Transducer	1340	1360.7	Regional
R-46	11/05/12	5883.41	Transducer	1340	1360.7	Regional
R-46	11/04/12	5883.43	Transducer	1340	1360.7	Regional
R-46	11/03/12	5883.56	Transducer	1340	1360.7	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-46	11/02/12	5883.61	Transducer	1340	1360.7	Regional
R-46	11/01/12	5883.55	Transducer	1340	1360.7	Regional
R-46	10/31/12	5883.58	Transducer	1340	1360.7	Regional
R-46	10/30/12	5883.54	Transducer	1340	1360.7	Regional
R-46	10/29/12	5883.53	Transducer	1340	1360.7	Regional
R-46	10/28/12	5883.58	Transducer	1340	1360.7	Regional
R-46	10/27/12	5883.52	Transducer	1340	1360.7	Regional
R-46	10/26/12	5883.6	Transducer	1340	1360.7	Regional
R-46	10/25/12	5883.79	Transducer	1340	1360.7	Regional
R-46	10/24/12	5883.74	Transducer	1340	1360.7	Regional
R-46	10/23/12	5883.72	Transducer	1340	1360.7	Regional
R-46	10/22/12	5883.74	Transducer	1340	1360.7	Regional
R-46	10/21/12	5883.76	Transducer	1340	1360.7	Regional
R-46	10/20/12	5883.63	Transducer	1340	1360.7	Regional
R-46	10/19/12	5883.55	Transducer	1340	1360.7	Regional
R-46	10/18/12	5883.67	Transducer	1340	1360.7	Regional
R-46	10/17/12	5883.81	Transducer	1340	1360.7	Regional
R-46	10/16/12	5883.66	Transducer	1340	1360.7	Regional
R-46	10/15/12	5883.49	Transducer	1340	1360.7	Regional
R-46	10/14/12	5883.54	Transducer	1340	1360.7	Regional
R-46	10/13/12	5883.68	Transducer	1340	1360.7	Regional
R-46	10/12/12	5883.58	Transducer	1340	1360.7	Regional
R-46	10/11/12	5883.62	Transducer	1340	1360.7	Regional
R-46	10/10/12	5883.6	Transducer	1340	1360.7	Regional
R-46	10/09/12	5883.67	Transducer	1340	1360.7	Regional
R-46	10/08/12	5883.64	Transducer	1340	1360.7	Regional
R-46	10/07/12	5883.63	Transducer	1340	1360.7	Regional
R-46	10/06/12	5883.64	Transducer	1340	1360.7	Regional
R-46	10/05/12	5883.58	Transducer	1340	1360.7	Regional
R-46	10/04/12	5883.55	Transducer	1340	1360.7	Regional
R-46	10/03/12	5883.67	Transducer	1340	1360.7	Regional
R-46	10/02/12	5883.52	Transducer	1340	1360.7	Regional
R-46	10/01/12	5883.54	Transducer	1340	1360.7	Regional
R-46	09/30/12	5883.54	Transducer	1340	1360.7	Regional
R-46	09/29/12	5883.53	Transducer	1340	1360.7	Regional
R-46	09/28/12	5883.58	Transducer	1340	1360.7	Regional
R-46	09/27/12	5883.6	Transducer	1340	1360.7	Regional
R-46	09/26/12	5883.68	Transducer	1340	1360.7	Regional
R-46	09/25/12	5883.62	Transducer	1340	1360.7	Regional
R-46	09/24/12	5883.53	Transducer	1340	1360.7	Regional
R-46	09/23/12	5883.51	Transducer	1340	1360.7	Regional
R-46	09/22/12	5883.55	Transducer	1340	1360.7	Regional
R-46	09/21/12	5883.57	Transducer	1340	1360.7	Regional
R-46	09/20/12	5883.55	Transducer	1340	1360.7	Regional
R-46	09/19/12	5883.53	Transducer	1340	1360.7	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-46	09/18/12	5883.54	Transducer	1340	1360.7	Regional
R-46	09/17/12	5883.64	Transducer	1340	1360.7	Regional
R-46	09/16/12	5883.53	Transducer	1340	1360.7	Regional
R-46	09/15/12	5883.41	Transducer	1340	1360.7	Regional
R-46	09/14/12	5883.38	Transducer	1340	1360.7	Regional
R-46	09/13/12	5883.54	Transducer	1340	1360.7	Regional
R-46	09/12/12	5883.66	Transducer	1340	1360.7	Regional
R-46	09/11/12	5883.63	Transducer	1340	1360.7	Regional
R-46	09/10/12	5883.54	Transducer	1340	1360.7	Regional
R-46	09/09/12	5883.49	Transducer	1340	1360.7	Regional
R-46	09/08/12	5883.5	Transducer	1340	1360.7	Regional
R-46	09/07/12	5883.66	Transducer	1340	1360.7	Regional
R-46	09/06/12	5883.66	Transducer	1340	1360.7	Regional
R-46	09/05/12	5883.62	Transducer	1340	1360.7	Regional
R-46	09/05/12	5883.61	Manual	1340	1360.7	Regional
R-46	09/05/12	5883.69	Transducer	1340	1360.7	Regional
R-46	09/04/12	5883.65	Transducer	1340	1360.7	Regional
R-46	09/03/12	5883.65	Transducer	1340	1360.7	Regional
R-46	09/02/12	5883.65	Transducer	1340	1360.7	Regional
R-46	09/01/12	5883.64	Transducer	1340	1360.7	Regional
R-46	08/31/12	5883.68	Transducer	1340	1360.7	Regional
R-46	08/30/12	5883.67	Transducer	1340	1360.7	Regional
R-46	08/29/12	5883.61	Transducer	1340	1360.7	Regional
R-46	08/28/12	5883.59	Transducer	1340	1360.7	Regional
R-46	08/27/12	5883.6	Transducer	1340	1360.7	Regional
R-46	08/26/12	5883.72	Transducer	1340	1360.7	Regional
R-46	08/25/12	5883.83	Transducer	1340	1360.7	Regional
R-46	08/24/12	5883.77	Transducer	1340	1360.7	Regional
R-46	08/23/12	5883.69	Transducer	1340	1360.7	Regional
R-46	08/22/12	5883.61	Transducer	1340	1360.7	Regional
R-46	08/21/12	5883.62	Transducer	1340	1360.7	Regional
R-46	08/20/12	5883.63	Transducer	1340	1360.7	Regional
R-46	08/19/12	5883.7	Transducer	1340	1360.7	Regional
R-46	08/18/12	5883.68	Transducer	1340	1360.7	Regional
R-46	08/17/12	5883.64	Transducer	1340	1360.7	Regional
R-46	08/16/12	5883.74	Transducer	1340	1360.7	Regional
R-46	08/15/12	5883.75	Transducer	1340	1360.7	Regional
R-46	08/14/12	5883.66	Transducer	1340	1360.7	Regional
R-46	08/13/12	5883.57	Transducer	1340	1360.7	Regional
R-46	08/12/12	5883.68	Transducer	1340	1360.7	Regional
R-46	08/11/12	5883.68	Transducer	1340	1360.7	Regional
R-46	08/10/12	5883.63	Transducer	1340	1360.7	Regional
R-46	08/09/12	5883.6	Transducer	1340	1360.7	Regional
R-46	08/08/12	5883.61	Transducer	1340	1360.7	Regional
R-46	08/07/12	5883.55	Transducer	1340	1360.7	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-46	08/06/12	5883.38	Transducer	1340	1360.7	Regional
R-46	08/05/12	5883.48	Transducer	1340	1360.7	Regional
R-46	08/04/12	5883.6	Transducer	1340	1360.7	Regional
R-46	08/03/12	5883.55	Transducer	1340	1360.7	Regional
R-46	08/02/12	5883.58	Transducer	1340	1360.7	Regional
R-46	08/01/12	5883.55	Transducer	1340	1360.7	Regional
R-46	07/31/12	5883.63	Transducer	1340	1360.7	Regional
R-46	07/30/12	5883.63	Transducer	1340	1360.7	Regional
R-46	07/29/12	5883.56	Transducer	1340	1360.7	Regional
R-46	07/28/12	5883.61	Transducer	1340	1360.7	Regional
R-46	07/27/12	5883.71	Transducer	1340	1360.7	Regional
R-46	07/26/12	5883.82	Transducer	1340	1360.7	Regional
R-46	07/25/12	5883.81	Transducer	1340	1360.7	Regional
R-46	07/24/12	5883.72	Transducer	1340	1360.7	Regional
R-46	07/23/12	5883.65	Transducer	1340	1360.7	Regional
R-46	07/22/12	5883.6	Transducer	1340	1360.7	Regional
R-46	07/21/12	5883.56	Transducer	1340	1360.7	Regional
R-46	07/20/12	5883.55	Transducer	1340	1360.7	Regional
R-46	07/19/12	5883.6	Transducer	1340	1360.7	Regional
R-46	07/18/12	5883.71	Transducer	1340	1360.7	Regional
R-46	07/17/12	5883.75	Transducer	1340	1360.7	Regional
R-46	07/16/12	5883.71	Transducer	1340	1360.7	Regional
R-46	07/15/12	5883.68	Transducer	1340	1360.7	Regional
R-46	07/14/12	5883.65	Transducer	1340	1360.7	Regional
R-46	07/13/12	5883.66	Transducer	1340	1360.7	Regional
R-46	07/12/12	5883.62	Transducer	1340	1360.7	Regional
R-46	07/11/12	5883.56	Transducer	1340	1360.7	Regional
R-46	07/10/12	5883.55	Transducer	1340	1360.7	Regional
R-46	07/09/12	5883.56	Transducer	1340	1360.7	Regional
R-46	07/08/12	5883.56	Transducer	1340	1360.7	Regional
R-46	07/07/12	5883.61	Transducer	1340	1360.7	Regional
R-46	07/06/12	5883.68	Transducer	1340	1360.7	Regional
R-46	07/05/12	5883.76	Transducer	1340	1360.7	Regional
R-46	07/04/12	5883.75	Transducer	1340	1360.7	Regional
R-46	07/03/12	5883.77	Transducer	1340	1360.7	Regional
R-46	07/02/12	5883.74	Transducer	1340	1360.7	Regional
R-46	07/01/12	5883.74	Transducer	1340	1360.7	Regional
R-46	06/30/12	5883.72	Transducer	1340	1360.7	Regional
R-46	06/29/12	5883.62	Transducer	1340	1360.7	Regional
R-46	06/28/12	5883.66	Transducer	1340	1360.7	Regional
R-46	06/27/12	5883.79	Transducer	1340	1360.7	Regional
R-46	06/26/12	5883.76	Transducer	1340	1360.7	Regional
R-46	06/25/12	5883.7	Transducer	1340	1360.7	Regional
R-46	06/24/12	5883.74	Transducer	1340	1360.7	Regional
R-46	06/23/12	5883.85	Transducer	1340	1360.7	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-46	06/22/12	5883.71	Transducer	1340	1360.7	Regional
R-46	06/21/12	5883.84	Transducer	1340	1360.7	Regional
R-46	06/20/12	5884.07	Transducer	1340	1360.7	Regional
R-46	06/19/12	5884.04	Transducer	1340	1360.7	Regional
R-46	06/18/12	5883.96	Transducer	1340	1360.7	Regional
R-46	06/17/12	5883.72	Transducer	1340	1360.7	Regional
R-46	06/16/12	5883.85	Transducer	1340	1360.7	Regional
R-46	06/15/12	5883.92	Transducer	1340	1360.7	Regional
R-46	06/14/12	5884.02	Transducer	1340	1360.7	Regional
R-46	06/13/12	5883.95	Transducer	1340	1360.7	Regional
R-46	06/12/12	5883.85	Transducer	1340	1360.7	Regional
R-46	06/11/12	5883.85	Transducer	1340	1360.7	Regional
R-46	06/11/12	5883.974	Transducer	1340	1360.7	Regional
R-46	06/10/12	5884.139	Transducer	1340	1360.7	Regional
R-46	06/09/12	5884.071	Transducer	1340	1360.7	Regional
R-46	06/08/12	5883.98	Transducer	1340	1360.7	Regional
R-46	06/07/12	5884.092	Transducer	1340	1360.7	Regional
R-46	06/06/12	5884.053	Transducer	1340	1360.7	Regional
R-46	06/05/12	5883.98	Transducer	1340	1360.7	Regional
R-46	06/04/12	5883.956	Transducer	1340	1360.7	Regional
R-46	06/03/12	5884.034	Transducer	1340	1360.7	Regional
R-46	06/02/12	5884.057	Transducer	1340	1360.7	Regional
R-46	06/01/12	5884.042	Transducer	1340	1360.7	Regional
R-46	05/31/12	5884.124	Transducer	1340	1360.7	Regional
R-46	05/30/12	5884.103	Transducer	1340	1360.7	Regional
R-46	05/29/12	5884.089	Transducer	1340	1360.7	Regional
R-46	05/28/12	5884.118	Transducer	1340	1360.7	Regional
R-46	05/27/12	5884.202	Transducer	1340	1360.7	Regional
R-46	05/26/12	5884.211	Transducer	1340	1360.7	Regional
R-46	05/25/12	5884.354	Transducer	1340	1360.7	Regional
R-46	05/24/12	5884.517	Transducer	1340	1360.7	Regional
R-46	05/23/12	5884.311	Transducer	1340	1360.7	Regional
R-46	05/22/12	5884.036	Transducer	1340	1360.7	Regional
R-46	05/21/12	5883.931	Transducer	1340	1360.7	Regional
R-46	05/20/12	5884.085	Transducer	1340	1360.7	Regional
R-46	05/19/12	5884.271	Transducer	1340	1360.7	Regional
R-46	05/18/12	5884.281	Transducer	1340	1360.7	Regional
R-46	05/17/12	5884.098	Transducer	1340	1360.7	Regional
R-46	05/16/12	5883.924	Transducer	1340	1360.7	Regional
R-46	05/15/12	5883.953	Transducer	1340	1360.7	Regional
R-46	05/14/12	5884.06	Transducer	1340	1360.7	Regional
R-46	05/13/12	5883.991	Transducer	1340	1360.7	Regional
R-46	05/12/12	5884.092	Transducer	1340	1360.7	Regional
R-46	05/11/12	5884.329	Transducer	1340	1360.7	Regional
R-46	05/10/12	5884.208	Transducer	1340	1360.7	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-46	05/09/12	5884.021	Transducer	1340	1360.7	Regional
R-46	05/08/12	5884.093	Transducer	1340	1360.7	Regional
R-46	05/07/12	5884.156	Transducer	1340	1360.7	Regional
R-46	05/06/12	5884.243	Transducer	1340	1360.7	Regional
R-46	05/05/12	5884.218	Transducer	1340	1360.7	Regional
R-46	05/04/12	5884.243	Transducer	1340	1360.7	Regional
R-46	05/03/12	5884.327	Transducer	1340	1360.7	Regional
R-46	05/02/12	5884.393	Transducer	1340	1360.7	Regional
R-46	05/01/12	5884.382	Transducer	1340	1360.7	Regional
R-46	04/30/12	5884.265	Transducer	1340	1360.7	Regional
R-46	04/29/12	5884.342	Transducer	1340	1360.7	Regional
R-46	04/28/12	5884.375	Transducer	1340	1360.7	Regional
R-46	04/27/12	5884.495	Transducer	1340	1360.7	Regional
R-46	04/26/12	5884.299	Transducer	1340	1360.7	Regional
R-46	04/25/12	5884.353	Transducer	1340	1360.7	Regional
R-46	04/24/12	5884.299	Transducer	1340	1360.7	Regional
R-46	04/23/12	5884.16	Transducer	1340	1360.7	Regional
R-46	04/22/12	5884.248	Transducer	1340	1360.7	Regional
R-46	04/21/12	5884.34	Transducer	1340	1360.7	Regional
R-46	04/20/12	5884.464	Transducer	1340	1360.7	Regional
R-46	04/19/12	5884.51	Transducer	1340	1360.7	Regional
R-46	04/18/12	5884.396	Transducer	1340	1360.7	Regional
R-46	04/17/12	5884.333	Transducer	1340	1360.7	Regional
R-46	04/16/12	5884.457	Transducer	1340	1360.7	Regional
R-46	04/15/12	5884.826	Transducer	1340	1360.7	Regional
R-46	04/14/12	5884.823	Transducer	1340	1360.7	Regional
R-46	04/13/12	5884.615	Transducer	1340	1360.7	Regional
R-46	04/12/12	5884.627	Transducer	1340	1360.7	Regional
R-46	04/11/12	5884.427	Transducer	1340	1360.7	Regional
R-46	04/10/12	5884.393	Transducer	1340	1360.7	Regional
R-46	04/09/12	5884.31	Transducer	1340	1360.7	Regional
R-46	04/08/12	5884.213	Transducer	1340	1360.7	Regional
R-46	04/07/12	5884.489	Transducer	1340	1360.7	Regional
R-46	04/06/12	5884.625	Transducer	1340	1360.7	Regional
R-46	04/05/12	5884.605	Transducer	1340	1360.7	Regional
R-46	04/04/12	5884.594	Transducer	1340	1360.7	Regional
R-46	04/03/12	5884.764	Transducer	1340	1360.7	Regional
R-46	04/02/12	5884.831	Transducer	1340	1360.7	Regional
R-46	04/01/12	5884.641	Transducer	1340	1360.7	Regional
R-46	03/31/12	5884.564	Transducer	1340	1360.7	Regional
R-46	03/30/12	5884.613	Transducer	1340	1360.7	Regional
R-46	03/29/12	5884.613	Transducer	1340	1360.7	Regional
R-46	03/28/12	5884.554	Transducer	1340	1360.7	Regional
R-46	03/27/12	5884.601	Transducer	1340	1360.7	Regional
R-46	03/26/12	5884.607	Transducer	1340	1360.7	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-46	03/25/12	5884.519	Transducer	1340	1360.7	Regional
R-46	03/24/12	5884.549	Transducer	1340	1360.7	Regional
R-46	03/23/12	5884.618	Transducer	1340	1360.7	Regional
R-46	03/22/12	5884.684	Transducer	1340	1360.7	Regional
R-46	03/21/12	5884.724	Transducer	1340	1360.7	Regional
R-46	03/20/12	5885.013	Transducer	1340	1360.7	Regional
R-46	03/19/12	5884.972	Transducer	1340	1360.7	Regional
R-46	03/18/12	5884.836	Transducer	1340	1360.7	Regional
R-46	03/17/12	5884.707	Transducer	1340	1360.7	Regional
R-46	03/16/12	5884.583	Transducer	1340	1360.7	Regional
R-46	03/15/12	5884.554	Transducer	1340	1360.7	Regional
R-46	03/14/12	5884.613	Transducer	1340	1360.7	Regional
R-46	03/13/12	5884.583	Transducer	1340	1360.7	Regional
R-46	03/12/12	5884.72	Transducer	1340	1360.7	Regional
R-46	03/11/12	5884.82	Transducer	1340	1360.7	Regional
R-46	03/10/12	5884.503	Transducer	1340	1360.7	Regional
R-46	03/09/12	5884.343	Transducer	1340	1360.7	Regional
R-46	03/08/12	5884.794	Transducer	1340	1360.7	Regional
R-46	03/07/12	5884.948	Transducer	1340	1360.7	Regional
R-46	03/06/12	5884.64	Transducer	1340	1360.7	Regional
R-46	03/05/12	5884.499	Transducer	1340	1360.7	Regional
R-46	03/04/12	5884.532	Transducer	1340	1360.7	Regional
R-46	03/03/12	5884.705	Transducer	1340	1360.7	Regional
R-46	03/02/12	5884.93	Transducer	1340	1360.7	Regional
R-46	03/01/12	5884.816	Transducer	1340	1360.7	Regional
R-46	02/29/12	5884.705	Transducer	1340	1360.7	Regional
R-46	02/28/12	5884.806	Transducer	1340	1360.7	Regional
R-46	02/27/12	5884.642	Transducer	1340	1360.7	Regional
R-46	02/26/12	5884.731	Transducer	1340	1360.7	Regional
R-46	02/25/12	5884.459	Transducer	1340	1360.7	Regional
R-46	02/24/12	5884.624	Transducer	1340	1360.7	Regional
R-46	02/23/12	5884.804	Transducer	1340	1360.7	Regional
R-46	02/22/12	5884.552	Transducer	1340	1360.7	Regional
R-46	02/21/12	5884.561	Transducer	1340	1360.7	Regional
R-46	02/20/12	5884.85	Transducer	1340	1360.7	Regional
R-46	02/19/12	5884.665	Transducer	1340	1360.7	Regional
R-46	02/18/12	5884.664	Transducer	1340	1360.7	Regional
R-46	02/17/12	5884.593	Transducer	1340	1360.7	Regional
R-46	02/16/12	5884.611	Transducer	1340	1360.7	Regional
R-46	02/15/12	5884.896	Transducer	1340	1360.7	Regional
R-46	02/14/12	5884.796	Transducer	1340	1360.7	Regional
R-46	02/13/12	5884.815	Transducer	1340	1360.7	Regional
R-46	02/12/12	5884.494	Transducer	1340	1360.7	Regional
R-46	02/11/12	5884.447	Transducer	1340	1360.7	Regional
R-46	02/10/12	5884.518	Transducer	1340	1360.7	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-46	02/09/12	5884.509	Transducer	1340	1360.7	Regional
R-46	02/08/12	5884.424	Transducer	1340	1360.7	Regional
R-46	02/07/12	5884.604	Transducer	1340	1360.7	Regional
R-46	02/06/12	5884.507	Transducer	1340	1360.7	Regional
R-46	02/05/12	5884.403	Transducer	1340	1360.7	Regional
R-46	02/04/12	5884.518	Transducer	1340	1360.7	Regional
R-46	02/03/12	5884.833	Transducer	1340	1360.7	Regional
R-46	02/02/12	5884.627	Transducer	1340	1360.7	Regional
R-46	02/01/12	5884.552	Transducer	1340	1360.7	Regional
R-46	01/31/12	5884.705	Transducer	1340	1360.7	Regional
R-46	01/30/12	5884.529	Transducer	1340	1360.7	Regional
R-46	01/29/12	5884.424	Transducer	1340	1360.7	Regional
R-46	01/28/12	5884.519	Transducer	1340	1360.7	Regional
R-46	01/27/12	5884.747	Transducer	1340	1360.7	Regional
R-46	01/26/12	5884.599	Transducer	1340	1360.7	Regional
R-46	01/25/12	5884.575	Transducer	1340	1360.7	Regional
R-46	01/24/12	5884.81	Transducer	1340	1360.7	Regional
R-46	01/23/12	5884.678	Transducer	1340	1360.7	Regional
R-46	01/22/12	5885.056	Transducer	1340	1360.7	Regional
R-46	01/21/12	5884.686	Transducer	1340	1360.7	Regional
R-46	01/20/12	5884.865	Transducer	1340	1360.7	Regional
R-46	01/19/12	5884.721	Transducer	1340	1360.7	Regional
R-46	01/18/12	5884.648	Transducer	1340	1360.7	Regional
R-46	01/17/12	5884.828	Transducer	1340	1360.7	Regional
R-46	01/16/12	5884.793	Transducer	1340	1360.7	Regional
R-46	01/15/12	5884.618	Transducer	1340	1360.7	Regional
R-46	01/14/12	5884.594	Transducer	1340	1360.7	Regional
R-46	01/13/12	5884.81	Transducer	1340	1360.7	Regional
R-46	01/12/12	5884.811	Transducer	1340	1360.7	Regional
R-46	01/11/12	5884.883	Transducer	1340	1360.7	Regional
R-46	01/10/12	5884.698	Transducer	1340	1360.7	Regional
R-46	01/09/12	5884.692	Transducer	1340	1360.7	Regional
R-46	01/08/12	5884.916	Transducer	1340	1360.7	Regional
R-46	01/07/12	5884.837	Transducer	1340	1360.7	Regional
R-46	01/06/12	5884.834	Transducer	1340	1360.7	Regional
R-46	01/05/12	5884.527	Transducer	1340	1360.7	Regional
R-46	01/04/12	5884.621	Transducer	1340	1360.7	Regional
R-46	01/03/12	5884.495	Transducer	1340	1360.7	Regional
R-46	01/02/12	5884.433	Transducer	1340	1360.7	Regional
R-46	01/01/12	5884.597	Transducer	1340	1360.7	Regional
R-46	12/31/11	5884.854	Transducer	1340	1360.7	Regional
R-46	12/30/11	5884.829	Transducer	1340	1360.7	Regional
R-46	12/29/11	5884.78	Transducer	1340	1360.7	Regional
R-46	12/28/11	5884.854	Transducer	1340	1360.7	Regional
R-46	12/27/11	5884.824	Transducer	1340	1360.7	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-46	12/26/11	5884.886	Transducer	1340	1360.7	Regional
R-46	12/25/11	5884.727	Transducer	1340	1360.7	Regional
R-46	12/24/11	5884.809	Transducer	1340	1360.7	Regional
R-46	12/23/11	5884.927	Transducer	1340	1360.7	Regional
R-46	12/22/11	5885.183	Transducer	1340	1360.7	Regional
R-46	12/21/11	5885.181	Transducer	1340	1360.7	Regional
R-46	12/20/11	5885.111	Transducer	1340	1360.7	Regional
R-46	12/19/11	5885.194	Transducer	1340	1360.7	Regional
R-46	12/18/11	5884.781	Transducer	1340	1360.7	Regional
R-46	12/17/11	5884.7	Transducer	1340	1360.7	Regional
R-46	12/16/11	5884.848	Transducer	1340	1360.7	Regional
R-46	12/15/11	5884.967	Transducer	1340	1360.7	Regional
R-46	12/14/11	5885.164	Transducer	1340	1360.7	Regional
R-46	12/13/11	5885.026	Transducer	1340	1360.7	Regional
R-46	12/12/11	5884.996	Transducer	1340	1360.7	Regional
R-46	12/11/11	5884.841	Transducer	1340	1360.7	Regional
R-46	12/10/11	5884.705	Transducer	1340	1360.7	Regional
R-46	12/09/11	5884.892	Transducer	1340	1360.7	Regional
R-46	12/08/11	5884.917	Transducer	1340	1360.7	Regional
R-46	12/07/11	5884.833	Transducer	1340	1360.7	Regional
R-46	12/06/11	5884.92	Transducer	1340	1360.7	Regional
R-46	12/05/11	5885.062	Transducer	1340	1360.7	Regional
R-46	12/04/11	5884.997	Transducer	1340	1360.7	Regional
R-46	12/03/11	5885.161	Transducer	1340	1360.7	Regional
R-46	12/02/11	5884.813	Transducer	1340	1360.7	Regional
R-46	12/01/11	5885.001	Transducer	1340	1360.7	Regional
R-46	12/01/11	5885.061	Transducer	1340	1360.7	Regional
R-46	11/30/11	5884.73	Transducer	1340	1360.7	Regional
R-46	11/29/11	5884.713	Transducer	1340	1360.7	Regional
R-46	11/28/11	5884.628	Transducer	1340	1360.7	Regional
R-46	11/27/11	5884.538	Transducer	1340	1360.7	Regional
R-46	11/26/11	5884.93	Transducer	1340	1360.7	Regional
R-46	11/25/11	5884.884	Transducer	1340	1360.7	Regional
R-46	11/24/11	5884.733	Transducer	1340	1360.7	Regional
R-46	11/23/11	5884.651	Transducer	1340	1360.7	Regional
R-46	11/22/11	5884.812	Transducer	1340	1360.7	Regional
R-46	11/21/11	5884.896	Transducer	1340	1360.7	Regional
R-46	11/20/11	5885.012	Transducer	1340	1360.7	Regional
R-46	11/19/11	5885.148	Transducer	1340	1360.7	Regional
R-46	11/18/11	5884.951	Transducer	1340	1360.7	Regional
R-46	11/17/11	5884.736	Transducer	1340	1360.7	Regional
R-46	11/16/11	5884.996	Transducer	1340	1360.7	Regional
R-46	11/15/11	5885.02	Transducer	1340	1360.7	Regional
R-46	11/14/11	5885.063	Transducer	1340	1360.7	Regional
R-46	11/13/11	5885.051	Transducer	1340	1360.7	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-46	11/12/11	5884.969	Transducer	1340	1360.7	Regional
R-46	11/11/11	5884.714	Transducer	1340	1360.7	Regional
R-46	11/10/11	5884.569	Transducer	1340	1360.7	Regional
R-46	11/09/11	5884.751	Transducer	1340	1360.7	Regional
R-46	11/08/11	5885.062	Transducer	1340	1360.7	Regional
R-46	11/07/11	5884.992	Transducer	1340	1360.7	Regional
R-46	11/06/11	5885.069	Transducer	1340	1360.7	Regional
R-46	11/05/11	5885.148	Transducer	1340	1360.7	Regional
R-46	11/04/11	5884.856	Transducer	1340	1360.7	Regional
R-46	11/03/11	5884.665	Transducer	1340	1360.7	Regional
R-46	11/02/11	5885.07	Transducer	1340	1360.7	Regional
R-46	11/01/11	5884.856	Transducer	1340	1360.7	Regional
R-46	10/31/11	5884.706	Transducer	1340	1360.7	Regional
R-46	10/30/11	5884.854	Transducer	1340	1360.7	Regional
R-46	10/29/11	5884.761	Transducer	1340	1360.7	Regional
R-46	10/28/11	5884.853	Transducer	1340	1360.7	Regional
R-46	10/27/11	5884.982	Transducer	1340	1360.7	Regional
R-46	10/26/11	5884.875	Transducer	1340	1360.7	Regional
R-46	10/25/11	5884.782	Transducer	1340	1360.7	Regional
R-46	10/24/11	5884.674	Transducer	1340	1360.7	Regional
R-46	10/23/11	5884.732	Transducer	1340	1360.7	Regional
R-46	10/22/11	5884.722	Transducer	1340	1360.7	Regional
R-46	10/21/11	5884.716	Transducer	1340	1360.7	Regional
R-46	10/20/11	5884.837	Transducer	1340	1360.7	Regional
R-46	10/19/11	5884.67	Transducer	1340	1360.7	Regional
R-46	10/18/11	5884.74	Transducer	1340	1360.7	Regional
R-46	10/17/11	5884.79	Transducer	1340	1360.7	Regional
R-46	10/16/11	5884.683	Transducer	1340	1360.7	Regional
R-46	10/15/11	5884.683	Transducer	1340	1360.7	Regional
R-46	10/14/11	5884.739	Transducer	1340	1360.7	Regional
R-46	10/13/11	5884.638	Transducer	1340	1360.7	Regional
R-46	10/12/11	5884.721	Transducer	1340	1360.7	Regional
R-46	10/11/11	5884.829	Transducer	1340	1360.7	Regional
R-46	10/10/11	5884.744	Transducer	1340	1360.7	Regional
R-46	10/09/11	5884.747	Transducer	1340	1360.7	Regional
R-46	10/08/11	5884.861	Transducer	1340	1360.7	Regional
R-46	10/07/11	5884.8	Transducer	1340	1360.7	Regional
R-46	10/06/11	5884.822	Transducer	1340	1360.7	Regional
R-46	10/05/11	5884.682	Transducer	1340	1360.7	Regional
R-46	10/04/11	5884.492	Transducer	1340	1360.7	Regional
R-46	10/03/11	5884.483	Transducer	1340	1360.7	Regional
R-46	10/02/11	5884.502	Transducer	1340	1360.7	Regional
R-46	10/01/11	5884.462	Transducer	1340	1360.7	Regional
R-46	09/30/11	5884.359	Transducer	1340	1360.7	Regional
R-46	09/29/11	5884.479	Transducer	1340	1360.7	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-46	09/28/11	5884.438	Transducer	1340	1360.7	Regional
R-46	09/27/11	5884.542	Transducer	1340	1360.7	Regional
R-46	09/26/11	5884.584	Transducer	1340	1360.7	Regional
R-46	09/25/11	5884.544	Transducer	1340	1360.7	Regional
R-46	09/24/11	5884.431	Transducer	1340	1360.7	Regional
R-46	09/23/11	5884.419	Transducer	1340	1360.7	Regional
R-46	09/22/11	5884.534	Transducer	1340	1360.7	Regional
R-46	09/21/11	5884.546	Transducer	1340	1360.7	Regional
R-46	09/20/11	5884.542	Transducer	1340	1360.7	Regional
R-46	09/19/11	5884.469	Transducer	1340	1360.7	Regional
R-46	09/18/11	5884.54	Transducer	1340	1360.7	Regional
R-46	09/17/11	5884.597	Transducer	1340	1360.7	Regional
R-46	09/16/11	5884.616	Transducer	1340	1360.7	Regional
R-46	09/15/11	5884.594	Transducer	1340	1360.7	Regional
R-46	09/14/11	5884.577	Transducer	1340	1360.7	Regional
R-46	09/13/11	5884.5	Transducer	1340	1360.7	Regional
R-46	09/12/11	5884.472	Transducer	1340	1360.7	Regional
R-46	09/11/11	5884.466	Transducer	1340	1360.7	Regional
R-46	09/10/11	5884.515	Transducer	1340	1360.7	Regional
R-46	09/09/11	5884.531	Transducer	1340	1360.7	Regional
R-46	09/08/11	5884.475	Transducer	1340	1360.7	Regional
R-46	09/07/11	5884.653	Transducer	1340	1360.7	Regional
R-46	09/06/11	5884.626	Transducer	1340	1360.7	Regional
R-46	09/05/11	5884.532	Transducer	1340	1360.7	Regional
R-46	09/04/11	5884.632	Transducer	1340	1360.7	Regional
R-46	09/03/11	5884.689	Transducer	1340	1360.7	Regional
R-46	09/02/11	5884.62	Transducer	1340	1360.7	Regional
R-46	09/01/11	5884.588	Transducer	1340	1360.7	Regional
R-46	08/31/11	5884.673	Transducer	1340	1360.7	Regional
R-46	08/30/11	5884.679	Transducer	1340	1360.7	Regional
R-46	08/29/11	5884.615	Transducer	1340	1360.7	Regional
R-46	08/28/11	5884.522	Transducer	1340	1360.7	Regional
R-46	08/27/11	5884.407	Transducer	1340	1360.7	Regional
R-46	08/26/11	5884.401	Transducer	1340	1360.7	Regional
R-46	08/25/11	5884.445	Transducer	1340	1360.7	Regional
R-46	08/24/11	5884.524	Transducer	1340	1360.7	Regional
R-46	08/23/11	5884.545	Transducer	1340	1360.7	Regional
R-46	08/22/11	5884.451	Transducer	1340	1360.7	Regional
R-46	08/21/11	5884.515	Transducer	1340	1360.7	Regional
R-46	08/20/11	5884.547	Transducer	1340	1360.7	Regional
R-46	08/19/11	5884.554	Transducer	1340	1360.7	Regional
R-46	08/19/11	5884.5	Transducer	1340	1360.7	Regional
R-46	08/18/11	5884.36	Transducer	1340	1360.7	Regional
R-46	08/17/11	5884.4	Transducer	1340	1360.7	Regional
R-46	08/16/11	5884.55	Transducer	1340	1360.7	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-46	08/15/11	5884.48	Transducer	1340	1360.7	Regional
R-46	08/14/11	5884.31	Transducer	1340	1360.7	Regional
R-46	08/13/11	5884.45	Transducer	1340	1360.7	Regional
R-46	08/12/11	5884.46	Transducer	1340	1360.7	Regional
R-46	08/11/11	5884.44	Transducer	1340	1360.7	Regional
R-46	08/10/11	5884.51	Transducer	1340	1360.7	Regional
R-46	08/09/11	5884.49	Transducer	1340	1360.7	Regional
R-46	08/08/11	5884.49	Transducer	1340	1360.7	Regional
R-46	08/07/11	5884.45	Transducer	1340	1360.7	Regional
R-46	08/06/11	5884.38	Transducer	1340	1360.7	Regional
R-46	08/05/11	5884.35	Transducer	1340	1360.7	Regional
R-46	08/04/11	5884.33	Transducer	1340	1360.7	Regional
R-46	08/03/11	5884.33	Transducer	1340	1360.7	Regional
R-46	08/02/11	5884.27	Transducer	1340	1360.7	Regional
R-46	08/01/11	5884.18	Transducer	1340	1360.7	Regional
R-46	07/31/11	5884.13	Transducer	1340	1360.7	Regional
R-46	07/30/11	5884.09	Transducer	1340	1360.7	Regional
R-46	07/29/11	5884.11	Transducer	1340	1360.7	Regional
R-46	07/28/11	5884.1	Transducer	1340	1360.7	Regional
R-46	07/27/11	5884.09	Transducer	1340	1360.7	Regional
R-46	07/26/11	5884.02	Transducer	1340	1360.7	Regional
R-46	07/25/11	5883.94	Transducer	1340	1360.7	Regional
R-46	07/24/11	5884.02	Transducer	1340	1360.7	Regional
R-46	07/23/11	5884.13	Transducer	1340	1360.7	Regional
R-46	07/22/11	5884.17	Transducer	1340	1360.7	Regional
R-46	07/21/11	5884.15	Transducer	1340	1360.7	Regional
R-46	07/20/11	5884.1	Transducer	1340	1360.7	Regional
R-46	07/19/11	5884.01	Transducer	1340	1360.7	Regional
R-46	07/18/11	5883.97	Transducer	1340	1360.7	Regional
R-46	07/17/11	5884.07	Transducer	1340	1360.7	Regional
R-46	07/16/11	5884.21	Transducer	1340	1360.7	Regional
R-46	07/15/11	5884.26	Transducer	1340	1360.7	Regional
R-46	07/14/11	5884.23	Transducer	1340	1360.7	Regional
R-46	07/13/11	5884.17	Transducer	1340	1360.7	Regional
R-46	07/12/11	5884.15	Transducer	1340	1360.7	Regional
R-46	07/11/11	5884.17	Transducer	1340	1360.7	Regional
R-46	07/10/11	5884.21	Transducer	1340	1360.7	Regional
R-46	07/09/11	5884.29	Transducer	1340	1360.7	Regional
R-46	07/08/11	5884.27	Transducer	1340	1360.7	Regional
R-46	07/07/11	5884.21	Transducer	1340	1360.7	Regional
R-46	07/06/11	5884.22	Transducer	1340	1360.7	Regional
R-46	07/05/11	5884.28	Transducer	1340	1360.7	Regional
R-46	07/04/11	5884.36	Transducer	1340	1360.7	Regional
R-46	07/03/11	5884.32	Transducer	1340	1360.7	Regional
R-46	07/02/11	5884.36	Transducer	1340	1360.7	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-46	07/01/11	5884.38	Transducer	1340	1360.7	Regional
R-46	06/30/11	5884.33	Transducer	1340	1360.7	Regional
R-46	06/29/11	5884.21	Transducer	1340	1360.7	Regional
R-46	06/28/11	5884.25	Transducer	1340	1360.7	Regional
R-46	06/27/11	5884.46	Transducer	1340	1360.7	Regional
R-46	06/26/11	5884.47	Transducer	1340	1360.7	Regional
R-46	06/25/11	5884.53	Transducer	1340	1360.7	Regional
R-46	06/24/11	5884.5	Transducer	1340	1360.7	Regional
R-46	06/23/11	5884.44	Transducer	1340	1360.7	Regional
R-46	06/22/11	5884.48	Transducer	1340	1360.7	Regional
R-46	06/21/11	5884.6	Transducer	1340	1360.7	Regional
R-46	06/20/11	5884.81	Transducer	1340	1360.7	Regional
R-46	06/19/11	5884.69	Transducer	1340	1360.7	Regional
R-46	06/18/11	5884.6	Transducer	1340	1360.7	Regional
R-46	06/17/11	5884.73	Transducer	1340	1360.7	Regional
R-46	06/16/11	5884.7	Transducer	1340	1360.7	Regional
R-46	06/15/11	5884.61	Transducer	1340	1360.7	Regional
R-46	06/14/11	5884.64	Transducer	1340	1360.7	Regional
R-46	06/13/11	5884.65	Transducer	1340	1360.7	Regional
R-46	06/12/11	5884.68	Transducer	1340	1360.7	Regional
R-46	06/11/11	5884.64	Transducer	1340	1360.7	Regional
R-46	06/10/11	5884.71	Transducer	1340	1360.7	Regional
R-46	06/09/11	5884.76	Transducer	1340	1360.7	Regional
R-46	06/08/11	5884.79	Transducer	1340	1360.7	Regional
R-46	06/07/11	5884.77	Transducer	1340	1360.7	Regional
R-46	06/06/11	5884.64	Transducer	1340	1360.7	Regional
R-46	06/05/11	5884.54	Transducer	1340	1360.7	Regional
R-46	06/04/11	5884.71	Transducer	1340	1360.7	Regional
R-46	06/03/11	5884.8	Transducer	1340	1360.7	Regional
R-46	06/02/11	5884.73	Transducer	1340	1360.7	Regional
R-46	06/01/11	5884.56	Transducer	1340	1360.7	Regional
R-46	05/31/11	5884.69	Transducer	1340	1360.7	Regional
R-46	05/30/11	5885.08	Transducer	1340	1360.7	Regional
R-46	05/29/11	5885.04	Transducer	1340	1360.7	Regional
R-46	05/28/11	5884.94	Transducer	1340	1360.7	Regional
R-46	05/27/11	5884.91	Transducer	1340	1360.7	Regional
R-46	05/26/11	5884.76	Transducer	1340	1360.7	Regional
R-46	05/25/11	5884.86	Transducer	1340	1360.7	Regional
R-46	05/24/11	5885.02	Transducer	1340	1360.7	Regional
R-46	05/23/11	5884.92	Transducer	1340	1360.7	Regional
R-46	05/22/11	5884.87	Transducer	1340	1360.7	Regional
R-46	05/21/11	5884.96	Transducer	1340	1360.7	Regional
R-46	05/20/11	5885.04	Transducer	1340	1360.7	Regional
R-46	05/19/11	5885.18	Transducer	1340	1360.7	Regional
R-46	05/18/11	5885.1	Transducer	1340	1360.7	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-46	05/17/11	5885.05	Transducer	1340	1360.7	Regional
R-46	05/16/11	5884.9	Transducer	1340	1360.7	Regional
R-46	05/15/11	5884.91	Transducer	1340	1360.7	Regional
R-46	05/14/11	5884.79	Transducer	1340	1360.7	Regional
R-46	05/13/11	5884.8	Transducer	1340	1360.7	Regional
R-46	05/12/11	5884.99	Transducer	1340	1360.7	Regional
R-46	05/11/11	5885.2	Transducer	1340	1360.7	Regional
R-46	05/10/11	5885.21	Transducer	1340	1360.7	Regional
R-46	05/09/11	5885.18	Transducer	1340	1360.7	Regional
R-46	05/08/11	5885.05	Transducer	1340	1360.7	Regional
R-46	05/07/11	5884.99	Transducer	1340	1360.7	Regional
R-46	05/06/11	5884.86	Transducer	1340	1360.7	Regional
R-46	05/05/11	5884.82	Transducer	1340	1360.7	Regional
R-46	05/04/11	5884.8	Transducer	1340	1360.7	Regional
R-46	05/03/11	5884.72	Transducer	1340	1360.7	Regional
R-46	05/02/11	5884.86	Transducer	1340	1360.7	Regional
R-46	05/01/11	5885.11	Transducer	1340	1360.7	Regional
R-46	04/30/11	5885.22	Transducer	1340	1360.7	Regional
R-46	04/29/11	5885.18	Transducer	1340	1360.7	Regional
R-46	04/28/11	5884.98	Transducer	1340	1360.7	Regional
R-46	04/27/11	5885.35	Transducer	1340	1360.7	Regional
R-46	04/26/11	5885.35	Transducer	1340	1360.7	Regional
R-46	04/25/11	5885.3	Transducer	1340	1360.7	Regional
R-46	04/24/11	5885.27	Transducer	1340	1360.7	Regional
R-46	04/23/11	5885.31	Transducer	1340	1360.7	Regional
R-46	04/22/11	5885.31	Transducer	1340	1360.7	Regional
R-46	04/21/11	5885.22	Transducer	1340	1360.7	Regional
R-46	04/20/11	5885.22	Transducer	1340	1360.7	Regional
R-46	04/19/11	5885.4	Transducer	1340	1360.7	Regional
R-46	04/18/11	5885.29	Transducer	1340	1360.7	Regional
R-46	04/17/11	5885.24	Transducer	1340	1360.7	Regional
R-46	04/16/11	5885.15	Transducer	1340	1360.7	Regional
R-46	04/15/11	5885.22	Transducer	1340	1360.7	Regional
R-46	04/14/11	5885.33	Transducer	1340	1360.7	Regional
R-46	04/13/11	5885.23	Transducer	1340	1360.7	Regional
R-46	04/12/11	5885.07	Transducer	1340	1360.7	Regional
R-46	04/11/11	5885.11	Transducer	1340	1360.7	Regional
R-46	04/10/11	5885.35	Transducer	1340	1360.7	Regional
R-46	04/09/11	5885.39	Transducer	1340	1360.7	Regional
R-46	04/08/11	5885.4	Transducer	1340	1360.7	Regional
R-46	04/07/11	5885.28	Transducer	1340	1360.7	Regional
R-46	04/06/11	5885.29	Transducer	1340	1360.7	Regional
R-46	04/05/11	5885.07	Transducer	1340	1360.7	Regional
R-46	04/04/11	5885.26	Transducer	1340	1360.7	Regional
R-46	04/03/11	5885.29	Transducer	1340	1360.7	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-46	04/02/11	5885.13	Transducer	1340	1360.7	Regional
R-46	04/01/11	5885.24	Transducer	1340	1360.7	Regional
R-46	03/31/11	5885.23	Transducer	1340	1360.7	Regional
R-46	03/30/11	5885.17	Transducer	1340	1360.7	Regional
R-46	03/29/11	5885.32	Transducer	1340	1360.7	Regional
R-46	03/28/11	5885.35	Transducer	1340	1360.7	Regional
R-46	03/27/11	5885.44	Transducer	1340	1360.7	Regional
R-46	03/26/11	5885.4	Transducer	1340	1360.7	Regional
R-46	03/25/11	5885.3	Transducer	1340	1360.7	Regional
R-46	03/24/11	5885.27	Transducer	1340	1360.7	Regional
R-46	03/23/11	5885.27	Transducer	1340	1360.7	Regional
R-46	03/22/11	5885.4	Transducer	1340	1360.7	Regional
R-46	03/21/11	5885.19	Transducer	1340	1360.7	Regional
R-46	03/20/11	5885.17	Transducer	1340	1360.7	Regional
R-46	03/19/11	5885.05	Transducer	1340	1360.7	Regional
R-46	03/18/11	5885.11	Transducer	1340	1360.7	Regional
R-46	03/17/11	5885.17	Transducer	1340	1360.7	Regional
R-46	03/16/11	5885.09	Transducer	1340	1360.7	Regional
R-46	03/15/11	5885.1	Transducer	1340	1360.7	Regional
R-46	03/14/11	5884.98	Transducer	1340	1360.7	Regional
R-46	03/13/11	5885.19	Transducer	1340	1360.7	Regional
R-46	03/12/11	5885.16	Transducer	1340	1360.7	Regional
R-46	03/11/11	5885.07	Transducer	1340	1360.7	Regional
R-46	03/10/11	5884.91	Transducer	1340	1360.7	Regional
R-46	03/09/11	5885.14	Transducer	1340	1360.7	Regional
R-46	03/08/11	5885.53	Transducer	1340	1360.7	Regional
R-46	03/07/11	5885.4	Transducer	1340	1360.7	Regional
R-46	03/06/11	5885.07	Transducer	1340	1360.7	Regional
R-46	03/05/11	5884.94	Transducer	1340	1360.7	Regional
R-46	03/04/11	5885.24	Transducer	1340	1360.7	Regional
R-46	03/03/11	5885.12	Transducer	1340	1360.7	Regional
R-46	03/02/11	5885.06	Transducer	1340	1360.7	Regional
R-46	03/01/11	5884.81	Transducer	1340	1360.7	Regional
R-46	02/28/11	5885.07	Transducer	1340	1360.7	Regional
R-46	02/27/11	5885.34	Transducer	1340	1360.7	Regional
R-46	02/26/11	5885.22	Transducer	1340	1360.7	Regional
R-46	02/25/11	5885.11	Transducer	1340	1360.7	Regional
R-46	02/24/11	5885.26	Transducer	1340	1360.7	Regional
R-46	02/23/11	5885.17	Transducer	1340	1360.7	Regional
R-46	02/22/11	5885.15	Transducer	1340	1360.7	Regional
R-46	02/21/11	5885.26	Transducer	1340	1360.7	Regional
R-46	02/20/11	5885.28	Transducer	1340	1360.7	Regional
R-46	02/19/11	5884.95	Transducer	1340	1360.7	Regional
R-46	02/18/11	5885.02	Transducer	1340	1360.7	Regional
R-46	02/17/11	5885.18	Transducer	1340	1360.7	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-46	02/16/11	5884.99	Transducer	1340	1360.7	Regional
R-46	02/15/11	5884.93	Transducer	1340	1360.7	Regional
R-46	02/14/11	5884.84	Transducer	1340	1360.7	Regional
R-46	02/13/11	5884.78	Transducer	1340	1360.7	Regional
R-46	02/12/11	5884.81	Transducer	1340	1360.7	Regional
R-46	02/11/11	5885.06	Transducer	1340	1360.7	Regional
R-46	02/10/11	5885.09	Transducer	1340	1360.7	Regional
R-46	02/09/11	5885.19	Transducer	1340	1360.7	Regional
R-46	02/08/11	5885.29	Transducer	1340	1360.7	Regional
R-46	02/07/11	5884.96	Transducer	1340	1360.7	Regional
R-46	02/06/11	5885.27	Transducer	1340	1360.7	Regional
R-46	02/05/11	5885.15	Transducer	1340	1360.7	Regional
R-46	02/04/11	5885.07	Transducer	1340	1360.7	Regional
R-46	02/03/11	5884.98	Transducer	1340	1360.7	Regional
R-46	02/02/11	5885.18	Transducer	1340	1360.7	Regional
R-46	02/01/11	5885.29	Transducer	1340	1360.7	Regional
R-46	01/31/11	5885.18	Transducer	1340	1360.7	Regional
R-46	01/30/11	5885.09	Transducer	1340	1360.7	Regional
R-46	01/29/11	5885.08	Transducer	1340	1360.7	Regional
R-46	01/28/11	5884.93	Transducer	1340	1360.7	Regional
R-46	01/27/11	5884.93	Transducer	1340	1360.7	Regional
R-46	01/26/11	5885.09	Transducer	1340	1360.7	Regional
R-46	01/25/11	5884.99	Transducer	1340	1360.7	Regional
R-46	01/24/11	5885.13	Transducer	1340	1360.7	Regional
R-46	01/23/11	5885.2	Transducer	1340	1360.7	Regional
R-46	01/22/11	5885.07	Transducer	1340	1360.7	Regional
R-46	01/21/11	5885.06	Transducer	1340	1360.7	Regional
R-46	01/20/11	5885.19	Transducer	1340	1360.7	Regional
R-46	01/19/11	5885.12	Transducer	1340	1360.7	Regional
R-46	01/18/11	5885.18	Transducer	1340	1360.7	Regional
R-46	01/17/11	5885.06	Transducer	1340	1360.7	Regional
R-46	01/16/11	5885.01	Transducer	1340	1360.7	Regional
R-46	01/15/11	5884.85	Transducer	1340	1360.7	Regional
R-46	01/14/11	5884.94	Transducer	1340	1360.7	Regional
R-46	01/13/11	5884.84	Transducer	1340	1360.7	Regional
R-46	01/12/11	5884.86	Transducer	1340	1360.7	Regional
R-46	01/11/11	5884.95	Transducer	1340	1360.7	Regional
R-46	01/10/11	5885.35	Transducer	1340	1360.7	Regional
R-46	01/09/11	5885.38	Transducer	1340	1360.7	Regional
R-46	01/08/11	5885.16	Transducer	1340	1360.7	Regional
R-46	01/07/11	5884.99	Transducer	1340	1360.7	Regional
R-46	01/06/11	5884.9	Transducer	1340	1360.7	Regional
R-46	01/05/11	5884.98	Transducer	1340	1360.7	Regional
R-46	01/04/11	5885.04	Transducer	1340	1360.7	Regional
R-46	01/03/11	5885.05	Transducer	1340	1360.7	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-46	01/02/11	5884.98	Transducer	1340	1360.7	Regional
R-46	01/01/11	5885.26	Transducer	1340	1360.7	Regional
R-46	12/31/10	5885.71	Transducer	1340	1360.7	Regional
R-46	12/30/10	5885.62	Transducer	1340	1360.7	Regional
R-46	12/29/10	5885.19	Transducer	1340	1360.7	Regional
R-46	12/28/10	5885.01	Transducer	1340	1360.7	Regional
R-46	12/27/10	5885.03	Transducer	1340	1360.7	Regional
R-46	12/26/10	5884.83	Transducer	1340	1360.7	Regional
R-46	12/25/10	5884.77	Transducer	1340	1360.7	Regional
R-46	12/24/10	5884.97	Transducer	1340	1360.7	Regional
R-46	12/23/10	5884.98	Transducer	1340	1360.7	Regional
R-46	12/22/10	5884.92	Transducer	1340	1360.7	Regional
R-46	12/21/10	5885.06	Transducer	1340	1360.7	Regional
R-46	12/20/10	5885.16	Transducer	1340	1360.7	Regional
R-46	12/19/10	5885.13	Transducer	1340	1360.7	Regional
R-46	12/18/10	5885.11	Transducer	1340	1360.7	Regional
R-46	12/17/10	5885.23	Transducer	1340	1360.7	Regional
R-46	12/16/10	5885.23	Transducer	1340	1360.7	Regional
R-46	12/15/10	5885.21	Transducer	1340	1360.7	Regional
R-46	12/14/10	5884.96	Transducer	1340	1360.7	Regional
R-46	12/13/10	5884.82	Transducer	1340	1360.7	Regional
R-46	12/12/10	5884.84	Transducer	1340	1360.7	Regional
R-46	12/11/10	5885.05	Transducer	1340	1360.7	Regional
R-46	12/10/10	5885.02	Transducer	1340	1360.7	Regional
R-46	12/09/10	5884.92	Transducer	1340	1360.7	Regional
R-46	12/08/10	5884.78	Transducer	1340	1360.7	Regional
R-46	12/07/10	5884.92	Transducer	1340	1360.7	Regional
R-46	12/06/10	5884.78	Transducer	1340	1360.7	Regional
R-46	12/05/10	5884.85	Transducer	1340	1360.7	Regional
R-46	12/04/10	5884.91	Transducer	1340	1360.7	Regional
R-46	12/03/10	5884.9	Transducer	1340	1360.7	Regional
R-46	12/02/10	5884.93	Transducer	1340	1360.7	Regional
R-46	12/01/10	5884.87	Transducer	1340	1360.7	Regional
R-46	11/30/10	5885.01	Transducer	1340	1360.7	Regional
R-46	11/29/10	5885.47	Transducer	1340	1360.7	Regional
R-46	11/28/10	5885.31	Transducer	1340	1360.7	Regional
R-46	11/27/10	5884.97	Transducer	1340	1360.7	Regional
R-46	11/26/10	5885	Transducer	1340	1360.7	Regional
R-46	11/25/10	5885.32	Transducer	1340	1360.7	Regional
R-46	11/24/10	5885.31	Transducer	1340	1360.7	Regional
R-46	11/23/10	5885.02	Transducer	1340	1360.7	Regional
R-46	11/22/10	5885.27	Transducer	1340	1360.7	Regional
R-46	11/21/10	5885.18	Transducer	1340	1360.7	Regional
R-46	11/20/10	5885.07	Transducer	1340	1360.7	Regional
R-46	11/19/10	5884.98	Transducer	1340	1360.7	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-46	11/18/10	5884.84	Transducer	1340	1360.7	Regional
R-46	11/17/10	5885.31	Transducer	1340	1360.7	Regional
R-46	11/16/10	5885.17	Transducer	1340	1360.7	Regional
R-46	11/15/10	5885.31	Transducer	1340	1360.7	Regional
R-46	11/14/10	5885.14	Transducer	1340	1360.7	Regional
R-46	11/13/10	5884.94	Transducer	1340	1360.7	Regional
R-46	11/12/10	5885.03	Transducer	1340	1360.7	Regional
R-46	11/11/10	5885.25	Transducer	1340	1360.7	Regional
R-46	11/10/10	5885.27	Transducer	1340	1360.7	Regional
R-46	11/09/10	5885.36	Transducer	1340	1360.7	Regional
R-46	11/08/10	5885.08	Transducer	1340	1360.7	Regional
R-46	11/07/10	5884.96	Transducer	1340	1360.7	Regional
R-46	11/06/10	5884.94	Transducer	1340	1360.7	Regional
R-46	11/05/10	5884.88	Transducer	1340	1360.7	Regional
R-46	11/04/10	5884.7	Transducer	1340	1360.7	Regional
R-46	11/03/10	5884.77	Transducer	1340	1360.7	Regional
R-46	11/02/10	5884.78	Transducer	1340	1360.7	Regional
R-46	11/01/10	5884.98	Transducer	1340	1360.7	Regional
R-60	11/16/12	5907.35	Transducer	1330	1350.9	Regional
R-60	11/15/12	5907.51	Transducer	1330	1350.9	Regional
R-60	11/14/12	5907.43	Transducer	1330	1350.9	Regional
R-60	11/13/12	5907.42	Transducer	1330	1350.9	Regional
R-60	11/12/12	5907.45	Transducer	1330	1350.9	Regional
R-60	11/11/12	5907.92	Transducer	1330	1350.9	Regional
R-60	11/10/12	5907.88	Transducer	1330	1350.9	Regional
R-60	11/09/12	5907.74	Transducer	1330	1350.9	Regional
R-60	11/08/12	5907.59	Transducer	1330	1350.9	Regional
R-60	11/07/12	5907.45	Transducer	1330	1350.9	Regional
R-60	11/06/12	5907.46	Transducer	1330	1350.9	Regional
R-60	11/05/12	5907.42	Transducer	1330	1350.9	Regional
R-60	11/04/12	5907.5	Transducer	1330	1350.9	Regional
R-60	11/03/12	5907.6	Transducer	1330	1350.9	Regional
R-60	11/02/12	5907.64	Transducer	1330	1350.9	Regional
R-60	11/01/12	5907.55	Transducer	1330	1350.9	Regional
R-60	10/31/12	5907.57	Transducer	1330	1350.9	Regional
R-60	10/30/12	5907.53	Transducer	1330	1350.9	Regional
R-60	10/29/12	5907.53	Transducer	1330	1350.9	Regional
R-60	10/28/12	5907.63	Transducer	1330	1350.9	Regional
R-60	10/27/12	5907.53	Transducer	1330	1350.9	Regional
R-60	10/26/12	5907.62	Transducer	1330	1350.9	Regional
R-60	10/25/12	5907.81	Transducer	1330	1350.9	Regional
R-60	10/24/12	5907.77	Transducer	1330	1350.9	Regional
R-60	10/23/12	5907.74	Transducer	1330	1350.9	Regional
R-60	10/22/12	5907.76	Transducer	1330	1350.9	Regional
R-60	10/21/12	5907.79	Transducer	1330	1350.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-60	10/20/12	5907.71	Transducer	1330	1350.9	Regional
R-60	10/19/12	5907.63	Transducer	1330	1350.9	Regional
R-60	10/18/12	5907.68	Transducer	1330	1350.9	Regional
R-60	10/17/12	5907.83	Transducer	1330	1350.9	Regional
R-60	10/16/12	5907.7	Transducer	1330	1350.9	Regional
R-60	10/15/12	5907.61	Manual	1330	1350.9	Regional
R-60	10/15/12	5907.57	Transducer	1330	1350.9	Regional
R-60	10/14/12	5907.59	Transducer	1330	1350.9	Regional
R-60	10/13/12	5907.77	Transducer	1330	1350.9	Regional
R-60	10/12/12	5907.63	Transducer	1330	1350.9	Regional
R-60	10/11/12	5907.7	Transducer	1330	1350.9	Regional
R-60	10/10/12	5907.67	Transducer	1330	1350.9	Regional
R-60	10/09/12	5907.76	Transducer	1330	1350.9	Regional
R-60	10/08/12	5907.74	Transducer	1330	1350.9	Regional
R-60	10/07/12	5907.7	Transducer	1330	1350.9	Regional
R-60	10/06/12	5907.72	Transducer	1330	1350.9	Regional
R-60	10/05/12	5907.66	Transducer	1330	1350.9	Regional
R-60	10/04/12	5907.66	Transducer	1330	1350.9	Regional
R-60	10/03/12	5907.76	Transducer	1330	1350.9	Regional
R-60	10/02/12	5907.58	Transducer	1330	1350.9	Regional
R-60	10/01/12	5907.62	Transducer	1330	1350.9	Regional
R-60	09/30/12	5907.6	Transducer	1330	1350.9	Regional
R-60	09/29/12	5907.63	Transducer	1330	1350.9	Regional
R-60	09/28/12	5907.62	Transducer	1330	1350.9	Regional
R-60	09/27/12	5907.65	Transducer	1330	1350.9	Regional
R-60	09/26/12	5907.76	Transducer	1330	1350.9	Regional
R-60	09/25/12	5907.67	Transducer	1330	1350.9	Regional
R-60	09/24/12	5907.56	Transducer	1330	1350.9	Regional
R-60	09/23/12	5907.57	Transducer	1330	1350.9	Regional
R-60	09/22/12	5907.6	Transducer	1330	1350.9	Regional
R-60	09/21/12	5907.61	Transducer	1330	1350.9	Regional
R-60	09/20/12	5907.58	Transducer	1330	1350.9	Regional
R-60	09/19/12	5907.59	Transducer	1330	1350.9	Regional
R-60	09/18/12	5907.6	Transducer	1330	1350.9	Regional
R-60	09/17/12	5907.71	Transducer	1330	1350.9	Regional
R-60	09/16/12	5907.56	Transducer	1330	1350.9	Regional
R-60	09/15/12	5907.42	Transducer	1330	1350.9	Regional
R-60	09/14/12	5907.36	Transducer	1330	1350.9	Regional
R-60	09/13/12	5907.53	Transducer	1330	1350.9	Regional
R-60	09/12/12	5907.68	Transducer	1330	1350.9	Regional
R-60	09/11/12	5907.66	Transducer	1330	1350.9	Regional
R-60	09/10/12	5907.56	Transducer	1330	1350.9	Regional
R-60	09/09/12	5907.49	Transducer	1330	1350.9	Regional
R-60	09/08/12	5907.48	Transducer	1330	1350.9	Regional
R-60	09/07/12	5907.67	Transducer	1330	1350.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-60	09/06/12	5907.61	Transducer	1330	1350.9	Regional
R-60	09/05/12	5907.63	Transducer	1330	1350.9	Regional
R-60	09/04/12	5907.6	Transducer	1330	1350.9	Regional
R-60	09/03/12	5907.62	Transducer	1330	1350.9	Regional
R-60	09/02/12	5907.59	Transducer	1330	1350.9	Regional
R-60	09/01/12	5907.55	Transducer	1330	1350.9	Regional
R-60	08/31/12	5907.62	Transducer	1330	1350.9	Regional
R-60	08/30/12	5907.61	Transducer	1330	1350.9	Regional
R-60	08/29/12	5907.49	Transducer	1330	1350.9	Regional
R-60	08/28/12	5907.45	Transducer	1330	1350.9	Regional
R-60	08/27/12	5907.49	Transducer	1330	1350.9	Regional
R-60	08/26/12	5907.65	Transducer	1330	1350.9	Regional
R-60	08/25/12	5907.78	Transducer	1330	1350.9	Regional
R-60	08/24/12	5907.74	Transducer	1330	1350.9	Regional
R-60	08/23/12	5907.63	Transducer	1330	1350.9	Regional
R-60	08/22/12	5907.59	Transducer	1330	1350.9	Regional
R-60	08/21/12	5907.6	Transducer	1330	1350.9	Regional
R-60	08/20/12	5907.62	Transducer	1330	1350.9	Regional
R-60	08/19/12	5907.65	Transducer	1330	1350.9	Regional
R-60	08/18/12	5907.61	Transducer	1330	1350.9	Regional
R-60	08/17/12	5907.52	Transducer	1330	1350.9	Regional
R-60	08/16/12	5907.66	Transducer	1330	1350.9	Regional
R-60	08/15/12	5907.65	Transducer	1330	1350.9	Regional
R-60	08/14/12	5907.59	Transducer	1330	1350.9	Regional
R-60	08/13/12	5907.46	Transducer	1330	1350.9	Regional
R-60	08/12/12	5907.58	Transducer	1330	1350.9	Regional
R-60	08/11/12	5907.58	Transducer	1330	1350.9	Regional
R-60	08/10/12	5907.52	Transducer	1330	1350.9	Regional
R-60	08/09/12	5907.48	Transducer	1330	1350.9	Regional
R-60	08/08/12	5907.5	Transducer	1330	1350.9	Regional
R-60	08/07/12	5907.53	Transducer	1330	1350.9	Regional
R-60	08/06/12	5907.35	Transducer	1330	1350.9	Regional
R-60	08/05/12	5907.44	Transducer	1330	1350.9	Regional
R-60	08/04/12	5907.65	Transducer	1330	1350.9	Regional
R-60	08/03/12	5907.55	Transducer	1330	1350.9	Regional
R-60	08/02/12	5907.59	Transducer	1330	1350.9	Regional
R-60	08/01/12	5907.49	Transducer	1330	1350.9	Regional
R-60	07/31/12	5907.55	Transducer	1330	1350.9	Regional
R-60	07/30/12	5907.54	Transducer	1330	1350.9	Regional
R-60	07/29/12	5907.47	Transducer	1330	1350.9	Regional
R-60	07/28/12	5907.47	Transducer	1330	1350.9	Regional
R-60	07/27/12	5907.54	Transducer	1330	1350.9	Regional
R-60	07/26/12	5907.68	Transducer	1330	1350.9	Regional
R-60	07/25/12	5907.68	Transducer	1330	1350.9	Regional
R-60	07/24/12	5907.54	Transducer	1330	1350.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-60	07/23/12	5907.52	Transducer	1330	1350.9	Regional
R-60	07/22/12	5907.48	Transducer	1330	1350.9	Regional
R-60	07/21/12	5907.47	Transducer	1330	1350.9	Regional
R-60	07/20/12	5907.44	Transducer	1330	1350.9	Regional
R-60	07/19/12	5907.5	Transducer	1330	1350.9	Regional
R-60	07/18/12	5907.61	Transducer	1330	1350.9	Regional
R-60	07/17/12	5907.66	Transducer	1330	1350.9	Regional
R-60	07/16/12	5907.6	Transducer	1330	1350.9	Regional
R-60	07/15/12	5907.58	Transducer	1330	1350.9	Regional
R-60	07/14/12	5907.52	Transducer	1330	1350.9	Regional
R-60	07/13/12	5907.54	Transducer	1330	1350.9	Regional
R-60	07/12/12	5907.53	Transducer	1330	1350.9	Regional
R-60	07/11/12	5907.47	Transducer	1330	1350.9	Regional
R-60	07/10/12	5907.46	Transducer	1330	1350.9	Regional
R-60	07/09/12	5907.5	Transducer	1330	1350.9	Regional
R-60	07/08/12	5907.46	Transducer	1330	1350.9	Regional
R-60	07/07/12	5907.5	Transducer	1330	1350.9	Regional
R-60	07/06/12	5907.61	Transducer	1330	1350.9	Regional
R-60	07/05/12	5907.63	Transducer	1330	1350.9	Regional
R-60	07/04/12	5907.64	Transducer	1330	1350.9	Regional
R-60	07/03/12	5907.64	Transducer	1330	1350.9	Regional
R-60	07/02/12	5907.66	Transducer	1330	1350.9	Regional
R-60	07/01/12	5907.65	Transducer	1330	1350.9	Regional
R-60	06/30/12	5907.66	Transducer	1330	1350.9	Regional
R-60	06/29/12	5907.54	Transducer	1330	1350.9	Regional
R-60	06/28/12	5907.57	Transducer	1330	1350.9	Regional
R-60	06/27/12	5907.66	Transducer	1330	1350.9	Regional
R-60	06/26/12	5907.61	Transducer	1330	1350.9	Regional
R-60	06/25/12	5907.53	Transducer	1330	1350.9	Regional
R-60	06/24/12	5907.63	Transducer	1330	1350.9	Regional
R-60	06/23/12	5907.72	Transducer	1330	1350.9	Regional
R-60	06/22/12	5907.61	Transducer	1330	1350.9	Regional
R-60	06/21/12	5907.67	Transducer	1330	1350.9	Regional
R-60	06/20/12	5907.9	Transducer	1330	1350.9	Regional
R-60	06/19/12	5907.88	Transducer	1330	1350.9	Regional
R-60	06/18/12	5907.83	Transducer	1330	1350.9	Regional
R-60	06/17/12	5907.54	Transducer	1330	1350.9	Regional
R-60	06/16/12	5907.68	Transducer	1330	1350.9	Regional
R-60	06/15/12	5907.84	Transducer	1330	1350.9	Regional
R-60	06/14/12	5907.82	Transducer	1330	1350.9	Regional
R-60	06/13/12	5907.75	Transducer	1330	1350.9	Regional
R-60	06/12/12	5907.61	Transducer	1330	1350.9	Regional
R-60	06/11/12	5907.76	Transducer	1330	1350.9	Regional
R-60	06/10/12	5907.95	Transducer	1330	1350.9	Regional
R-60	06/09/12	5907.86	Transducer	1330	1350.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-60	06/08/12	5907.73	Transducer	1330	1350.9	Regional
R-60	06/07/12	5907.86	Transducer	1330	1350.9	Regional
R-60	06/06/12	5907.83	Transducer	1330	1350.9	Regional
R-60	06/06/12	5907.824	Transducer	1330	1350.9	Regional
R-60	06/05/12	5907.725	Transducer	1330	1350.9	Regional
R-60	06/04/12	5907.69	Transducer	1330	1350.9	Regional
R-60	06/03/12	5907.788	Transducer	1330	1350.9	Regional
R-60	06/02/12	5907.79	Transducer	1330	1350.9	Regional
R-60	06/01/12	5907.768	Transducer	1330	1350.9	Regional
R-60	05/31/12	5907.839	Transducer	1330	1350.9	Regional
R-60	05/30/12	5907.814	Transducer	1330	1350.9	Regional
R-60	05/29/12	5907.781	Transducer	1330	1350.9	Regional
R-60	05/28/12	5907.817	Transducer	1330	1350.9	Regional
R-60	05/27/12	5907.93	Transducer	1330	1350.9	Regional
R-60	05/26/12	5907.942	Transducer	1330	1350.9	Regional
R-60	05/25/12	5908.054	Transducer	1330	1350.9	Regional
R-60	05/24/12	5908.169	Transducer	1330	1350.9	Regional
R-60	05/23/12	5907.995	Transducer	1330	1350.9	Regional
R-60	05/22/12	5907.694	Transducer	1330	1350.9	Regional
R-60	05/21/12	5907.589	Transducer	1330	1350.9	Regional
R-60	05/20/12	5907.727	Transducer	1330	1350.9	Regional
R-60	05/19/12	5907.981	Transducer	1330	1350.9	Regional
R-60	05/18/12	5907.935	Transducer	1330	1350.9	Regional
R-60	05/17/12	5907.763	Transducer	1330	1350.9	Regional
R-60	05/16/12	5907.635	Transducer	1330	1350.9	Regional
R-60	05/15/12	5907.618	Transducer	1330	1350.9	Regional
R-60	05/14/12	5907.647	Transducer	1330	1350.9	Regional
R-60	05/13/12	5907.595	Transducer	1330	1350.9	Regional
R-60	05/12/12	5907.674	Transducer	1330	1350.9	Regional
R-60	05/11/12	5907.922	Transducer	1330	1350.9	Regional
R-60	05/10/12	5907.822	Transducer	1330	1350.9	Regional
R-60	05/09/12	5907.709	Transducer	1330	1350.9	Regional
R-60	05/08/12	5907.728	Transducer	1330	1350.9	Regional
R-60	05/07/12	5907.813	Transducer	1330	1350.9	Regional
R-60	05/06/12	5907.906	Transducer	1330	1350.9	Regional
R-60	05/05/12	5907.846	Transducer	1330	1350.9	Regional
R-60	05/04/12	5907.847	Transducer	1330	1350.9	Regional
R-60	05/03/12	5907.902	Transducer	1330	1350.9	Regional
R-60	05/02/12	5907.991	Transducer	1330	1350.9	Regional
R-60	05/01/12	5907.978	Transducer	1330	1350.9	Regional
R-60	04/30/12	5907.878	Transducer	1330	1350.9	Regional
R-60	04/29/12	5907.968	Transducer	1330	1350.9	Regional
R-60	04/28/12	5907.945	Transducer	1330	1350.9	Regional
R-60	04/27/12	5908.042	Transducer	1330	1350.9	Regional
R-60	04/26/12	5907.79	Transducer	1330	1350.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-60	04/25/12	5907.851	Transducer	1330	1350.9	Regional
R-60	04/24/12	5907.809	Transducer	1330	1350.9	Regional
R-60	04/23/12	5907.684	Transducer	1330	1350.9	Regional
R-60	04/22/12	5907.724	Transducer	1330	1350.9	Regional
R-60	04/21/12	5907.807	Transducer	1330	1350.9	Regional
R-60	04/20/12	5907.906	Transducer	1330	1350.9	Regional
R-60	04/19/12	5907.963	Transducer	1330	1350.9	Regional
R-60	04/18/12	5907.848	Transducer	1330	1350.9	Regional
R-60	04/17/12	5907.758	Transducer	1330	1350.9	Regional
R-60	04/16/12	5907.897	Transducer	1330	1350.9	Regional
R-60	04/15/12	5908.281	Transducer	1330	1350.9	Regional
R-60	04/14/12	5908.274	Transducer	1330	1350.9	Regional
R-60	04/13/12	5908.056	Transducer	1330	1350.9	Regional
R-60	04/12/12	5908.092	Transducer	1330	1350.9	Regional
R-60	04/11/12	5907.872	Transducer	1330	1350.9	Regional
R-60	04/10/12	5907.844	Transducer	1330	1350.9	Regional
R-60	04/09/12	5907.777	Transducer	1330	1350.9	Regional
R-60	04/08/12	5907.627	Transducer	1330	1350.9	Regional
R-60	04/07/12	5907.912	Transducer	1330	1350.9	Regional
R-60	04/06/12	5908.066	Transducer	1330	1350.9	Regional
R-60	04/05/12	5908.02	Transducer	1330	1350.9	Regional
R-60	04/04/12	5908.005	Transducer	1330	1350.9	Regional
R-60	04/03/12	5908.206	Transducer	1330	1350.9	Regional
R-60	04/02/12	5908.306	Transducer	1330	1350.9	Regional
R-60	04/01/12	5908.097	Transducer	1330	1350.9	Regional
R-60	03/31/12	5907.976	Transducer	1330	1350.9	Regional
R-60	03/30/12	5907.986	Transducer	1330	1350.9	Regional
R-60	03/29/12	5908.03	Transducer	1330	1350.9	Regional
R-60	03/28/12	5907.966	Transducer	1330	1350.9	Regional
R-60	03/27/12	5907.983	Transducer	1330	1350.9	Regional
R-60	03/26/12	5908.032	Transducer	1330	1350.9	Regional
R-60	03/25/12	5907.893	Transducer	1330	1350.9	Regional
R-60	03/24/12	5907.902	Transducer	1330	1350.9	Regional
R-60	03/23/12	5907.989	Transducer	1330	1350.9	Regional
R-60	03/22/12	5908.091	Transducer	1330	1350.9	Regional
R-60	03/21/12	5908.102	Transducer	1330	1350.9	Regional
R-60	03/20/12	5908.366	Transducer	1330	1350.9	Regional
R-60	03/19/12	5908.365	Transducer	1330	1350.9	Regional
R-60	03/18/12	5908.221	Transducer	1330	1350.9	Regional
R-60	03/17/12	5908.086	Transducer	1330	1350.9	Regional
R-60	03/16/12	5907.932	Transducer	1330	1350.9	Regional
R-60	03/15/12	5907.887	Transducer	1330	1350.9	Regional
R-60	03/14/12	5907.989	Transducer	1330	1350.9	Regional
R-60	03/13/12	5907.951	Transducer	1330	1350.9	Regional
R-60	03/12/12	5908.075	Transducer	1330	1350.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-60	03/11/12	5908.201	Transducer	1330	1350.9	Regional
R-60	03/10/12	5907.849	Transducer	1330	1350.9	Regional
R-60	03/09/12	5907.661	Transducer	1330	1350.9	Regional
R-60	03/08/12	5908.139	Transducer	1330	1350.9	Regional
R-60	03/07/12	5908.325	Transducer	1330	1350.9	Regional
R-60	03/06/12	5907.991	Transducer	1330	1350.9	Regional
R-60	03/05/12	5907.824	Transducer	1330	1350.9	Regional
R-60	03/04/12	5907.868	Transducer	1330	1350.9	Regional
R-60	03/03/12	5908.068	Transducer	1330	1350.9	Regional
R-60	03/02/12	5908.311	Transducer	1330	1350.9	Regional
R-60	03/01/12	5908.181	Transducer	1330	1350.9	Regional
R-60	02/29/12	5908.039	Transducer	1330	1350.9	Regional
R-60	02/28/12	5908.209	Transducer	1330	1350.9	Regional
R-60	02/27/12	5908.174	Transducer	1330	1350.9	Regional
R-60	02/26/12	5908.176	Transducer	1330	1350.9	Regional
R-60	02/25/12	5907.911	Transducer	1330	1350.9	Regional
R-60	02/24/12	5908.054	Transducer	1330	1350.9	Regional
R-60	02/23/12	5908.3	Transducer	1330	1350.9	Regional
R-60	02/22/12	5908.003	Transducer	1330	1350.9	Regional
R-60	02/21/12	5908.031	Transducer	1330	1350.9	Regional
R-60	02/20/12	5908.318	Transducer	1330	1350.9	Regional
R-60	02/19/12	5908.115	Transducer	1330	1350.9	Regional
R-60	02/18/12	5908.112	Transducer	1330	1350.9	Regional
R-60	02/17/12	5908.063	Transducer	1330	1350.9	Regional
R-60	02/16/12	5908.026	Transducer	1330	1350.9	Regional
R-60	02/15/12	5908.377	Transducer	1330	1350.9	Regional
R-60	02/14/12	5908.252	Transducer	1330	1350.9	Regional
R-60	02/13/12	5908.334	Transducer	1330	1350.9	Regional
R-60	02/12/12	5907.981	Transducer	1330	1350.9	Regional
R-60	02/11/12	5907.942	Transducer	1330	1350.9	Regional
R-60	02/10/12	5907.946	Transducer	1330	1350.9	Regional
R-60	02/09/12	5907.946	Transducer	1330	1350.9	Regional
R-60	02/08/12	5907.856	Transducer	1330	1350.9	Regional
R-60	02/07/12	5908.083	Transducer	1330	1350.9	Regional
R-60	02/06/12	5907.998	Transducer	1330	1350.9	Regional
R-60	02/05/12	5907.849	Transducer	1330	1350.9	Regional
R-60	02/04/12	5907.993	Transducer	1330	1350.9	Regional
R-60	02/03/12	5908.263	Transducer	1330	1350.9	Regional
R-60	02/02/12	5908.083	Transducer	1330	1350.9	Regional
R-60	02/01/12	5908.007	Transducer	1330	1350.9	Regional
R-60	01/31/12	5908.116	Transducer	1330	1350.9	Regional
R-60	01/30/12	5907.947	Transducer	1330	1350.9	Regional
R-60	01/29/12	5907.834	Transducer	1330	1350.9	Regional
R-60	01/28/12	5907.935	Transducer	1330	1350.9	Regional
R-60	01/27/12	5908.182	Transducer	1330	1350.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-60	01/26/12	5908.021	Transducer	1330	1350.9	Regional
R-60	01/25/12	5908.065	Transducer	1330	1350.9	Regional
R-60	01/24/12	5908.275	Transducer	1330	1350.9	Regional
R-60	01/23/12	5908.148	Transducer	1330	1350.9	Regional
R-60	01/22/12	5908.553	Transducer	1330	1350.9	Regional
R-60	01/21/12	5908.121	Transducer	1330	1350.9	Regional
R-60	01/20/12	5908.236	Transducer	1330	1350.9	Regional
R-60	01/19/12	5908.078	Transducer	1330	1350.9	Regional
R-60	01/18/12	5908.032	Transducer	1330	1350.9	Regional
R-60	01/17/12	5908.196	Transducer	1330	1350.9	Regional
R-60	01/16/12	5908.191	Transducer	1330	1350.9	Regional
R-60	01/15/12	5908.022	Transducer	1330	1350.9	Regional
R-60	01/14/12	5907.972	Transducer	1330	1350.9	Regional
R-60	01/13/12	5908.145	Transducer	1330	1350.9	Regional
R-60	01/12/12	5908.116	Transducer	1330	1350.9	Regional
R-60	01/11/12	5908.242	Transducer	1330	1350.9	Regional
R-60	01/10/12	5908.054	Transducer	1330	1350.9	Regional
R-60	01/09/12	5908.028	Transducer	1330	1350.9	Regional
R-60	01/08/12	5908.25	Transducer	1330	1350.9	Regional
R-60	01/07/12	5908.122	Transducer	1330	1350.9	Regional
R-60	01/06/12	5908.149	Transducer	1330	1350.9	Regional
R-60	01/05/12	5907.815	Transducer	1330	1350.9	Regional
R-60	01/04/12	5907.88	Transducer	1330	1350.9	Regional
R-60	01/03/12	5907.762	Transducer	1330	1350.9	Regional
R-60	01/02/12	5907.717	Transducer	1330	1350.9	Regional
R-60	01/01/12	5907.88	Transducer	1330	1350.9	Regional
R-60	12/31/11	5908.115	Transducer	1330	1350.9	Regional
R-60	12/30/11	5908.078	Transducer	1330	1350.9	Regional
R-60	12/29/11	5907.996	Transducer	1330	1350.9	Regional
R-60	12/28/11	5908.055	Transducer	1330	1350.9	Regional
R-60	12/27/11	5907.998	Transducer	1330	1350.9	Regional
R-60	12/26/11	5908.069	Transducer	1330	1350.9	Regional
R-60	12/25/11	5907.873	Transducer	1330	1350.9	Regional
R-60	12/24/11	5907.992	Transducer	1330	1350.9	Regional
R-60	12/23/11	5908.095	Transducer	1330	1350.9	Regional
R-60	12/22/11	5908.328	Transducer	1330	1350.9	Regional
R-60	12/21/11	5908.34	Transducer	1330	1350.9	Regional
R-60	12/20/11	5908.275	Transducer	1330	1350.9	Regional
R-60	12/19/11	5908.38	Transducer	1330	1350.9	Regional
R-60	12/18/11	5907.948	Transducer	1330	1350.9	Regional
R-60	12/17/11	5907.836	Transducer	1330	1350.9	Regional
R-60	12/16/11	5908.02	Transducer	1330	1350.9	Regional
R-60	12/15/11	5908.14	Transducer	1330	1350.9	Regional
R-60	12/14/11	5908.333	Transducer	1330	1350.9	Regional
R-60	12/13/11	5908.181	Transducer	1330	1350.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-60	12/12/11	5908.182	Transducer	1330	1350.9	Regional
R-60	12/11/11	5908.059	Transducer	1330	1350.9	Regional
R-60	12/10/11	5907.92	Transducer	1330	1350.9	Regional
R-60	12/09/11	5908.084	Transducer	1330	1350.9	Regional
R-60	12/08/11	5908.122	Transducer	1330	1350.9	Regional
R-60	12/07/11	5908.037	Transducer	1330	1350.9	Regional
R-60	12/06/11	5908.126	Transducer	1330	1350.9	Regional
R-60	12/05/11	5908.241	Transducer	1330	1350.9	Regional
R-60	12/04/11	5908.181	Transducer	1330	1350.9	Regional
R-60	12/03/11	5908.409	Transducer	1330	1350.9	Regional
R-60	12/02/11	5908.036	Transducer	1330	1350.9	Regional
R-60	12/01/11	5908.226	Transducer	1330	1350.9	Regional
R-60	12/01/11	5908.309	Transducer	1330	1350.9	Regional
R-60	11/30/11	5907.939	Transducer	1330	1350.9	Regional
R-60	11/29/11	5907.921	Transducer	1330	1350.9	Regional
R-60	11/28/11	5907.832	Transducer	1330	1350.9	Regional
R-60	11/27/11	5907.742	Transducer	1330	1350.9	Regional
R-60	11/26/11	5908.157	Transducer	1330	1350.9	Regional
R-60	11/25/11	5908.109	Transducer	1330	1350.9	Regional
R-60	11/24/11	5907.971	Transducer	1330	1350.9	Regional
R-60	11/23/11	5907.843	Transducer	1330	1350.9	Regional
R-60	11/22/11	5908.028	Transducer	1330	1350.9	Regional
R-60	11/21/11	5908.111	Transducer	1330	1350.9	Regional
R-60	11/20/11	5908.208	Transducer	1330	1350.9	Regional
R-60	11/19/11	5908.378	Transducer	1330	1350.9	Regional
R-60	11/18/11	5908.195	Transducer	1330	1350.9	Regional
R-60	11/17/11	5907.962	Transducer	1330	1350.9	Regional
R-60	11/16/11	5908.243	Transducer	1330	1350.9	Regional
R-60	11/15/11	5908.234	Transducer	1330	1350.9	Regional
R-60	11/14/11	5908.286	Transducer	1330	1350.9	Regional
R-60	11/13/11	5908.334	Transducer	1330	1350.9	Regional
R-60	11/12/11	5908.248	Transducer	1330	1350.9	Regional
R-60	11/11/11	5907.98	Transducer	1330	1350.9	Regional
R-60	11/10/11	5907.808	Transducer	1330	1350.9	Regional
R-60	11/09/11	5907.985	Transducer	1330	1350.9	Regional
R-60	11/08/11	5908.308	Transducer	1330	1350.9	Regional
R-60	11/07/11	5908.223	Transducer	1330	1350.9	Regional
R-60	11/06/11	5908.287	Transducer	1330	1350.9	Regional
R-60	11/05/11	5908.42	Transducer	1330	1350.9	Regional
R-60	11/04/11	5908.111	Transducer	1330	1350.9	Regional
R-60	11/03/11	5907.863	Transducer	1330	1350.9	Regional
R-60	11/02/11	5908.3	Transducer	1330	1350.9	Regional
R-60	11/01/11	5908.074	Transducer	1330	1350.9	Regional
R-60	10/31/11	5907.924	Transducer	1330	1350.9	Regional
R-60	10/30/11	5908.067	Transducer	1330	1350.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-60	10/29/11	5907.972	Transducer	1330	1350.9	Regional
R-60	10/28/11	5908.047	Transducer	1330	1350.9	Regional
R-60	10/27/11	5908.194	Transducer	1330	1350.9	Regional
R-60	10/26/11	5908.124	Transducer	1330	1350.9	Regional
R-60	10/25/11	5908.035	Transducer	1330	1350.9	Regional
R-60	10/24/11	5907.906	Transducer	1330	1350.9	Regional
R-60	10/23/11	5907.973	Transducer	1330	1350.9	Regional
R-60	10/22/11	5907.945	Transducer	1330	1350.9	Regional
R-60	10/21/11	5907.981	Transducer	1330	1350.9	Regional
R-60	10/20/11	5908.101	Transducer	1330	1350.9	Regional
R-60	10/19/11	5907.94	Transducer	1330	1350.9	Regional
R-60	10/18/11	5907.968	Transducer	1330	1350.9	Regional
R-60	10/17/11	5908.042	Transducer	1330	1350.9	Regional
R-60	10/16/11	5907.961	Transducer	1330	1350.9	Regional
R-60	10/15/11	5907.952	Transducer	1330	1350.9	Regional
R-60	10/14/11	5908.028	Transducer	1330	1350.9	Regional
R-60	10/13/11	5907.965	Transducer	1330	1350.9	Regional
R-60	10/12/11	5908.107	Transducer	1330	1350.9	Regional
R-60	10/11/11	5908.107	Transducer	1330	1350.9	Regional
R-60	10/10/11	5908.046	Transducer	1330	1350.9	Regional
R-60	10/09/11	5908.04	Transducer	1330	1350.9	Regional
R-60	10/08/11	5908.2	Transducer	1330	1350.9	Regional
R-60	10/07/11	5908.203	Transducer	1330	1350.9	Regional
R-60	10/06/11	5908.235	Transducer	1330	1350.9	Regional
R-60	10/05/11	5908.023	Transducer	1330	1350.9	Regional
R-60	10/04/11	5907.871	Transducer	1330	1350.9	Regional
R-60	10/03/11	5907.845	Transducer	1330	1350.9	Regional
R-60	10/02/11	5907.858	Transducer	1330	1350.9	Regional
R-60	10/01/11	5907.85	Transducer	1330	1350.9	Regional
R-60	09/30/11	5907.736	Transducer	1330	1350.9	Regional
R-60	09/29/11	5907.891	Transducer	1330	1350.9	Regional
R-60	09/28/11	5907.858	Transducer	1330	1350.9	Regional
R-60	09/27/11	5907.908	Transducer	1330	1350.9	Regional
R-60	09/26/11	5908.008	Transducer	1330	1350.9	Regional
R-60	09/25/11	5907.99	Transducer	1330	1350.9	Regional
R-60	09/24/11	5907.825	Transducer	1330	1350.9	Regional
R-60	09/23/11	5907.825	Transducer	1330	1350.9	Regional
R-60	09/22/11	5907.929	Transducer	1330	1350.9	Regional
R-60	09/21/11	5907.939	Transducer	1330	1350.9	Regional
R-60	09/20/11	5907.928	Transducer	1330	1350.9	Regional
R-60	09/19/11	5907.825	Transducer	1330	1350.9	Regional
R-60	09/18/11	5907.899	Transducer	1330	1350.9	Regional
R-60	09/17/11	5907.958	Transducer	1330	1350.9	Regional
R-60	09/16/11	5907.975	Transducer	1330	1350.9	Regional
R-60	09/15/11	5907.964	Transducer	1330	1350.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-60	09/14/11	5907.931	Transducer	1330	1350.9	Regional
R-60	09/13/11	5907.836	Transducer	1330	1350.9	Regional
R-60	09/12/11	5907.758	Transducer	1330	1350.9	Regional
R-60	09/11/11	5907.79	Transducer	1330	1350.9	Regional
R-60	09/10/11	5907.842	Transducer	1330	1350.9	Regional
R-60	09/09/11	5907.84	Transducer	1330	1350.9	Regional
R-60	09/08/11	5907.744	Transducer	1330	1350.9	Regional
R-60	09/07/11	5907.874	Transducer	1330	1350.9	Regional
R-60	09/06/11	5907.889	Transducer	1330	1350.9	Regional
R-60	09/05/11	5907.819	Transducer	1330	1350.9	Regional
R-60	09/04/11	5907.868	Transducer	1330	1350.9	Regional
R-60	09/03/11	5907.968	Transducer	1330	1350.9	Regional
R-60	09/02/11	5907.914	Transducer	1330	1350.9	Regional
R-60	09/01/11	5907.921	Transducer	1330	1350.9	Regional
R-60	08/31/11	5907.96	Transducer	1330	1350.9	Regional
R-60	08/30/11	5907.95	Transducer	1330	1350.9	Regional
R-60	08/30/11	5907.992	Transducer	1330	1350.9	Regional
R-60	08/29/11	5907.93	Transducer	1330	1350.9	Regional
R-60	08/28/11	5907.82	Transducer	1330	1350.9	Regional
R-60	08/27/11	5907.74	Transducer	1330	1350.9	Regional
R-60	08/26/11	5907.78	Transducer	1330	1350.9	Regional
R-60	08/25/11	5907.78	Transducer	1330	1350.9	Regional
R-60	08/24/11	5907.85	Transducer	1330	1350.9	Regional
R-60	08/23/11	5907.88	Transducer	1330	1350.9	Regional
R-60	08/22/11	5907.76	Transducer	1330	1350.9	Regional
R-60	08/21/11	5907.87	Transducer	1330	1350.9	Regional
R-60	08/20/11	5907.93	Transducer	1330	1350.9	Regional
R-60	08/19/11	5907.86	Transducer	1330	1350.9	Regional
R-60	08/18/11	5907.76	Transducer	1330	1350.9	Regional
R-60	08/17/11	5907.79	Transducer	1330	1350.9	Regional
R-60	08/16/11	5907.93	Transducer	1330	1350.9	Regional
R-60	08/15/11	5907.85	Transducer	1330	1350.9	Regional
R-60	08/14/11	5907.74	Transducer	1330	1350.9	Regional
R-60	08/13/11	5907.83	Transducer	1330	1350.9	Regional
R-60	08/12/11	5907.91	Transducer	1330	1350.9	Regional
R-60	08/11/11	5907.88	Transducer	1330	1350.9	Regional
R-60	08/10/11	5907.93	Transducer	1330	1350.9	Regional
R-60	08/09/11	5907.92	Transducer	1330	1350.9	Regional
R-60	08/08/11	5907.9	Transducer	1330	1350.9	Regional
R-60	08/07/11	5907.88	Transducer	1330	1350.9	Regional
R-60	08/06/11	5907.83	Transducer	1330	1350.9	Regional
R-60	08/05/11	5907.82	Transducer	1330	1350.9	Regional
R-60	08/04/11	5907.81	Transducer	1330	1350.9	Regional
R-60	08/03/11	5907.77	Transducer	1330	1350.9	Regional
R-60	08/02/11	5907.77	Transducer	1330	1350.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-60	08/01/11	5907.69	Transducer	1330	1350.9	Regional
R-60	07/31/11	5907.64	Transducer	1330	1350.9	Regional
R-60	07/30/11	5907.65	Transducer	1330	1350.9	Regional
R-60	07/29/11	5907.76	Transducer	1330	1350.9	Regional
R-60	07/28/11	5907.8	Transducer	1330	1350.9	Regional
R-60	07/27/11	5907.85	Transducer	1330	1350.9	Regional
R-60	07/26/11	5907.81	Transducer	1330	1350.9	Regional
R-60	07/25/11	5907.67	Transducer	1330	1350.9	Regional
R-60	07/24/11	5907.76	Transducer	1330	1350.9	Regional
R-60	07/23/11	5907.84	Transducer	1330	1350.9	Regional
R-60	07/22/11	5907.87	Transducer	1330	1350.9	Regional
R-60	07/21/11	5907.84	Transducer	1330	1350.9	Regional
R-60	07/20/11	5907.82	Transducer	1330	1350.9	Regional
R-60	07/19/11	5907.73	Transducer	1330	1350.9	Regional
R-60	07/18/11	5907.68	Transducer	1330	1350.9	Regional
R-60	07/17/11	5907.74	Transducer	1330	1350.9	Regional
R-60	07/16/11	5907.89	Transducer	1330	1350.9	Regional
R-60	07/15/11	5907.94	Transducer	1330	1350.9	Regional
R-60	07/14/11	5907.91	Transducer	1330	1350.9	Regional
R-60	07/13/11	5907.84	Transducer	1330	1350.9	Regional
R-60	07/12/11	5907.85	Transducer	1330	1350.9	Regional
R-60	07/11/11	5907.83	Transducer	1330	1350.9	Regional
R-60	07/10/11	5907.88	Transducer	1330	1350.9	Regional
R-60	07/09/11	5907.94	Transducer	1330	1350.9	Regional
R-60	07/08/11	5907.86	Transducer	1330	1350.9	Regional
R-60	07/07/11	5907.83	Transducer	1330	1350.9	Regional
R-60	07/06/11	5907.8	Transducer	1330	1350.9	Regional
R-60	07/05/11	5907.85	Transducer	1330	1350.9	Regional
R-60	07/04/11	5907.87	Transducer	1330	1350.9	Regional
R-60	07/03/11	5907.81	Transducer	1330	1350.9	Regional
R-60	07/02/11	5907.85	Transducer	1330	1350.9	Regional
R-60	07/01/11	5907.9	Transducer	1330	1350.9	Regional
R-60	06/30/11	5907.89	Transducer	1330	1350.9	Regional
R-60	06/29/11	5907.84	Transducer	1330	1350.9	Regional
R-60	06/28/11	5907.83	Transducer	1330	1350.9	Regional
R-60	06/27/11	5907.97	Transducer	1330	1350.9	Regional
R-60	06/26/11	5908.02	Transducer	1330	1350.9	Regional
R-60	06/25/11	5908.05	Transducer	1330	1350.9	Regional
R-60	06/24/11	5908.05	Transducer	1330	1350.9	Regional
R-60	06/23/11	5907.95	Transducer	1330	1350.9	Regional
R-60	06/22/11	5907.97	Transducer	1330	1350.9	Regional
R-60	06/21/11	5908.09	Transducer	1330	1350.9	Regional
R-60	06/20/11	5908.28	Transducer	1330	1350.9	Regional
R-60	06/19/11	5908.13	Transducer	1330	1350.9	Regional
R-60	06/18/11	5908.06	Transducer	1330	1350.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-60	06/17/11	5908.19	Transducer	1330	1350.9	Regional
R-60	06/16/11	5908.17	Transducer	1330	1350.9	Regional
R-60	06/15/11	5908.01	Transducer	1330	1350.9	Regional
R-60	06/14/11	5908.05	Transducer	1330	1350.9	Regional
R-60	06/13/11	5908.09	Transducer	1330	1350.9	Regional
R-60	06/12/11	5908.14	Transducer	1330	1350.9	Regional
R-60	06/11/11	5908.05	Transducer	1330	1350.9	Regional
R-60	06/10/11	5908.12	Transducer	1330	1350.9	Regional
R-60	06/09/11	5908.16	Transducer	1330	1350.9	Regional
R-60	06/08/11	5908.12	Transducer	1330	1350.9	Regional
R-60	06/07/11	5908.14	Transducer	1330	1350.9	Regional
R-60	06/06/11	5907.95	Transducer	1330	1350.9	Regional
R-60	06/05/11	5907.84	Transducer	1330	1350.9	Regional
R-60	06/04/11	5908.02	Transducer	1330	1350.9	Regional
R-60	06/03/11	5908.15	Transducer	1330	1350.9	Regional
R-60	06/02/11	5908.05	Transducer	1330	1350.9	Regional
R-60	06/01/11	5907.86	Transducer	1330	1350.9	Regional
R-60	05/31/11	5907.98	Transducer	1330	1350.9	Regional
R-60	05/30/11	5908.42	Transducer	1330	1350.9	Regional
R-60	05/29/11	5908.39	Transducer	1330	1350.9	Regional
R-60	05/28/11	5908.29	Transducer	1330	1350.9	Regional
R-60	05/27/11	5908.25	Transducer	1330	1350.9	Regional
R-60	05/26/11	5908.09	Transducer	1330	1350.9	Regional
R-60	05/25/11	5908.19	Transducer	1330	1350.9	Regional
R-60	05/24/11	5908.34	Transducer	1330	1350.9	Regional
R-60	05/23/11	5908.26	Transducer	1330	1350.9	Regional
R-60	05/22/11	5908.22	Transducer	1330	1350.9	Regional
R-60	05/21/11	5908.26	Transducer	1330	1350.9	Regional
R-60	05/20/11	5908.32	Transducer	1330	1350.9	Regional
R-60	05/19/11	5908.48	Transducer	1330	1350.9	Regional
R-60	05/18/11	5908.43	Transducer	1330	1350.9	Regional
R-60	05/17/11	5908.35	Transducer	1330	1350.9	Regional
R-60	05/16/11	5908.19	Transducer	1330	1350.9	Regional
R-60	05/15/11	5908.19	Transducer	1330	1350.9	Regional
R-60	05/14/11	5908.06	Transducer	1330	1350.9	Regional
R-60	05/13/11	5908.07	Transducer	1330	1350.9	Regional
R-60	05/12/11	5908.27	Transducer	1330	1350.9	Regional
R-60	05/11/11	5908.48	Transducer	1330	1350.9	Regional
R-60	05/10/11	5908.47	Transducer	1330	1350.9	Regional
R-60	05/09/11	5908.44	Transducer	1330	1350.9	Regional
R-60	05/08/11	5908.31	Transducer	1330	1350.9	Regional
R-60	05/07/11	5908.22	Transducer	1330	1350.9	Regional
R-60	05/06/11	5908.1	Transducer	1330	1350.9	Regional
R-60	05/05/11	5908.06	Transducer	1330	1350.9	Regional
R-60	05/04/11	5908.01	Transducer	1330	1350.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-60	05/03/11	5907.92	Transducer	1330	1350.9	Regional
R-60	05/02/11	5908.1	Transducer	1330	1350.9	Regional
R-60	05/01/11	5908.37	Transducer	1330	1350.9	Regional
R-60	04/30/11	5908.41	Transducer	1330	1350.9	Regional
R-60	04/29/11	5908.29	Transducer	1330	1350.9	Regional
R-60	04/28/11	5908.07	Transducer	1330	1350.9	Regional
R-60	04/27/11	5908.48	Transducer	1330	1350.9	Regional
R-60	04/26/11	5908.52	Transducer	1330	1350.9	Regional
R-60	04/25/11	5908.42	Transducer	1330	1350.9	Regional
R-60	04/24/11	5908.35	Transducer	1330	1350.9	Regional
R-60	04/23/11	5908.38	Transducer	1330	1350.9	Regional
R-60	04/22/11	5908.36	Transducer	1330	1350.9	Regional
R-60	04/21/11	5908.29	Transducer	1330	1350.9	Regional
R-60	04/20/11	5908.29	Transducer	1330	1350.9	Regional
R-60	04/19/11	5908.49	Transducer	1330	1350.9	Regional
R-60	04/18/11	5908.38	Transducer	1330	1350.9	Regional
R-60	04/17/11	5908.28	Transducer	1330	1350.9	Regional
R-60	04/16/11	5908.23	Transducer	1330	1350.9	Regional
R-60	04/15/11	5908.3	Transducer	1330	1350.9	Regional
R-60	04/14/11	5908.42	Transducer	1330	1350.9	Regional
R-60	04/13/11	5908.31	Transducer	1330	1350.9	Regional
R-60	04/12/11	5908.13	Transducer	1330	1350.9	Regional
R-60	04/11/11	5908.16	Transducer	1330	1350.9	Regional
R-60	04/10/11	5908.44	Transducer	1330	1350.9	Regional
R-60	04/09/11	5908.47	Transducer	1330	1350.9	Regional
R-60	04/08/11	5908.45	Transducer	1330	1350.9	Regional
R-60	04/07/11	5908.35	Transducer	1330	1350.9	Regional
R-60	04/06/11	5908.36	Transducer	1330	1350.9	Regional
R-60	04/05/11	5908.16	Transducer	1330	1350.9	Regional
R-60	04/04/11	5908.33	Transducer	1330	1350.9	Regional
R-60	04/03/11	5908.38	Transducer	1330	1350.9	Regional
R-60	04/02/11	5908.23	Transducer	1330	1350.9	Regional
R-60	04/01/11	5908.29	Transducer	1330	1350.9	Regional
R-60	03/31/11	5908.29	Transducer	1330	1350.9	Regional
R-60	03/30/11	5908.23	Transducer	1330	1350.9	Regional
R-60	03/29/11	5908.4	Transducer	1330	1350.9	Regional
R-60	03/28/11	5908.45	Transducer	1330	1350.9	Regional
R-60	03/27/11	5908.54	Transducer	1330	1350.9	Regional
R-60	03/26/11	5908.47	Transducer	1330	1350.9	Regional
R-60	03/25/11	5908.34	Transducer	1330	1350.9	Regional
R-60	03/24/11	5908.32	Transducer	1330	1350.9	Regional
R-60	03/23/11	5908.35	Transducer	1330	1350.9	Regional
R-60	03/22/11	5908.53	Transducer	1330	1350.9	Regional
R-60	03/21/11	5908.3	Transducer	1330	1350.9	Regional
R-60	03/20/11	5908.25	Transducer	1330	1350.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-60	03/19/11	5908.15	Transducer	1330	1350.9	Regional
R-60	03/18/11	5908.19	Transducer	1330	1350.9	Regional
R-60	03/17/11	5908.25	Transducer	1330	1350.9	Regional
R-60	03/16/11	5908.18	Transducer	1330	1350.9	Regional
R-60	03/15/11	5908.2	Transducer	1330	1350.9	Regional
R-60	03/14/11	5908.03	Transducer	1330	1350.9	Regional
R-60	03/13/11	5908.25	Transducer	1330	1350.9	Regional
R-60	03/12/11	5908.27	Transducer	1330	1350.9	Regional
R-60	03/11/11	5908.16	Transducer	1330	1350.9	Regional
R-60	03/10/11	5907.96	Transducer	1330	1350.9	Regional
R-60	03/09/11	5908.2	Transducer	1330	1350.9	Regional
R-60	03/08/11	5908.65	Transducer	1330	1350.9	Regional
R-60	03/07/11	5908.56	Transducer	1330	1350.9	Regional
R-60	03/06/11	5908.17	Transducer	1330	1350.9	Regional
R-60	03/05/11	5908.05	Transducer	1330	1350.9	Regional
R-60	03/04/11	5908.37	Transducer	1330	1350.9	Regional
R-60	03/03/11	5908.23	Transducer	1330	1350.9	Regional
R-60	03/02/11	5908.16	Transducer	1330	1350.9	Regional
R-60	03/01/11	5908.09	Transducer	1330	1350.9	Regional
R-60	02/28/11	5908.32	Transducer	1330	1350.9	Regional
R-60	02/27/11	5908.62	Transducer	1330	1350.9	Regional
R-60	02/26/11	5908.5	Transducer	1330	1350.9	Regional
R-60	02/25/11	5908.34	Transducer	1330	1350.9	Regional
R-60	02/24/11	5908.53	Transducer	1330	1350.9	Regional
R-60	02/23/11	5908.41	Transducer	1330	1350.9	Regional
R-60	02/22/11	5908.42	Transducer	1330	1350.9	Regional
R-60	02/21/11	5908.53	Transducer	1330	1350.9	Regional
R-60	02/20/11	5908.56	Transducer	1330	1350.9	Regional
R-60	02/19/11	5908.21	Transducer	1330	1350.9	Regional
R-60	02/18/11	5908.26	Transducer	1330	1350.9	Regional
R-60	02/17/11	5908.46	Transducer	1330	1350.9	Regional
R-60	02/16/11	5908.27	Transducer	1330	1350.9	Regional
R-60	02/15/11	5908.21	Transducer	1330	1350.9	Regional
R-60	02/14/11	5908.11	Transducer	1330	1350.9	Regional
R-60	02/13/11	5908.04	Transducer	1330	1350.9	Regional
R-60	02/12/11	5908.04	Transducer	1330	1350.9	Regional
R-60	02/11/11	5908.27	Transducer	1330	1350.9	Regional
R-60	02/10/11	5908.31	Transducer	1330	1350.9	Regional
R-60	02/09/11	5908.4	Transducer	1330	1350.9	Regional
R-60	02/08/11	5908.57	Transducer	1330	1350.9	Regional
R-60	02/07/11	5908.18	Transducer	1330	1350.9	Regional
R-60	02/06/11	5908.49	Transducer	1330	1350.9	Regional
R-60	02/05/11	5908.4	Transducer	1330	1350.9	Regional
R-60	02/04/11	5908.3	Transducer	1330	1350.9	Regional
R-60	02/03/11	5908.2	Transducer	1330	1350.9	Regional

Location	Date	Water Level (ft)	Method	Top Depth (ft)	Bottom Depth (ft)	Zone
R-60	02/02/11	5908.4	Transducer	1330	1350.9	Regional
R-60	02/01/11	5908.58	Transducer	1330	1350.9	Regional
R-60	01/31/11	5908.44	Transducer	1330	1350.9	Regional
R-60	01/30/11	5908.33	Transducer	1330	1350.9	Regional
R-60	01/29/11	5908.33	Transducer	1330	1350.9	Regional
R-60	01/28/11	5908.15	Transducer	1330	1350.9	Regional
R-60	01/27/11	5908.12	Transducer	1330	1350.9	Regional
R-60	01/26/11	5908.32	Transducer	1330	1350.9	Regional
R-60	01/25/11	5908.18	Transducer	1330	1350.9	Regional
R-60	01/24/11	5908.37	Transducer	1330	1350.9	Regional
R-60	01/23/11	5908.42	Transducer	1330	1350.9	Regional
R-60	01/22/11	5908.3	Transducer	1330	1350.9	Regional
R-60	01/21/11	5908.3	Transducer	1330	1350.9	Regional
R-60	01/20/11	5908.46	Transducer	1330	1350.9	Regional
R-60	01/19/11	5908.36	Transducer	1330	1350.9	Regional
R-60	01/18/11	5908.41	Transducer	1330	1350.9	Regional
R-60	01/17/11	5908.31	Transducer	1330	1350.9	Regional
R-60	01/16/11	5908.26	Transducer	1330	1350.9	Regional
R-60	01/15/11	5908.07	Transducer	1330	1350.9	Regional
R-60	01/14/11	5908.18	Transducer	1330	1350.9	Regional
R-60	01/13/11	5908.09	Transducer	1330	1350.9	Regional
R-60	01/12/11	5908.09	Transducer	1330	1350.9	Regional
R-60	01/11/11	5908.21	Transducer	1330	1350.9	Regional
R-60	01/10/11	5908.65	Transducer	1330	1350.9	Regional
R-60	01/09/11	5908.67	Transducer	1330	1350.9	Regional
R-60	01/08/11	5908.45	Transducer	1330	1350.9	Regional
R-60	01/07/11	5908.28	Transducer	1330	1350.9	Regional
R-60	01/06/11	5908.15	Transducer	1330	1350.9	Regional
R-60	01/05/11	5908.23	Transducer	1330	1350.9	Regional

Appendix C

Analytical Chemistry Results, Including Results from Previous Four Monitoring Events if Available

The following pages provide lists of (1) acronyms, abbreviations, symbols, and various analytical codes; (2) analytical laboratory qualifier codes; and (3) secondary validation flag codes that may be used in Appendix C. Please note that these are comprehensive lists, and this periodic monitoring report may not include all of the terms in the lists.

Acronyms and Abbreviations

Acronym, Abbreviation, or Symbol	Description
Miscellaneous	
%	percent
%D	percent difference
%R	percent recovery
%RSD	percent relative standard deviation
<	Based on qualifiers, the result was a nondetection.
—	none
4,4'-DDD	4,4'-dichlorodiphenyldichloroethane
4,4'-DDT	4,4'-dichlorodiphenyltrichloroethane
BHC	benzene hexachloride
CB	chlorinated biphenyl
CCB	continuing calibration blank
CCV	continuing calibration verification
CLP	Control Laboratory Program
CRDL	contract-required detection limit
CRI	CDRL check standard
DCG	Derived Concentration Guide (DOE)
DDE	dichlorodiphenyldichloroethylene
DNX	dinitroso-RDX (or hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine)
DOE	Department of Energy (U.S.)
DQO	data quality objective
EPA	Environmental Protection Agency (U.S.)
GC	gas chromatography
GC/MS	gas chromatography/mass spectrometry
GFAA	graphite furnace atomic absorption
GFPC	gas-flow proportional counter
GW	groundwater
HH OO	Human Health—Organism Only (NMWQCC standard)
HMX	1,3,5,7-tetranitro-1,3,5,7-tetrazocine
HPLC	high-pressure liquid chromatography
ICAL	initial calibration
ICPAES	inductively coupled plasma atomic (optical) emission spectroscopy
ICV	initial calibration verification
IDL	instrument detection limit

Acronyms and Abbreviations (continued)

Acronym, Abbreviation, or Symbol	Description
Miscellaneous (continued)	
IS	internal standard
LAL	lower acceptance limit
LANL	Los Alamos National Laboratory
LCS	laboratory control sample
LLEE	low-level electrolytic extraction
LOC	level of chlorination
LSC	liquid scintillation counting
Lvl	level
MCL	maximum contaminant level (EPA)
MDA	minimum detectable activity
MDC	minimum detectable concentration
MDL	method detection limit
MNX	mononitroso-RDX (or hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine)
MS	matrix spike
MSD	matrix spike duplicate
NM	NMWQCC
NMED	New Mexico Environmental Department
NMWQCC	New Mexico Water Quality Control Commission
OPR	ongoing precision recovery
PCB	polychlorinated biphenyl
PCDD	polychlorinated dibenzo-p-dioxin
PCDF	polychlorinated dibenzofuran
PQL	practical quantitation limit
Prelim	preliminary
QC	quality control
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine
RF	response factor
RL	reporting limit
RPD	relative percent difference
RRF	relative response factor
RRT	relative retention time
RT	retention time
Scr	screening
SDG	sample delivery group
SMO	Sample Management Office
SSC	suspended sediment concentration
SU	standard unit
TCDD	tetrachlorodibenzo-p-dioxin

Acronyms and Abbreviations (continued)

Acronym, Abbreviation, or Symbol	Description
Miscellaneous (continued)	
TCDF	tetrachlorodibenzofuran
TDS	total dissolved solids
TPH-DRO	total petroleum hydrocarbons—diesel range organics
TNX	trinitroso-RDX (or hexahydro-1,3,5-trinitroso-1,3,5-triazine)
TPU	total propagated uncertainty
UAL	upper acceptance limit
Field Matrix Codes	
W	water
WG	groundwater
WM	snowmelt
WP	persistent flow
WS	base flow
WT	storm runoff
Field Prep Codes	
F	filtered
UF	unfiltered
Lab Sample Type Codes	
CS	client sample
DL	dilution
DUP	duplicate
INIT	initial
RE	reanalysis
REDL	reanalysis dilution
REDP	reanalysis duplicate
RI	reissue
TRP	triplicate
Field QC Type Codes	
EQB	equipment rinsate blank
FB	field blank
FD	field duplicate
FR	field rinsate
FS	field split
FTB	field trip blank
FTR	field triplicate
INB	equipment blank taken during installation and not associated with a sampling event
ITB	trip blank taken during installation and not associated with a sampling event
NA	not applicable
PEB	performance evaluation blank

Acronyms and Abbreviations (continued)

Acronym, Abbreviation, or Symbol	Description
Field QC Type Codes (continued)	
PEK	performance evaluation known
REG	regular
RES	resample
SS	special sampling event, data unique
SS-EQB	equipment blank of special sampling event, data unique
SS-FB	field blank of special sampling event, data unique
SS-FD	field duplicate of special sampling event, data unique
SS-FTB	field trip blank of special sampling event, data unique
Analytical Suite Codes	
DIOX/FUR, Diox/Fur	dioxins and furans
DRO	diesel range organics
Geninorg, GENINORG, General Chemistry	general inorganics
GRO	gasoline range organics
HERB	herbicides
HEXP	high explosives
INORGANIC	inorganics
ISOTOPE, Isotope	isotope ratios
LCMS/MS	liquid chromatography mass spectrometry/mass spectrometry
METALS, Metals	metals
PEST/PCB, PESTPCB	pesticides and PCBs
RAD, Rad	radiochemistry
SVOC, SVOA	semivolatile organic compounds
VOC, VOA	volatile organic compounds
Detect Flag and Best Value Flag Codes	
N	no
Y	yes
Lab Codes	
ALTC	Alta Analytical Laboratory, Inc., San Diego, CA
ARSL	American Radiation Services, Inc.
CFA	Cape Fear Analytical, LLC, Wilmington, NC
C-INC	Isotope and Nuclear Chemistry Division (LANL)
COAST	Coastal Science Laboratories, Austin, TX
CST	Chemical Sciences and Technology Division (LANL)
EES6	Hydrology, Geochemistry, and Geology Group (LANL)
ESE	Environmental Sciences & Engineering, Inc., Gainesville, FL
FLD	measurement taken in field
GEL	General Engineering Laboratories, Inc.

Acronyms and Abbreviations (continued)

Acronym, Abbreviation, or Symbol	Description
Lab Codes (continued)	
GELC	General Engineering Laboratories, Inc., Charleston, SC
GEO	Geochron Laboratories, Boston, MA
HENV	Health and Environmental Laboratory (Johnson Controls, Northern New Mexico)
HUFFMAN	Huffman Laboratories, Inc., Golden, CO
KA	KEMRON Environmental Services, Inc., Vienna, VA
LVLI	Lionville Laboratory, Inc., Philadelphia, PA
PARA	Paragon Analytics, Inc., Salt Lake City, UT
PEC	Pacific Ecorisk Laboratories, Fairfield, CA
QESL	Quanterra Environmental Services, St. Louis, MO
QST	QST Environmental, Newberry, FL
RECRAP	RECRA Labnet, Lionville, PA
RFWC	Roy F. Weston, Inc., West Chester, PA
SGSW	Paradigm Analytical Laboratories, Inc., Wilmington, NC
SILENS	Stable Isotope Laboratory, Woods Hole, MA
STL2, STR	Severn Trent Laboratories, Inc., Richland, WA (historical)
STLA	Severn Trent Laboratories, Inc., Los Angeles, CA
STSL	Severn Trent Laboratories, Inc., St. Louis, MO
SwRI	Southwest Research Institute, San Antonio, TX
UAZ	University of Arizona, Tucson
UIL	University of Illinois, Urbana-Champaign
UMTL	University of Miami Tritium Lab

Analytical Laboratory Qualifier Codes

Code	Description
*	(Inorganic)—Duplicate analysis (relative percent difference [RPD]) not within control limits.
B	(Organic) —Analyte was present in the blank and the sample. (Inorganic) —Reported value was obtained from a reading that was less than the contract-required detection limit (CRDL) but greater than or equal to the instrument detection limit (IDL).
BJ	See B code and see J code.
BJP	See B code, see J code, and see P code.
BPX	(B) (Organic)—This analyte was detected in the associated laboratory method blank and the sample. (B) (Inorganic)—The result for this analyte was greater than the IDL but less than the CRDL. (P) (Pesticides/PCBs)—The quantitative results for this analyte between the primary and secondary gas chromatography (GC) columns were greater than 25% difference. (P) (SW-846 EPA Method 8310, High-Pressure Liquid Chromatography, [HPLC] Results)—The quantitative results for this analyte between the primary and secondary HPLC columns or primary and secondary HPLC detectors were greater than 40% difference. (X) (Organic/Inorganic)—The result for this analyte should be regarded as not detected.
D	The result for this analyte was reported from a dilution.
DJ	See D code and see J code.
DNA	Did not analyze because equipment was broken.
E	(Organic) Analyte exceeded the concentration range. (Inorganic) The serial dilution was exceeded.
E*	See E code and see * code.
EJ	See E code and see J code.
EJ*	See E code, see J code, and see * code.
EJN	(E) (Organic)—The result for this analyte exceeded the upper range of the instrument initial calibration curve. (E) (Inorganic) (inductively coupled plasma atomic [optical] emission spectroscopy [ICPAES])—The result for this analyte in the serial dilution analysis was outside acceptance criteria. (E) (Inorganic) (graphite furnace atomic absorption [GFAA])—The result for this analyte failed one or more Control Laboratory Program (CLP) acceptance criteria as explained in the case narrative. (J) (Organic/General Inorganics)—The result for this analyte was greater than the method detection limit (MDL) but less than the practical quantitation limit (PQL). (N) (Organic)—The reported analyte is a tentatively identified compound (TIC). (N) (Inorganic)—The result for this analyte in the matrix spike (MS) sample was outside acceptance criteria.
EN	See E code and see N code.
EN*	(E) (Organic)—The result for this analyte exceeded the upper range of the instrument initial calibration curve. (E) (Inorganic) (ICPAES)—The result for this analyte in the serial dilution analysis was outside acceptance criteria. (E) (Inorganic) (GFAA)—The result for this analyte failed one or more CLP acceptance criteria as explained in the case narrative. (N) (Organic)—The reported analyte is a TIC. (N) (Inorganic)—The result for this analyte in the MS sample was outside acceptance criteria. * (Inorganic)—The result for this analyte in the laboratory replicate analysis was outside acceptance criteria.
H	(Organic/Inorganic)—The required extraction or analysis holding time for this result was exceeded.

Analytical Laboratory Qualifier Codes (continued)

Code	Description
H*	(H) (Organic/Inorganic)—The required extraction or analysis holding time for this result was exceeded. * (Organic) and (Inorganic)—The result for this analyte in the laboratory control sample analysis was outside acceptance criteria.
HJ	See H code and see J code.
HJ*	(H) (Organic/Inorganic)—The required extraction or analysis holding time for this result was exceeded. (J) (Organic/General Inorganics)—The result for this analyte was greater than the MDL but less than the PQL. * (Inorganic)—The result for this analyte in the laboratory replicate analysis was outside acceptance criteria.
INS	(d15N)—The d15N of nitrate is a signature of the nitrate present in a sample. Therefore, nitrate has to be present to have a signature. A d15N value cannot be given to a blank because the blank does not have nitrate. This is different from most analytical methods, where a blank is run with the designator “nondetect” or “detected, but below detection limit.”
J	(Inorganic)—The associated numerical value is an estimated quantity. (Organic)—The associated numerical value is an estimated quantity.
J*	See J code and see * code.
JB	See J code and see B code
JN	See J code and see N code.
JN*	See J code, see N code, and see * code.
JP	See J code and see P code.
N	(Inorganic)—Spiked sample recovery was not within control limits.
N*	See N code and see * code.
N*E	See N code, see * code, and see E code.
NE	See N code and see E code.
P	Percent difference between the results on the two columns during the analysis differed by more than 40%.
PJ	See P code and see J code.
U	The material was analyzed for but was not detected above the level of the associated numeric value.
U*	See U code and see * code.
UD	See U code and see D code.
UE	See U code and see E code.
UE*	See U code, see E code, and see * code.
UEN	See U code, see E code, and see N code.
UH	See U code and see H code.

Analytical Laboratory Qualifier Codes (continued)

UH*	(U) (Organic/Inorganic)—The result for this analyte was not detected at the specified reporting limit. (H) (Organic/Inorganic)—The required extraction or analysis holding time for this result was exceeded. * (Inorganic)—The result for this analyte in the laboratory replicate analysis was outside acceptance criteria.
UI	(Rad) Gamma spectroscopy result should be regarded as an uncertain identification.
UN	EPA flag (Inorganic)—Compound was analyzed for but was not detected. Spiked sample recovery was not within control limits.
UN*	EPA flag (Inorganic)—See U code, see N code, and see * code.
UUI	(Rad) Gamma spectroscopy result should be regarded as an uncertain identification, and the analytical lab assigned these gamma spectroscopy results as not detected.
X	The analytical laboratory suspects the result is a nondetect despite positive quantification results.

Secondary Validation Flag Codes

Code	Description
A	The contractually required supporting documentation for this datum is absent.
I	The calculated sums are considered incomplete because of the lack of one or more congener results.
J	The analyte is classified as detected, but the reported concentration value is expected to be more uncertain than usual.
J-	The analyte is classified as detected, but the reported concentration value is expected to be more uncertain than usual with a potential negative bias.
J+	The analyte is classified as detected, but the reported concentration value is expected to be more uncertain than usual with a potential positive bias.
JN-	Presumptive evidence of the presence of the material is at an estimated quantity with a suspected negative bias.
JN+	Presumptive evidence of the presence of the material is at an estimated quantity with a suspected positive bias.
N	There is presumptive evidence of the presence of the material.
NJ	(Organic) Analyte has been tentatively identified, and the associated numerical value is estimated based upon a 1:1 response factor to the nearest eluting internal standard.
NQ	No validation qualifier flag is associated with this result, and the analyte is classified as detected.
PM	Manual review of raw data is recommended to determine if the observed noncompliances with quality acceptance criteria adversely impact data use.
R	The reported sample result is classified as rejected because of serious noncompliances regarding quality control (QC) acceptance criteria. The presence or absence of the analyte cannot be verified based on routine validation alone.
U	The analyte is classified as not detected.
UJ	The analyte is classified as not detected, with an expectation that the reported result is more uncertain than usual.

MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.28	—	—	0.01	SU	Y	H	NQ	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.35	—	—	0.01	SU	Y	H	J-	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	08/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.12	—	—	0.01	SU	Y	H	J-	11-3027	CAMO-11-24654	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.96	—	—	0.01	SU	Y	H	J-	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	02/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.25	—	—	0.01	SU	Y	H	J-	11-1413	CAMO-11-4620	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	59	—	—	0.725	mg/L	Y	—	NQ	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	71	—	—	0.73	mg/L	Y	—	NQ	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	08/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	61.7	—	—	0.73	mg/L	Y	—	NQ	11-3027	CAMO-11-24654	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	58	—	—	0.73	mg/L	Y	—	NQ	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	02/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	58	—	—	0.73	mg/L	Y	—	NQ	11-1413	CAMO-11-4620	GELC
R-14 S1	1200.6	11/05/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00559	0.00559	0.0318	—	pCi/L	Y	U	U	2013-271	CAMO-13-24276	GELC
R-14 S1	1200.6	11/08/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0138	0.0077	0.031	—	pCi/L	Y	U	U	12-296	CAMO-12-1526	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	FD	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00214	0.002	0.034	—	pCi/L	Y	U	U	10-3544	CAMO-10-22854	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00131	0.0028	0.038	—	pCi/L	Y	U	U	10-3544	CAMO-10-22851	GELC
R-14 S1	1200.6	02/03/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00935	0.0086	0.034	—	pCi/L	Y	U	U	10-1615	CAMO-10-9333	GELC
R-14 S1	1200.6	11/04/09	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00114	0.0017	0.033	—	pCi/L	Y	U	U	10-370	CAMO-10-3215	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0341	—	—	0.017	mg/L	Y	J	J	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	UJ	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	08/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	11-3027	CAMO-11-24654	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0321	—	—	0.016	mg/L	Y	J	J	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	02/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	UJ	11-1413	CAMO-11-4620	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	28.5	—	—	1	µg/L	Y	—	NQ	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	32.9	—	—	1	µg/L	Y	—	NQ	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	33	—	—	1	µg/L	Y	—	NQ	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	34	—	—	1	µg/L	Y	—	NQ	11-507	CAMO-11-1264	GELC
R-14 S1	1200.6	05/03/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	37.6	—	—	1	µg/L	Y	—	NQ	10-3003	CAMO-10-16754	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	10.6	—	—	0.05	mg/L	Y	—	NQ	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	11.2	—	—	0.05	mg/L	Y	—	NQ	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	11	—	—	0.05	mg/L	Y	—	NQ	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	10.7	—	—	0.05	mg/L	Y	—	NQ	11-507	CAMO-11-1264	GELC
R-14 S1	1200.6	05/03/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	11.3	—	—	0.05	mg/L	Y	—	NQ	10-3003	CAMO-10-16754	GELC
R-14 S1	1200.6	11/05/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-2.29	1.46	4.65	—	pCi/L	Y	U	U	2013-271	CAMO-13-24276	GELC
R-14 S1	1200.6	11/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	0.475	1.2	4.6	—	pCi/L	Y	U	U	12-296	CAMO-12-1526	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.91	1.4	5.3	—	pCi/L	Y	U	U	10-3544	CAMO-10-22851	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	FD	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.84	1.7	4.9	—	pCi/L	Y	U	U	10-3544	CAMO-10-22854	GELC
R-14 S1	1200.6	02/03/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.79	1.7	5.9	—	pCi/L	Y	U	U	10-1615	CAMO-10-9333	GELC
R-14 S1	1200.6	11/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.0844	1.5	5	—	pCi/L	Y	U	U	10-370	CAMO-10-3215	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.64	—	—	0.067	mg/L	Y	—	NQ	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.67	—	—	0.066	mg/L	Y	—	J+	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	08/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.65	—	—	0.066	mg/L	Y	—	NQ	11-3027	CAMO-11-24654	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.64	—	—	0.066	mg/L	Y	—	NQ	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	02/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.65	—	—	0.066	mg/L	Y	—	J	11-1413	CAMO-11-4620	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.68	—	—	2	µg/L	Y	J	J	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.9	—	—	2	µg/L	Y	J	J	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	6.98	—	—	2	µg/L	Y	J	J	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.7	—	—	2.5	µg/L	Y	J	J	11-507	CAMO-11-1264	GELC
R-14 S1	1200.6	05/03/10	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.72	—	—	2.5	µg/L	Y	J	J	10-3003	CAMO-10-16754	GELC
R-14 S1	1200.6	11/05/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.01	1.43	5.01	—	pCi/L	Y	U	U	2013-271	CAMO-13-24276	GELC
R-14 S1	1200.6	11/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.0965	1.2	4.5	—	pCi/L	Y	U	U	12-296	CAMO-12-1526	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.1	1.6	4.7	—	pCi/L	Y	U	U	10-3544	CAMO-10-22851	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	FD	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.07	1.8	5.9	—	pCi/L	Y	U	U	10-3544	CAMO-10-22854	GELC

MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-14 S1	1200.6	02/03/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	1.54	1.6	5.8	—	pCi/L	Y	U	U	10-1615	CAMO-10-9333	GELC
R-14 S1	1200.6	11/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	2.28	1.7	6.1	—	pCi/L	Y	U	U	10-370	CAMO-10-3215	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.196	—	—	0.033	mg/L	Y	—	NQ	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.161	—	—	0.033	mg/L	Y	—	NQ	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	08/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.161	—	—	0.033	mg/L	Y	—	NQ	11-3027	CAMO-11-24654	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.192	—	—	0.033	mg/L	Y	—	NQ	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	02/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.166	—	—	0.033	mg/L	Y	—	J-	11-1413	CAMO-11-4620	GELC
R-14 S1	1200.6	11/05/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.88	0.814	2.84	—	pCi/L	Y	U	U	2013-271	CAMO-13-24276	GELC
R-14 S1	1200.6	11/08/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.923	0.58	1.7	—	pCi/L	Y	U	U	12-296	CAMO-12-1526	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	-0.013	0.42	2.3	—	pCi/L	Y	U	U	10-3544	CAMO-10-22854	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.616	0.6	2.3	—	pCi/L	Y	U	U	10-3544	CAMO-10-22851	GELC
R-14 S1	1200.6	11/04/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.901	0.53	1.6	—	pCi/L	Y	U	U	10-370	CAMO-10-3215	GELC
R-14 S1	1200.6	08/07/09	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.941	0.36	1.1	—	pCi/L	Y	U	U	09-2821	CAMO-09-9571	GELC
R-14 S1	1200.6	11/05/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.5	0.776	2.49	—	pCi/L	Y	U	U	2013-271	CAMO-13-24276	GELC
R-14 S1	1200.6	11/08/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	2.66	0.85	2.3	—	pCi/L	Y	—	NQ	12-296	CAMO-12-1526	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	N	1.57	0.74	2.3	—	pCi/L	Y	U	U	10-3544	CAMO-10-22854	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.5	0.72	2.3	—	pCi/L	Y	U	U	10-3544	CAMO-10-22851	GELC
R-14 S1	1200.6	11/04/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	4.96	1.1	2.4	—	pCi/L	Y	—	NQ	10-370	CAMO-10-3215	GELC
R-14 S1	1200.6	08/07/09	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	4.67	1.4	4	—	pCi/L	Y	—	NQ	09-2821	CAMO-09-9571	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	40.9	—	—	0.453	mg/L	Y	—	NQ	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	42.2	—	—	0.45	mg/L	Y	—	NQ	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	41.5	—	—	0.45	mg/L	Y	—	NQ	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	11/12/10	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	40.7	—	—	0.35	mg/L	Y	—	NQ	11-507	CAMO-11-1264	GELC
R-14 S1	1200.6	05/03/10	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	42.9	—	—	0.35	mg/L	Y	—	NQ	10-3003	CAMO-10-16754	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.53	—	—	0.11	mg/L	Y	—	NQ	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.47	—	—	0.11	mg/L	Y	—	NQ	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.42	—	—	0.11	mg/L	Y	—	NQ	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.38	—	—	0.085	mg/L	Y	—	NQ	11-507	CAMO-11-1264	GELC
R-14 S1	1200.6	05/03/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.55	—	—	0.085	mg/L	Y	—	NQ	10-3003	CAMO-10-16754	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.2	—	—	0.165	µg/L	Y	—	NQ	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.17	—	—	0.17	µg/L	Y	—	NQ	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.04	—	—	0.17	µg/L	Y	—	J	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.18	—	—	0.1	µg/L	Y	—	NQ	11-507	CAMO-11-1264	GELC
R-14 S1	1200.6	05/03/10	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.12	—	—	0.1	µg/L	Y	—	NQ	10-3003	CAMO-10-16754	GELC
R-14 S1	1200.6	11/05/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.08	2.92	10.1	—	pCi/L	Y	U	U	2013-271	CAMO-13-24276	GELC
R-14 S1	1200.6	11/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	1.8	2.3	8.8	—	pCi/L	Y	U	U	12-296	CAMO-12-1526	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	FD	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.53	3	9.7	—	pCi/L	Y	U	U	10-3544	CAMO-10-22854	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.81	3	9.4	—	pCi/L	Y	U	U	10-3544	CAMO-10-22851	GELC
R-14 S1	1200.6	02/03/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	40.6	22	49	—	pCi/L	Y	U	U	10-1615	CAMO-10-9333	GELC
R-14 S1	1200.6	11/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-21.5	12	34	—	pCi/L	Y	U	U	10-370	CAMO-10-3215	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.333	—	—	0.017	mg/L	Y	—	NQ	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.37	—	—	0.05	mg/L	Y	—	NQ	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	08/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	N	0.372	—	—	0.05	mg/L	Y	—	U	11-3027	CAMO-11-24654	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.365	—	—	0.05	mg/L	Y	—	NQ	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	02/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.287	—	—	0.1	mg/L	Y	J	J	11-1413	CAMO-11-4620	GELC
R-14 S1	1200.6	11/05/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.0208	0.00834	0.0222	—	pCi/L	Y	U	U	2013-271	CAMO-13-24276	GELC
R-14 S1	1200.6	11/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00245	0.0043	0.028	—	pCi/L	Y	U	U	12-296	CAMO-12-1526	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00376	0.0033	0.025	—	pCi/L	Y	U	U	10-3544	CAMO-10-22854	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00447	0.0063	0.03	—	pCi/L	Y	U	U	10-3544	CAMO-10-22851	GELC
R-14 S1	1200.6	02/03/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.002	0.033	—	pCi/L	Y	U	U	10-1615	CAMO-10-9333	GELC
R-14 S1	1200.6	11/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00299	0.0042	0.025	—	pCi/L	Y	U	U	10-370	CAMO-10-3215	GELC

MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-14 S1	1200.6	11/05/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00694	0.00834	0.0369	—	pCi/L	Y	U	U	2013-271	CAMO-13-24276	GELC
R-14 S1	1200.6	11/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00736	0.0055	0.039	—	pCi/L	Y	U	U	12-296	CAMO-12-1526	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00376	0.0046	0.026	—	pCi/L	Y	U	U	10-3544	CAMO-10-22854	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	2.66E-10	0.0045	0.03	—	pCi/L	Y	U	U	10-3544	CAMO-10-22851	GELC
R-14 S1	1200.6	02/03/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	1.16E-10	0.0028	0.023	—	pCi/L	Y	U	U	10-1615	CAMO-10-9333	GELC
R-14 S1	1200.6	11/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0	0.0021	0.025	—	pCi/L	Y	U	U	10-370	CAMO-10-3215	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.2	—	—	0.05	mg/L	Y	—	NQ	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.14	—	—	0.05	mg/L	Y	—	NQ	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.23	—	—	0.05	mg/L	Y	—	J	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.16	—	—	0.05	mg/L	Y	—	NQ	11-507	CAMO-11-1264	GELC
R-14 S1	1200.6	05/03/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.21	—	—	0.05	mg/L	Y	—	NQ	10-3003	CAMO-10-16754	GELC
R-14 S1	1200.6	11/05/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-17.6	15.8	52.1	—	pCi/L	Y	U	U	2013-271	CAMO-13-24276	GELC
R-14 S1	1200.6	11/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-15.1	14	54	—	pCi/L	Y	U	U	12-296	CAMO-12-1526	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	FD	RAD	EPA:901.1	Potassium-40	K-40	N	17.2	20	73	—	pCi/L	Y	U	U	10-3544	CAMO-10-22854	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	29.9	22	79	—	pCi/L	Y	U	U	10-3544	CAMO-10-22851	GELC
R-14 S1	1200.6	02/03/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	53.2	20	80	—	pCi/L	Y	U	U	10-1615	CAMO-10-9333	GELC
R-14 S1	1200.6	11/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-12.4	19	64	—	pCi/L	Y	U	U	10-370	CAMO-10-3215	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	86.3	—	—	0.053	mg/L	Y	—	J+	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	85.9	—	—	0.053	mg/L	Y	—	NQ	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	08/03/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	83.8	—	—	0.053	mg/L	Y	—	NQ	11-3027	CAMO-11-24654	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	80.7	—	—	0.053	mg/L	Y	—	NQ	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	02/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	84.7	—	—	0.053	mg/L	Y	—	NQ	11-1413	CAMO-11-4620	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	11.3	—	—	0.1	mg/L	Y	N	J+	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	11.1	—	—	0.1	mg/L	Y	—	NQ	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.8	—	—	0.1	mg/L	Y	—	NQ	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.8	—	—	0.1	mg/L	Y	—	NQ	11-507	CAMO-11-1264	GELC
R-14 S1	1200.6	05/03/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	11.4	—	—	0.1	mg/L	Y	—	NQ	10-3003	CAMO-10-16754	GELC
R-14 S1	1200.6	11/05/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.457	1.03	3.82	—	pCi/L	Y	U	U	2013-271	CAMO-13-24276	GELC
R-14 S1	1200.6	11/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.297	1.3	4.9	—	pCi/L	Y	U	U	12-296	CAMO-12-1526	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.786	1.6	5.1	—	pCi/L	Y	U	U	10-3544	CAMO-10-22851	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	FD	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.352	1.7	5.3	—	pCi/L	Y	U	U	10-3544	CAMO-10-22854	GELC
R-14 S1	1200.6	02/03/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.01	1.8	6.2	—	pCi/L	Y	U	U	10-1615	CAMO-10-9333	GELC
R-14 S1	1200.6	11/04/09	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.04	1.7	5.8	—	pCi/L	Y	U	U	10-370	CAMO-10-3215	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	130	—	—	1	µS/cm	Y	—	NQ	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	124	—	—	1	µS/cm	Y	—	NQ	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	08/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	123	—	—	1	µS/cm	Y	—	NQ	11-3027	CAMO-11-24654	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	131	—	—	1	µS/cm	Y	—	NQ	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	02/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	125	—	—	1	µS/cm	Y	—	NQ	11-1413	CAMO-11-4620	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	49.9	—	—	1	µg/L	Y	—	NQ	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	55.1	—	—	1	µg/L	Y	—	NQ	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	51.8	—	—	1	µg/L	Y	—	NQ	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	54	—	—	1	µg/L	Y	—	NQ	11-507	CAMO-11-1264	GELC
R-14 S1	1200.6	05/03/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	58.9	—	—	1	µg/L	Y	—	NQ	10-3003	CAMO-10-16754	GELC
R-14 S1	1200.6	11/05/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0232	0.119	0.44	—	pCi/L	Y	U	U	2013-271	CAMO-13-24276	GELC
R-14 S1	1200.6	11/08/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.32	0.15	0.48	—	pCi/L	Y	U	U	12-296	CAMO-12-1526	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	FD	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.385	0.15	0.46	—	pCi/L	Y	U	U	10-3544	CAMO-10-22854	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.459	0.17	0.5	—	pCi/L	Y	U	U	10-3544	CAMO-10-22851	GELC
R-14 S1	1200.6	02/03/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.181	0.11	0.45	—	pCi/L	Y	U	U	10-1615	CAMO-10-9333	GELC
R-14 S1	1200.6	11/04/09	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.185	0.14	0.48	—	pCi/L	Y	U	U	10-370	CAMO-10-3215	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	1.98	—	—	0.133	mg/L	Y	—	NQ	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	1.82	—	—	0.1	mg/L	Y	—	NQ	12-296	CAMO-12-1525	GELC

MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-14 S1	1200.6	08/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	1.81	—	—	0.1	mg/L	Y	—	J+	11-3027	CAMO-11-24654	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	1.9	—	—	0.1	mg/L	Y	—	NQ	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	02/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	1.93	—	—	0.1	mg/L	Y	—	NQ	11-1413	CAMO-11-4620	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	144	—	—	3.4	mg/L	Y	—	NQ	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	140	—	—	3.4	mg/L	Y	—	NQ	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	08/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	134	—	—	3.4	mg/L	Y	—	NQ	11-3027	CAMO-11-24654	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	140	—	—	2.4	mg/L	Y	—	NQ	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	02/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	132	—	—	2.4	mg/L	Y	—	NQ	11-1413	CAMO-11-4620	GELC
R-14 S1	1200.6	11/05/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.376	0.797	2.738	—	pCi/L	Y	U	U	2013-292	CAMO-13-24276	ARSL
R-14 S1	1200.6	05/29/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	1.698	0.699	2.094	—	pCi/L	Y	U	U	12-1328	CAMO-12-14044	ARSL
R-14 S1	1200.6	11/08/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.62	0.67	2.31	—	pCi/L	Y	U	U	12-300	CAMO-12-1526	ARSL
R-14 S1	1200.6	08/03/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-2.3184	0.7406	2.3506	—	pCi/L	Y	U	U	11-3040	CAMO-11-24652	ARSL
R-14 S1	1200.6	05/18/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	1.0948	0.6762	2.1896	—	pCi/L	Y	U	U	11-2440	CAMO-11-10729	ARSL
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.93	—	—	0.067	µg/L	Y	—	NQ	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.807	—	—	0.067	µg/L	Y	—	NQ	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.713	—	—	0.067	µg/L	Y	—	NQ	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.952	—	—	0.05	µg/L	Y	—	NQ	11-507	CAMO-11-1264	GELC
R-14 S1	1200.6	05/03/10	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.837	—	—	0.05	µg/L	Y	—	NQ	10-3003	CAMO-10-16754	GELC
R-14 S1	1200.6	11/05/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.477	0.0371	0.0619	—	pCi/L	Y	—	NQ	2013-271	CAMO-13-24276	GELC
R-14 S1	1200.6	11/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.45	0.057	0.12	—	pCi/L	Y	—	J+	12-296	CAMO-12-1526	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.534	0.052	0.061	—	pCi/L	Y	—	NQ	10-3544	CAMO-10-22851	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.492	0.049	0.061	—	pCi/L	Y	—	NQ	10-3544	CAMO-10-22854	GELC
R-14 S1	1200.6	02/03/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.51	0.053	0.079	—	pCi/L	Y	—	NQ	10-1615	CAMO-10-9333	GELC
R-14 S1	1200.6	11/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.53	0.054	0.093	—	pCi/L	Y	—	NQ	10-370	CAMO-10-3215	GELC
R-14 S1	1200.6	11/05/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00659	0.00659	0.0386	—	pCi/L	Y	U	U	2013-271	CAMO-13-24276	GELC
R-14 S1	1200.6	11/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0174	0.015	0.062	—	pCi/L	Y	U	U	12-296	CAMO-12-1526	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0117	0.0072	0.037	—	pCi/L	Y	U	U	10-3544	CAMO-10-22854	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0207	0.0079	0.037	—	pCi/L	Y	U	U	10-3544	CAMO-10-22851	GELC
R-14 S1	1200.6	02/03/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0313	0.012	0.045	—	pCi/L	Y	U	U	10-1615	CAMO-10-9333	GELC
R-14 S1	1200.6	11/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00321	0.0072	0.047	—	pCi/L	Y	U	U	10-370	CAMO-10-3215	GELC
R-14 S1	1200.6	11/05/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.224	0.025	0.042	—	pCi/L	Y	—	NQ	2013-271	CAMO-13-24276	GELC
R-14 S1	1200.6	11/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.225	0.037	0.053	—	pCi/L	Y	—	J+	12-296	CAMO-12-1526	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.263	0.031	0.043	—	pCi/L	Y	—	NQ	10-3544	CAMO-10-22851	GELC
R-14 S1	1200.6	07/01/10	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.254	0.03	0.042	—	pCi/L	Y	—	NQ	10-3544	CAMO-10-22854	GELC
R-14 S1	1200.6	02/03/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.335	0.039	0.051	—	pCi/L	Y	—	NQ	10-1615	CAMO-10-9333	GELC
R-14 S1	1200.6	11/04/09	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.291	0.035	0.057	—	pCi/L	Y	—	NQ	10-370	CAMO-10-3215	GELC
R-14 S1	1200.6	11/05/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.66	—	—	1	µg/L	Y	—	NQ	2013-271	CAMO-13-24280	GELC
R-14 S1	1200.6	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.4	—	—	1	µg/L	Y	—	NQ	12-296	CAMO-12-1525	GELC
R-14 S1	1200.6	05/18/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.83	—	—	1	µg/L	Y	—	NQ	11-2454	CAMO-11-10728	GELC
R-14 S1	1200.6	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.7	—	—	1	µg/L	Y	—	NQ	11-507	CAMO-11-1264	GELC
R-14 S1	1200.6	05/03/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	8	—	—	1	µg/L	Y	—	NQ	10-3003	CAMO-10-16754	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.78	—	—	0.01	SU	Y	H	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.64	—	—	0.01	SU	Y	H	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	06/01/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.84	—	—	0.01	SU	Y	H	NQ	12-1335	CAMO-12-17132	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.88	—	—	0.01	SU	Y	H	J-	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.57	—	—	0.01	SU	Y	H	J-	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	7.8	—	—	0.01	SU	Y	H	J-	11-2424	CAMO-11-10731	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	56.1	—	—	0.725	mg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	53.6	—	—	0.725	mg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	06/01/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	58.5	—	—	0.725	mg/L	Y	—	NQ	12-1335	CAMO-12-17132	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	57	—	—	0.73	mg/L	Y	—	NQ	12-296	CAMO-12-1529	GELC

MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-46	1340	08/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	530	—	—	0.73	mg/L	Y	—	R	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	54.4	—	—	0.73	mg/L	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.01	0.00793	0.0285	—	pCi/L	Y	U	U	2013-353	CAMO-13-24271	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00233	0.00403	0.0265	—	pCi/L	Y	U	U	2013-353	CAMO-13-24278	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0118	0.0093	0.046	—	pCi/L	Y	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00894	0.004	0.033	—	pCi/L	Y	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00537	0.0039	0.024	—	pCi/L	Y	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00194	0.0063	0.038	—	pCi/L	Y	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0897	—	—	0.017	mg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.043	—	—	0.017	mg/L	Y	J	J	2013-353	CAMO-13-24272	GELC
R-46	1340	06/01/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0237	—	—	0.017	mg/L	Y	J	J	12-1335	CAMO-12-17132	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	UJ	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	N	0.05	—	—	0.016	mg/L	Y	U	U	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:350.1	Ammonia as Nitrogen	NH3-N	Y	0.0217	—	—	0.016	mg/L	Y	J	J	11-2424	CAMO-11-10731	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Antimony	Sb	Y	3.48	—	—	1	µg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Antimony	Sb	Y	3.35	—	—	1	µg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Antimony	Sb	Y	4.47	—	—	1	µg/L	Y	—	NQ	12-1309	CAMO-12-14077	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Antimony	Sb	Y	3.06	—	—	1	µg/L	Y	—	NQ	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Antimony	Sb	Y	3.77	—	—	1	µg/L	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6020	Antimony	Sb	Y	3.78	—	—	0.5	µg/L	Y	—	NQ	11-507	CAMO-11-1284	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Barium	Ba	Y	22	—	—	1	µg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	22.8	—	—	1	µg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	22.6	—	—	1	µg/L	Y	—	NQ	12-1309	CAMO-12-14077	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	23.6	—	—	1	µg/L	Y	—	NQ	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	22.7	—	—	1	µg/L	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	23.3	—	—	1	µg/L	Y	—	NQ	11-507	CAMO-11-1284	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	SVOC	SW-846:8270C	Benzoic Acid	65-85-0	Y	13.1	—	—	6	µg/L	Y	J	J	2013-353	CAMO-13-24278	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	SVOC	SW-846:8270C	Benzoic Acid	65-85-0	Y	14	—	—	6.19	µg/L	Y	J	J	2013-353	CAMO-13-24271	GELC
R-46	1340	05/21/12	WG	UF	INIT	REG	SVOC	SW-846:8270C	Benzoic Acid	65-85-0	N	20	—	—	6	µg/L	Y	U	U	12-1308	CAMO-12-14045	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	SVOC	SW-846:8270C	Benzoic Acid	65-85-0	N	21.1	—	—	6.3	µg/L	Y	U	UJ	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	INIT	REG	SVOC	SW-846:8270C	Benzoic Acid	65-85-0	N	20.8	—	—	6.3	µg/L	Y	U	UJ	10-3543	CAMO-10-22890	GELC
R-46	1340	02/05/10	WG	UF	INIT	REG	SVOC	SW-846:8270C	Benzoic Acid	65-85-0	N	21.1	—	—	6.3	µg/L	Y	U	U	10-1654	CAMO-10-9358	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	SVOC	SW-846:8270C	Bis(2-ethylhexyl)phthalate	117-81-7	Y	3.51	—	—	3	µg/L	Y	J	J	2013-353	CAMO-13-24278	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	SVOC	SW-846:8270C	Bis(2-ethylhexyl)phthalate	117-81-7	Y	3.26	—	—	3.09	µg/L	Y	J	J	2013-353	CAMO-13-24271	GELC
R-46	1340	05/21/12	WG	UF	INIT	REG	SVOC	SW-846:8270C	Bis(2-ethylhexyl)phthalate	117-81-7	Y	3.83	—	—	3	µg/L	Y	J	J	12-1308	CAMO-12-14045	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	SVOC	SW-846:8270C	Bis(2-ethylhexyl)phthalate	117-81-7	Y	7.48	—	—	3.2	µg/L	Y	J	J	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	INIT	REG	SVOC	SW-846:8270C	Bis(2-ethylhexyl)phthalate	117-81-7	Y	13.6	—	—	2.1	µg/L	Y	—	NQ	10-3543	CAMO-10-22890	GELC
R-46	1340	02/05/10	WG	UF	INIT	REG	SVOC	SW-846:8270C	Bis(2-ethylhexyl)phthalate	117-81-7	Y	35.4	—	—	2.1	µg/L	Y	—	NQ	10-1654	CAMO-10-9358	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	10.2	—	—	0.05	mg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Calcium	Ca	Y	10.1	—	—	0.05	mg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	10.3	—	—	0.05	mg/L	Y	—	NQ	12-1309	CAMO-12-14077	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	10.7	—	—	0.05	mg/L	Y	—	NQ	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	10.7	—	—	0.05	mg/L	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	10.6	—	—	0.05	mg/L	Y	—	NQ	11-507	CAMO-11-1284	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-0.0834	1.39	4.88	—	pCi/L	Y	U	U	2013-353	CAMO-13-24278	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.53	1.19	4.83	—	pCi/L	Y	U	U	2013-353	CAMO-13-24271	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-2.4	1.6	5.6	—	pCi/L	Y	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.17	1.3	4.1	—	pCi/L	Y	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-2.73	1.6	4.7	—	pCi/L	Y	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-2.24	1.7	5.1	—	pCi/L	Y	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.77	—	—	0.067	mg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC

MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-46	1340	11/16/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.78	—	—	0.067	mg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	06/01/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.71	—	—	0.067	mg/L	Y	—	NQ	12-1335	CAMO-12-17132	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.75	—	—	0.066	mg/L	Y	—	J+	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.73	—	—	0.066	mg/L	Y	—	NQ	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.82	—	—	0.066	mg/L	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.41	—	—	2	µg/L	Y	J	J	2013-353	CAMO-13-24282	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.5	—	—	2	µg/L	Y	J	J	2013-353	CAMO-13-24272	GELC
R-46	1340	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.01	—	—	2	µg/L	Y	J	J	12-1309	CAMO-12-14077	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.72	—	—	2	µg/L	Y	J	J	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	6.03	—	—	2	µg/L	Y	J	J	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.7	—	—	2.5	µg/L	Y	J	J	11-507	CAMO-11-1284	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	1.25	1.15	4.83	—	pCi/L	Y	U	U	2013-353	CAMO-13-24278	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.585	0.871	3.18	—	pCi/L	Y	U	U	2013-353	CAMO-13-24271	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.937	0.99	4.5	—	pCi/L	Y	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.17	1.3	4.5	—	pCi/L	Y	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.678	1.3	4.2	—	pCi/L	Y	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	1.99	1.5	5.6	—	pCi/L	Y	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	SVOC	SW-846:8270C	Di-n-butylphthalate	84-74-2	Y	4.01	—	—	3	µg/L	Y	J	J	2013-353	CAMO-13-24278	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	SVOC	SW-846:8270C	Di-n-butylphthalate	84-74-2	N	10.3	—	—	3.09	µg/L	Y	U	U	2013-353	CAMO-13-24271	GELC
R-46	1340	05/21/12	WG	UF	INIT	REG	SVOC	SW-846:8270C	Di-n-butylphthalate	84-74-2	N	10	—	—	3	µg/L	Y	U	U	12-1308	CAMO-12-14045	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	SVOC	SW-846:8270C	Di-n-butylphthalate	84-74-2	N	10.5	—	—	3.2	µg/L	Y	U	UJ	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	INIT	REG	SVOC	SW-846:8270C	Di-n-butylphthalate	84-74-2	N	10.4	—	—	2.1	µg/L	Y	U	U	10-3543	CAMO-10-22890	GELC
R-46	1340	02/05/10	WG	UF	INIT	REG	SVOC	SW-846:8270C	Di-n-butylphthalate	84-74-2	N	10.5	—	—	2.1	µg/L	Y	U	U	10-1654	CAMO-10-9358	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.175	—	—	0.033	mg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.169	—	—	0.033	mg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	06/01/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.169	—	—	0.033	mg/L	Y	—	NQ	12-1335	CAMO-12-17132	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.149	—	—	0.033	mg/L	Y	—	NQ	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.156	—	—	0.033	mg/L	Y	—	NQ	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.188	—	—	0.033	mg/L	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.353	0.554	2.27	—	pCi/L	Y	U	U	2013-353	CAMO-13-24278	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	RAD	EPA:900	Gross alpha	GROSSA	N	0.773	0.651	2.32	—	pCi/L	Y	U	U	2013-353	CAMO-13-24271	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.86	0.58	1.9	—	pCi/L	Y	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.766	0.62	2.2	—	pCi/L	Y	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.295	0.59	2.4	—	pCi/L	Y	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	-0.458	0.53	2.8	—	pCi/L	Y	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	3.28	0.876	2.39	—	pCi/L	Y	—	NQ	2013-353	CAMO-13-24278	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	RAD	EPA:900	Gross beta	GROSSB	N	2.06	0.802	2.43	—	pCi/L	Y	U	U	2013-353	CAMO-13-24271	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.632	0.69	2.4	—	pCi/L	Y	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.41	0.84	2.7	—	pCi/L	Y	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	2.35	0.94	2.9	—	pCi/L	Y	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.58	0.69	2.2	—	pCi/L	Y	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	38.8	—	—	0.453	mg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	39.2	—	—	0.453	mg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	05/21/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	39.7	—	—	0.453	mg/L	Y	—	NQ	12-1309	CAMO-12-14077	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	40.6	—	—	0.45	mg/L	Y	—	NQ	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	41.4	—	—	0.45	mg/L	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	40.5	—	—	0.35	mg/L	Y	—	NQ	11-507	CAMO-11-1284	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.34	—	—	0.11	mg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.28	—	—	0.11	mg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.38	—	—	0.11	mg/L	Y	—	NQ	12-1309	CAMO-12-14077	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.39	—	—	0.11	mg/L	Y	—	NQ	12-296	CAMO-12-1529	GELC

MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-46	1340	05/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.6	—	—	0.11	mg/L	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.4	—	—	0.085	mg/L	Y	—	NQ	11-507	CAMO-11-1284	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.849	—	—	0.165	µg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	0.96	—	—	0.165	µg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.02	—	—	0.165	µg/L	Y	—	NQ	12-1309	CAMO-12-14077	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.04	—	—	0.17	µg/L	Y	—	NQ	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.06	—	—	0.17	µg/L	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.13	—	—	0.1	µg/L	Y	—	NQ	11-507	CAMO-11-1284	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.77	2.53	8.63	—	pCi/L	Y	U	U	2013-353	CAMO-13-24278	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	RAD	EPA:901.1	Neptunium-237	Np-237	N	0.0659	2.13	7.74	—	pCi/L	Y	U	U	2013-353	CAMO-13-24271	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-1.15	2.7	9.7	—	pCi/L	Y	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-0.748	3	10	—	pCi/L	Y	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	7.01	2.9	10	—	pCi/L	Y	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	61.9	16	48	—	pCi/L	Y	UI	R	10-1655	CAMO-10-9358	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.766	—	—	0.5	µg/L	Y	J	J	2013-353	CAMO-13-24272	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.804	—	—	0.5	µg/L	Y	J	J	2013-353	CAMO-13-24282	GELC
R-46	1340	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	0.636	—	—	0.5	µg/L	Y	J	J	12-1309	CAMO-12-14077	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.02	—	—	0.5	µg/L	Y	J	J	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.6	—	—	0.5	µg/L	Y	J	J	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.76	—	—	0.5	µg/L	Y	J	J	11-507	CAMO-11-1284	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.37	—	—	0.017	mg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.37	—	—	0.017	mg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	06/01/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.362	—	—	0.085	mg/L	Y	—	NQ	12-1335	CAMO-12-17132	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.405	—	—	0.05	mg/L	Y	—	NQ	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	N	0.385	—	—	0.05	mg/L	Y	—	U	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.445	—	—	0.05	mg/L	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.00611	0.0294	—	pCi/L	Y	U	U	2013-353	CAMO-13-24278	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.0027	0.00468	0.0259	—	pCi/L	Y	U	U	2013-353	CAMO-13-24271	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00244	0.0088	0.028	—	pCi/L	Y	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00834	0.0051	0.028	—	pCi/L	Y	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00396	0.0048	0.031	—	pCi/L	Y	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.0021	0.035	—	pCi/L	Y	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0	0.0054	0.0431	—	pCi/L	Y	U	U	2013-353	CAMO-13-24271	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00917	0.00683	0.0488	—	pCi/L	Y	U	U	2013-353	CAMO-13-24278	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00732	0.0049	0.038	—	pCi/L	Y	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00417	0.0051	0.028	—	pCi/L	Y	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0198	0.0069	0.029	—	pCi/L	Y	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.0145	0.0055	0.024	—	pCi/L	Y	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.99	—	—	0.05	mg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Potassium	K	Y	1.96	—	—	0.05	mg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.95	—	—	0.05	mg/L	Y	—	NQ	12-1309	CAMO-12-14077	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.96	—	—	0.05	mg/L	Y	—	NQ	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2	—	—	0.05	mg/L	Y	—	J	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.96	—	—	0.05	mg/L	Y	—	NQ	11-507	CAMO-11-1284	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	RAD	EPA:901.1	Potassium-40	K-40	N	-11.8	16.9	65.1	—	pCi/L	Y	U	U	2013-353	CAMO-13-24271	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-28.6	15.9	60.8	—	pCi/L	Y	U	U	2013-353	CAMO-13-24278	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	13.6	16	68	—	pCi/L	Y	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	24.5	17	44	—	pCi/L	Y	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-8.98	18	60	—	pCi/L	Y	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-7.8	18	61	—	pCi/L	Y	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	75.8	—	—	0.053	mg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC

MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-46	1340	11/16/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	74.2	—	—	0.053	mg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	06/01/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	74.2	—	—	0.053	mg/L	Y	—	NQ	12-1335	CAMO-12-17132	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	76.7	—	—	0.053	mg/L	Y	—	NQ	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	76.6	—	—	0.053	mg/L	Y	—	NQ	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	72.3	—	—	0.053	mg/L	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.6	—	—	0.1	mg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.3	—	—	0.1	mg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	9.74	—	—	0.1	mg/L	Y	—	NQ	12-1309	CAMO-12-14077	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	9.91	—	—	0.1	mg/L	Y	—	NQ	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.2	—	—	0.1	mg/L	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	9.76	—	—	0.1	mg/L	Y	—	NQ	11-507	CAMO-11-1284	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.152	0.956	3.69	—	pCi/L	Y	U	U	2013-353	CAMO-13-24278	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	RAD	EPA:901.1	Sodium-22	Na-22	N	1.14	1.19	4.91	—	pCi/L	Y	U	U	2013-353	CAMO-13-24271	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.00551	1.1	4.4	—	pCi/L	Y	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.644	1.4	4.6	—	pCi/L	Y	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-0.931	1.4	4.3	—	pCi/L	Y	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.22	1.8	5.6	—	pCi/L	Y	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	121	—	—	1	µS/cm	Y	—	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	122	—	—	1	µS/cm	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	06/01/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	121	—	—	1	µS/cm	Y	—	NQ	12-1335	CAMO-12-17132	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	116	—	—	1	µS/cm	Y	—	NQ	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	118	—	—	1	µS/cm	Y	—	NQ	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	120	—	—	1	µS/cm	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	47	—	—	1	µg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Strontium	Sr	Y	45.9	—	—	1	µg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	44.2	—	—	1	µg/L	Y	—	NQ	12-1309	CAMO-12-14077	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	47	—	—	1	µg/L	Y	—	NQ	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	45.2	—	—	1	µg/L	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	45.3	—	—	1	µg/L	Y	—	NQ	11-507	CAMO-11-1284	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.15	0.132	0.487	—	pCi/L	Y	U	U	2013-353	CAMO-13-24278	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.221	0.131	0.488	—	pCi/L	Y	U	U	2013-353	CAMO-13-24271	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.365	0.15	0.48	—	pCi/L	Y	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.104	0.12	0.49	—	pCi/L	Y	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	-0.00173	0.13	0.48	—	pCi/L	Y	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.218	0.13	0.42	—	pCi/L	Y	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	1.92	—	—	0.133	mg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	1.94	—	—	0.133	mg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	06/01/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	1.82	—	—	0.133	mg/L	Y	—	NQ	12-1335	CAMO-12-17132	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	1.92	—	—	0.1	mg/L	Y	—	NQ	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	1.81	—	—	0.1	mg/L	Y	—	J+	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.11	—	—	0.1	mg/L	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	110	—	—	3.4	mg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	47.1	—	—	3.4	mg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	06/01/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	106	—	—	3.4	mg/L	Y	—	NQ	12-1335	CAMO-12-17132	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	124	—	—	3.4	mg/L	Y	—	NQ	12-296	CAMO-12-1529	GELC
R-46	1340	08/03/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	137	—	—	3.4	mg/L	Y	—	NQ	11-3027	CAMO-11-24658	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	136	—	—	2.4	mg/L	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.033	mg/L	Y	U	U	2013-353	CAMO-13-24278	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	Y	1.01	—	—	0.033	mg/L	Y	—	NQ	2013-353	CAMO-13-24271	GELC
R-46	1340	06/01/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	U	12-1335	CAMO-12-17127	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.1	—	—	0.035	mg/L	Y	U	U	12-296	CAMO-12-1530	GELC

MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-46	1340	08/03/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.0781	—	—	0.035	mg/L	Y	J	U	11-3026	CAMO-11-24656	GELC
R-46	1340	05/17/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	TKN	N	0.0641	—	—	0.035	mg/L	Y	J	U	11-2424	CAMO-11-10733	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	1.57	—	—	0.33	mg/L	Y	—	NQ	2013-353	CAMO-13-24271	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	1.56	—	—	0.33	mg/L	Y	—	NQ	2013-353	CAMO-13-24278	GELC
R-46	1340	06/01/12	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.869	—	—	0.33	mg/L	Y	J	J	12-1335	CAMO-12-17127	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	1.13	—	—	0.33	mg/L	Y	—	NQ	12-296	CAMO-12-1530	GELC
R-46	1340	08/03/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	0.902	—	—	0.33	mg/L	Y	J	J	11-3026	CAMO-11-24656	GELC
R-46	1340	05/17/11	WG	UF	INIT	REG	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	TOC	Y	1.15	—	—	0.33	mg/L	Y	—	NQ	11-2424	CAMO-11-10733	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.669	0.724	2.477	—	pCi/L	Y	U	U	2013-361	CAMO-13-24278	ARSL
R-46	1340	11/16/12	WG	UF	INIT	FD	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-2.252	0.732	2.352	—	pCi/L	Y	U	U	2013-361	CAMO-13-24271	ARSL
R-46	1340	05/21/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	Y	3.416	0.869	2.148	—	pCi/L	Y	—	NQ	12-1317	CAMO-12-14045	ARSL
R-46	1340	11/08/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.76	0.67	2.18	—	pCi/L	Y	U	U	12-300	CAMO-12-1530	ARSL
R-46	1340	08/03/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-2.2862	0.7406	2.3184	—	pCi/L	Y	U	U	11-3040	CAMO-11-24656	ARSL
R-46	1340	05/17/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.5796	0.6762	2.2862	—	pCi/L	Y	U	U	11-2435	CAMO-11-10733	ARSL
R-46	1340	11/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.465	—	—	0.067	µg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Uranium	U	Y	0.497	—	—	0.067	µg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.499	—	—	0.067	µg/L	Y	—	NQ	12-1309	CAMO-12-14077	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.483	—	—	0.067	µg/L	Y	—	NQ	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.434	—	—	0.067	µg/L	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.604	—	—	0.05	µg/L	Y	—	NQ	11-507	CAMO-11-1284	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.416	0.0347	0.0627	—	pCi/L	Y	—	NQ	2013-353	CAMO-13-24278	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.311	0.0301	0.0608	—	pCi/L	Y	—	NQ	2013-353	CAMO-13-24271	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.323	0.046	0.11	—	pCi/L	Y	—	J+	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.364	0.04	0.062	—	pCi/L	Y	—	NQ	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.32	0.037	0.043	—	pCi/L	Y	—	NQ	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.304	0.03	0.046	—	pCi/L	Y	—	NQ	10-1655	CAMO-10-9358	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00334	0.00747	0.0391	—	pCi/L	Y	U	U	2013-353	CAMO-13-24278	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00648	0.00916	0.038	—	pCi/L	Y	U	U	2013-353	CAMO-13-24271	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0108	0.0077	0.058	—	pCi/L	Y	U	U	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00602	0.0085	0.038	—	pCi/L	Y	U	U	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0162	0.0073	0.039	—	pCi/L	Y	U	U	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0182	0.0062	0.026	—	pCi/L	Y	U	U	10-1655	CAMO-10-9358	GELC
R-46	1340	11/16/12	WG	UF	INIT	FD	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.197	0.0233	0.0413	—	pCi/L	Y	—	NQ	2013-353	CAMO-13-24271	GELC
R-46	1340	11/16/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.197	0.024	0.0425	—	pCi/L	Y	—	NQ	2013-353	CAMO-13-24278	GELC
R-46	1340	11/08/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.157	0.029	0.049	—	pCi/L	Y	—	J+	12-296	CAMO-12-1530	GELC
R-46	1340	07/01/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.146	0.022	0.043	—	pCi/L	Y	—	NQ	10-3544	CAMO-10-22890	GELC
R-46	1340	05/07/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.165	0.024	0.039	—	pCi/L	Y	—	NQ	10-3097	CAMO-10-16830	GELC
R-46	1340	02/05/10	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.155	0.019	0.03	—	pCi/L	Y	—	NQ	10-1655	CAMO-10-9358	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	8.5	—	—	1	µg/L	Y	—	NQ	2013-353	CAMO-13-24282	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.99	—	—	1	µg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.63	—	—	1	µg/L	Y	—	NQ	12-1309	CAMO-12-14077	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.81	—	—	1	µg/L	Y	—	NQ	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.93	—	—	1	µg/L	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	8	—	—	1	µg/L	Y	—	NQ	11-507	CAMO-11-1284	GELC
R-46	1340	11/16/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	6.22	—	—	3.3	µg/L	Y	J	J	2013-353	CAMO-13-24282	GELC
R-46	1340	11/16/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Zinc	Zn	Y	15	—	—	3.3	µg/L	Y	—	NQ	2013-353	CAMO-13-24272	GELC
R-46	1340	05/21/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	N	5.36	—	—	3.3	µg/L	Y	J	U	12-1309	CAMO-12-14077	GELC
R-46	1340	11/08/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	4.13	—	—	3.3	µg/L	Y	J	J	12-296	CAMO-12-1529	GELC
R-46	1340	05/17/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	10.5	—	—	3.3	µg/L	Y	—	NQ	11-2424	CAMO-11-10731	GELC
R-46	1340	11/12/10	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Zinc	Zn	Y	8.56	—	—	3.3	µg/L	Y	J	J	11-507	CAMO-11-1284	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.15	—	—	0.01	SU	Y	H	NQ	2013-265	CAMO-13-24283	GELC

MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-60	1330	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.38	—	—	0.01	SU	Y	H	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.29	—	—	0.01	SU	Y	H	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.55	—	—	0.01	SU	Y	H	J-	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.1	—	—	0.01	SU	Y	H	J-	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:150.1	Acidity or Alkalinity of a solution	pH	Y	8.01	—	—	0.01	SU	Y	H	J-	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	60.1	—	—	0.725	mg/L	Y	—	NQ	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	61.6	—	—	0.725	mg/L	Y	—	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	64.2	—	—	0.725	mg/L	Y	—	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	62	—	—	0.73	mg/L	Y	—	NQ	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	63.8	—	—	0.73	mg/L	Y	—	NQ	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:310.1	Alkalinity-CO3+HCO3	ALK-CO3+HCO3	Y	61.6	—	—	0.73	mg/L	Y	—	NQ	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.0104	0.00737	0.0297	—	pCi/L	Y	U	U	2013-265	CAMO-13-24279	GELC
R-60	1330	11/22/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	-0.00429	0.0052	0.039	—	pCi/L	Y	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00762	0.01	0.014	—	pCi/L	Y	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00725	0.0036	0.037	—	pCi/L	Y	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	INIT	REG	RAD	HASL-300:AM-241	Americium-241	Am-241	N	0.00204	0.003	0.024	—	pCi/L	Y	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	25.8	—	—	1	µg/L	Y	—	NQ	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	26.1	—	—	1	µg/L	Y	—	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Barium	Ba	Y	26.4	—	—	1	µg/L	Y	—	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	28.8	—	—	1	µg/L	Y	—	NQ	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	30.2	—	—	1	µg/L	Y	—	NQ	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Barium	Ba	Y	32.7	—	—	1	µg/L	Y	—	NQ	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	11	—	—	0.05	mg/L	Y	—	NQ	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Calcium	Ca	Y	11.1	—	—	0.05	mg/L	Y	—	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	11	—	—	0.05	mg/L	Y	—	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	12.7	—	—	0.05	mg/L	Y	—	NQ	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	12.5	—	—	0.05	mg/L	Y	—	NQ	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Calcium	Ca	Y	12.9	—	—	0.05	mg/L	Y	—	NQ	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	1.76	1.34	5.07	—	pCi/L	Y	U	U	2013-265	CAMO-13-24279	GELC
R-60	1330	11/22/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	3.08	1.7	6.8	—	pCi/L	Y	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.44	1.3	3.8	—	pCi/L	Y	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	2.52	1.2	4.4	—	pCi/L	Y	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cesium-137	Cs-137	N	-1.54	1.6	5	—	pCi/L	Y	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.89	—	—	0.067	mg/L	Y	—	NQ	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.88	—	—	0.067	mg/L	Y	—	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.87	—	—	0.067	mg/L	Y	—	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.89	—	—	0.066	mg/L	Y	—	NQ	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.9	—	—	0.066	mg/L	Y	—	NQ	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Chloride	Cl(-1)	Y	1.99	—	—	0.066	mg/L	Y	—	J+	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.44	—	—	2	µg/L	Y	J	J	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	4.23	—	—	2	µg/L	Y	J	J	12-1333	CAMO-12-14049	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Chromium	Cr	Y	4.53	—	—	2	µg/L	Y	J	J	12-1333	CAMO-12-14040	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	5.86	—	—	2	µg/L	Y	J	J	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	N	8.06	—	—	2	µg/L	Y	J	U	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Chromium	Cr	Y	2.32	—	—	2	µg/L	Y	J	J	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.442	1.3	4.89	—	pCi/L	Y	U	U	2013-265	CAMO-13-24279	GELC
R-60	1330	11/22/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.77	1.9	6.6	—	pCi/L	Y	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-1.34	1.6	4.8	—	pCi/L	Y	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	0.465	1	3.7	—	pCi/L	Y	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	INIT	REG	RAD	EPA:901.1	Cobalt-60	Co-60	N	-0.232	1.1	3.6	—	pCi/L	Y	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.177	—	—	0.033	mg/L	Y	—	NQ	2013-265	CAMO-13-24283	GELC

MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-60	1330	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.184	—	—	0.033	mg/L	Y	—	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.174	—	—	0.033	mg/L	Y	—	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.168	—	—	0.033	mg/L	Y	—	NQ	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.174	—	—	0.033	mg/L	Y	—	NQ	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Fluoride	F(-1)	Y	0.248	—	—	0.033	mg/L	Y	—	NQ	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	Y	62.8	3.67	2.41	—	pCi/L	Y	—	NQ	2013-265	CAMO-13-24279	GELC
R-60	1330	11/22/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	Y	3.61	1.1	2.4	—	pCi/L	Y	—	NQ	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.263	0.51	2.2	—	pCi/L	Y	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	0.796	0.79	2.9	—	pCi/L	Y	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	INIT	REG	RAD	EPA:900	Gross alpha	GROSSA	N	1.97	0.99	2.7	—	pCi/L	Y	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	11/01/12	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	17.4	1.55	2.86	—	pCi/L	Y	—	NQ	2013-265	CAMO-13-24279	GELC
R-60	1330	11/22/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	1.77	0.75	2.3	—	pCi/L	Y	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	N	0.76	0.71	2.4	—	pCi/L	Y	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	3.52	0.96	2.8	—	pCi/L	Y	—	NQ	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	INIT	REG	RAD	EPA:900	Gross beta	GROSSB	Y	4.91	1.1	2.3	—	pCi/L	Y	—	NQ	11-1194	CAPA-11-3055	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	43.2	—	—	0.453	mg/L	Y	—	NQ	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	43	—	—	0.453	mg/L	Y	—	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	42.7	—	—	0.453	mg/L	Y	—	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	46.9	—	—	0.45	mg/L	Y	—	NQ	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	47	—	—	0.45	mg/L	Y	—	NQ	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	INORGANIC	SM:A2340B	Hardness	HARDNESS	Y	48	—	—	0.45	mg/L	Y	—	NQ	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.84	—	—	0.11	mg/L	Y	—	NQ	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.68	—	—	0.11	mg/L	Y	—	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.69	—	—	0.11	mg/L	Y	—	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.69	—	—	0.11	mg/L	Y	—	NQ	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.83	—	—	0.11	mg/L	Y	—	NQ	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Magnesium	Mg	Y	3.82	—	—	0.11	mg/L	Y	—	NQ	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.2	—	—	0.165	µg/L	Y	—	NQ	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.26	—	—	0.165	µg/L	Y	—	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.23	—	—	0.165	µg/L	Y	—	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.19	—	—	0.17	µg/L	Y	—	NQ	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	1.91	—	—	0.17	µg/L	Y	—	NQ	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Molybdenum	Mo	Y	2.82	—	—	0.17	µg/L	Y	—	NQ	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-0.2	2.48	8.69	—	pCi/L	Y	U	U	2013-265	CAMO-13-24279	GELC
R-60	1330	11/22/11	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	2.15	3.2	12	—	pCi/L	Y	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	5.48	2.5	9.2	—	pCi/L	Y	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-1.35	2.5	8.2	—	pCi/L	Y	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	INIT	REG	RAD	EPA:901.1	Neptunium-237	Np-237	N	-2.72	3.3	11	—	pCi/L	Y	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.11	—	—	0.5	µg/L	Y	J	J	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.26	—	—	0.5	µg/L	Y	J	J	12-1333	CAMO-12-14049	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.3	—	—	0.5	µg/L	Y	J	J	12-1333	CAMO-12-14040	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	1.25	—	—	0.5	µg/L	Y	J	J	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	3.17	—	—	0.5	µg/L	Y	—	NQ	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Nickel	Ni	Y	2.27	—	—	0.5	µg/L	Y	—	NQ	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.394	—	—	0.017	mg/L	Y	—	NQ	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.391	—	—	0.085	mg/L	Y	—	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.378	—	—	0.085	mg/L	Y	—	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.382	—	—	0.05	mg/L	Y	—	NQ	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.39	—	—	0.05	mg/L	Y	—	NQ	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:353.2	Nitrate-Nitrite as Nitrogen	NO3+NO2-N	Y	0.276	—	—	0.1	mg/L	Y	J	J	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.0085	0.00637	0.0237	—	pCi/L	Y	U	U	2013-265	CAMO-13-24279	GELC

MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-60	1330	11/22/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0.00461	0.0033	0.028	—	pCi/L	Y	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	0	0.0067	0.031	—	pCi/L	Y	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00822	0.004	0.026	—	pCi/L	Y	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-238	Pu-238	N	-0.00243	0.0042	0.027	—	pCi/L	Y	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	11/01/12	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00637	0.00601	0.0402	—	pCi/L	Y	U	U	2013-265	CAMO-13-24279	GELC
R-60	1330	11/22/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00461	0.0057	0.029	—	pCi/L	Y	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0.00537	0.004	0.044	—	pCi/L	Y	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	-0.00164	0.0037	0.042	—	pCi/L	Y	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOPU	Plutonium-239/240	Pu-239/240	N	0	0.0077	0.044	—	pCi/L	Y	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.69	—	—	0.05	mg/L	Y	—	NQ	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.79	—	—	0.05	mg/L	Y	—	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Potassium	K	Y	1.79	—	—	0.05	mg/L	Y	—	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	1.87	—	—	0.05	mg/L	Y	—	NQ	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.01	—	—	0.05	mg/L	Y	—	NQ	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Potassium	K	Y	2.1	—	—	0.05	mg/L	Y	—	J	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-29.9	16.8	61.6	—	pCi/L	Y	U	U	2013-265	CAMO-13-24279	GELC
R-60	1330	11/22/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-26.6	20	74	—	pCi/L	Y	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-29	16	47	—	pCi/L	Y	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	6.9	18	38	—	pCi/L	Y	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	INIT	REG	RAD	EPA:901.1	Potassium-40	K-40	N	-31.6	21	71	—	pCi/L	Y	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	74.5	—	—	0.053	mg/L	Y	—	NQ	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	72	—	—	0.053	mg/L	Y	—	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	72.8	—	—	0.053	mg/L	Y	—	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	70.5	—	—	0.053	mg/L	Y	—	NQ	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	76.3	—	—	0.053	mg/L	Y	—	NQ	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Silicon Dioxide	SiO2	Y	71.1	—	—	0.053	mg/L	Y	—	NQ	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	9.96	—	—	0.1	mg/L	Y	E	NQ	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Sodium	Na	Y	9.87	—	—	0.1	mg/L	Y	—	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	9.63	—	—	0.1	mg/L	Y	—	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	9.82	—	—	0.1	mg/L	Y	—	NQ	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	10.9	—	—	0.1	mg/L	Y	—	NQ	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Sodium	Na	Y	12.1	—	—	0.1	mg/L	Y	—	NQ	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.35	1.46	4.96	—	pCi/L	Y	U	U	2013-265	CAMO-13-24279	GELC
R-60	1330	11/22/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	-1.12	1.6	5.7	—	pCi/L	Y	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	0.444	1	3.5	—	pCi/L	Y	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	2.35	1	4.2	—	pCi/L	Y	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	INIT	REG	RAD	EPA:901.1	Sodium-22	Na-22	N	1.61	1.8	6.2	—	pCi/L	Y	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	129	—	—	1	µS/cm	Y	—	NQ	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	131	—	—	1	µS/cm	Y	—	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	132	—	—	1	µS/cm	Y	—	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	136	—	—	1	µS/cm	Y	—	NQ	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	131	—	—	1	µS/cm	Y	—	NQ	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:120.1	Specific Conductance	SPEC_CONDC	Y	141	—	—	1	µS/cm	Y	—	NQ	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	50.3	—	—	1	µg/L	Y	E	NQ	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Strontium	Sr	Y	51.6	—	—	1	µg/L	Y	—	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	51.1	—	—	1	µg/L	Y	—	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	56.4	—	—	1	µg/L	Y	—	NQ	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	56.9	—	—	1	µg/L	Y	—	NQ	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Strontium	Sr	Y	58.3	—	—	1	µg/L	Y	—	NQ	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.285	0.15	0.484	—	pCi/L	Y	U	U	2013-265	CAMO-13-24279	GELC
R-60	1330	11/22/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.0155	0.14	0.48	—	pCi/L	Y	U	U	12-418	CAMO-12-1522	GELC

MDA C Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available

Location	Depth (ft)	Date	Field Matrix	Field Prep	Lab Sample Type	Field QC Type	Suite	Method	Analyte	Analyte Code	Detect Flag	Result	1-sigma TPU	MDA	MDL	Unit	Best Value Flag	Lab Qual	2nd Qual	Request	Sample	Lab
R-60	1330	07/26/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.323	0.15	0.49	—	pCi/L	Y	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.249	0.15	0.5	—	pCi/L	Y	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	INIT	REG	RAD	EPA:905.0	Strontium-90	Sr-90	N	0.369	0.16	0.48	—	pCi/L	Y	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.2	—	—	0.133	mg/L	Y	—	NQ	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.08	—	—	0.133	mg/L	Y	—	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.09	—	—	0.133	mg/L	Y	—	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.31	—	—	0.1	mg/L	Y	—	NQ	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	2.33	—	—	0.1	mg/L	Y	—	NQ	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:300.0	Sulfate	SO4(-2)	Y	3.09	—	—	0.1	mg/L	Y	—	J+	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	123	—	—	3.4	mg/L	Y	—	NQ	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	116	—	—	3.4	mg/L	Y	—	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	129	—	—	3.4	mg/L	Y	—	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	123	—	—	3.4	mg/L	Y	—	NQ	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	134	—	—	3.4	mg/L	Y	—	J	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	GENERAL CHEMISTRY	EPA:160.1	Total Dissolved Solids	TDS	Y	134	—	—	2.4	mg/L	Y	—	NQ	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.213	0.655	2.247	—	pCi/L	Y	U	U	2013-265ARS	CAMO-13-24279	ARSL
R-60	1330	05/31/12	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.193	0.683	2.304	—	pCi/L	Y	U	U	12-1341	CAMO-12-14046	ARSL
R-60	1330	05/31/12	WG	UF	INIT	FD	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.919	0.717	2.33	—	pCi/L	Y	U	U	12-1341	CAMO-12-14039	ARSL
R-60	1330	11/22/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-1.03	0.66	2.26	—	pCi/L	Y	U	U	12-419	CAMO-12-1522	ARSL
R-60	1330	07/26/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	-0.0966	0.7406	2.5438	—	pCi/L	Y	U	U	11-2942	CAPA-11-23020	ARSL
R-60	1330	04/27/11	WG	UF	INIT	REG	RAD	Generic:Low_Level_Tritium	Tritium	H-3	N	0.7406	0.644	2.0608	—	pCi/L	Y	U	U	11-2264	CAPA-11-9591	ARSL
R-60	1330	11/01/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.582	—	—	0.067	µg/L	Y	—	NQ	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.534	—	—	0.067	µg/L	Y	—	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	INORGANIC	SW-846:6020	Uranium	U	Y	0.571	—	—	0.067	µg/L	Y	—	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.533	—	—	0.067	µg/L	Y	—	NQ	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	N	0.688	—	—	0.067	µg/L	Y	—	U	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	INORGANIC	SW-846:6020	Uranium	U	Y	0.724	—	—	0.067	µg/L	Y	—	NQ	11-2219	CAPA-11-9589	GELC
R-60	1330	11/01/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.331	0.0349	0.0679	—	pCi/L	Y	—	NQ	2013-265	CAMO-13-24279	GELC
R-60	1330	11/22/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.526	0.049	0.051	—	pCi/L	Y	—	NQ	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.505	0.046	0.037	—	pCi/L	Y	—	NQ	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.441	0.053	0.1	—	pCi/L	Y	—	NQ	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-234	U-234	Y	0.468	0.051	0.055	—	pCi/L	Y	—	NQ	11-1194	CAPA-11-3055	GELC
R-60	1330	11/01/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00362	0.00627	0.0424	—	pCi/L	Y	U	U	2013-265	CAMO-13-24279	GELC
R-60	1330	11/22/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.012	0.0064	0.028	—	pCi/L	Y	U	U	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0177	0.0071	0.023	—	pCi/L	Y	U	U	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.0337	0.013	0.078	—	pCi/L	Y	U	U	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-235/236	U-235/236	N	0.00338	0.0076	0.04	—	pCi/L	Y	U	U	11-1194	CAPA-11-3055	GELC
R-60	1330	11/01/12	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.158	0.0219	0.0461	—	pCi/L	Y	—	NQ	2013-265	CAMO-13-24279	GELC
R-60	1330	11/22/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.206	0.025	0.028	—	pCi/L	Y	—	NQ	12-418	CAMO-12-1522	GELC
R-60	1330	07/26/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.209	0.025	0.028	—	pCi/L	Y	—	NQ	11-2941	CAPA-11-23020	GELC
R-60	1330	04/27/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.218	0.033	0.053	—	pCi/L	Y	—	NQ	11-2219	CAPA-11-9591	GELC
R-60	1330	01/24/11	WG	UF	INIT	REG	RAD	HASL-300:ISOU	Uranium-238	U-238	Y	0.211	0.029	0.039	—	pCi/L	Y	—	NQ	11-1194	CAPA-11-3055	GELC
R-60	1330	11/01/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	8.72	—	—	1	µg/L	Y	—	NQ	2013-265	CAMO-13-24283	GELC
R-60	1330	05/31/12	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	8.65	—	—	1	µg/L	Y	—	NQ	12-1333	CAMO-12-14049	GELC
R-60	1330	05/31/12	WG	F	INIT	FD	INORGANIC	SW-846:6010B	Vanadium	V	Y	8.32	—	—	1	µg/L	Y	—	NQ	12-1333	CAMO-12-14040	GELC
R-60	1330	11/22/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	9.24	—	—	1	µg/L	Y	—	NQ	12-418	CAMO-12-1524	GELC
R-60	1330	07/26/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	9.04	—	—	1	µg/L	Y	—	NQ	11-2941	CAPA-11-23018	GELC
R-60	1330	04/27/11	WG	F	INIT	REG	INORGANIC	SW-846:6010B	Vanadium	V	Y	7.33	—	—	1	µg/L	Y	—	NQ	11-2219	CAPA-11-9589	GELC

Appendix D

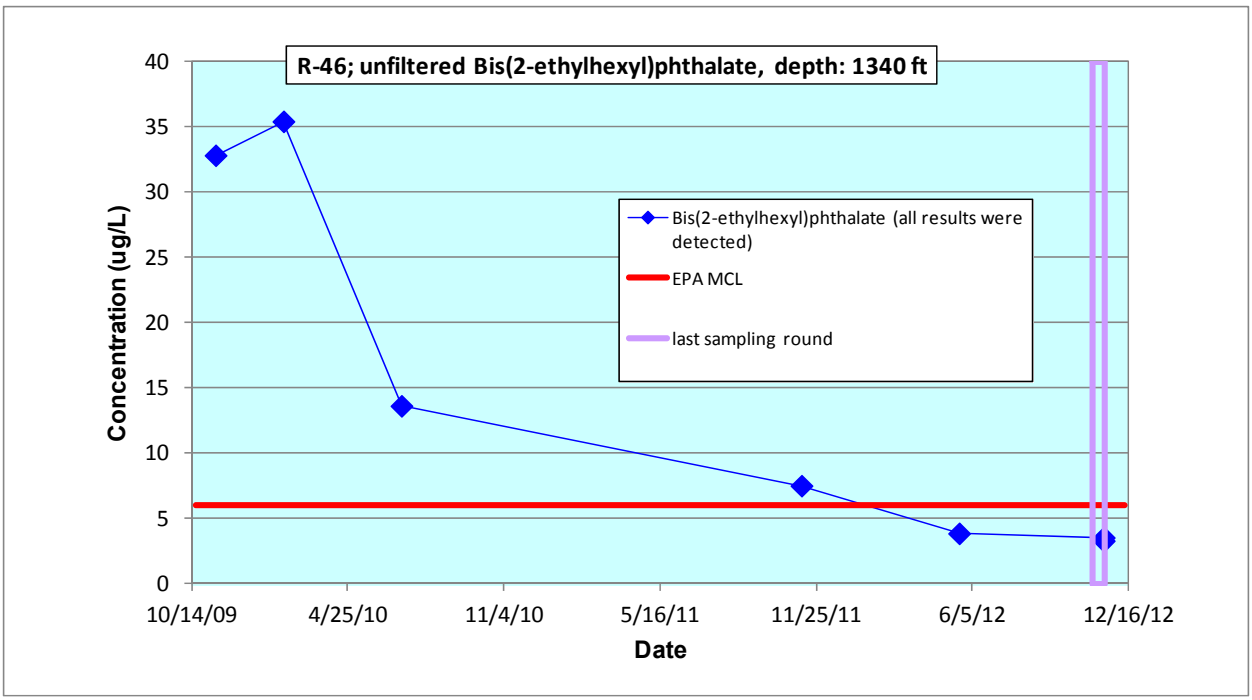
Groundwater Results Greater Than Half of Screening Levels

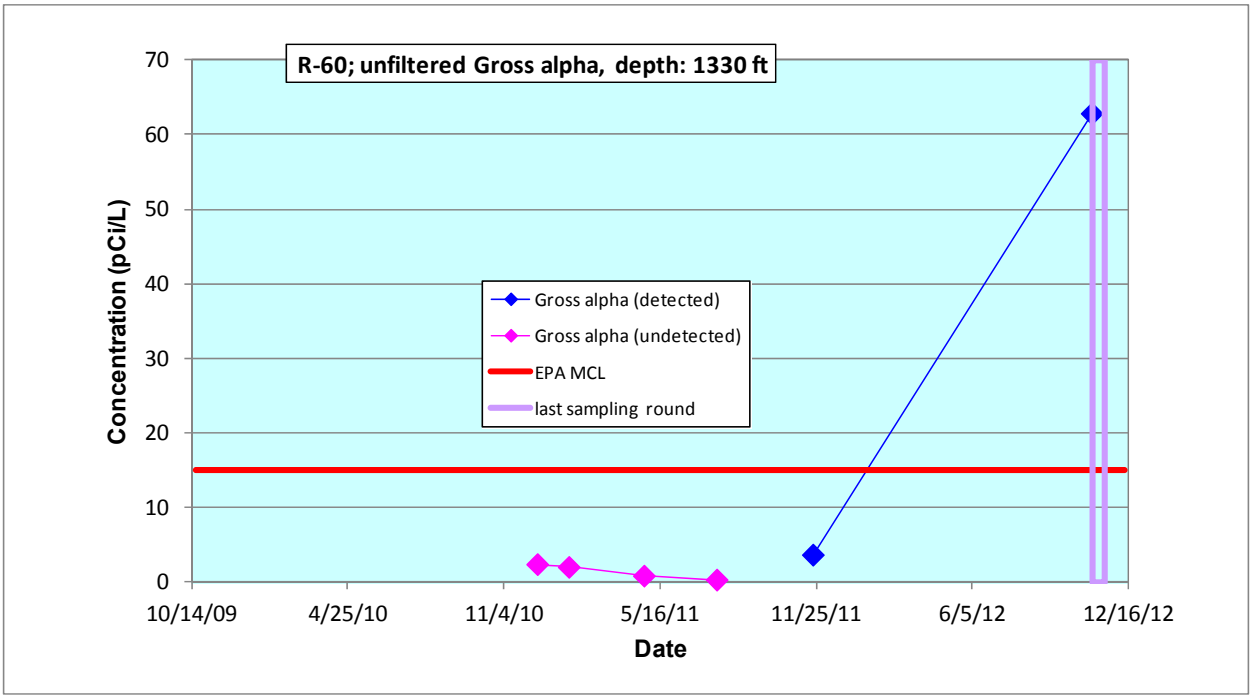
Zone	Location	Screen Top Depth (ft)	Sample Date	Analysis Suite	Parameter Name	Parameter Code	Field Prep Code	Analysis Type Code	Field Quality Control Code	Detect Flag	Report Result	Method Detection Limit	Uncertainty	Minimum Detectable Activity	Unit	Dilution Factor	Lab Qualifier	Validation Qualifier	Validation Reason	Best Value Flag	Analytical Method	Lab ID	Screening Level	Reporting Level Code	Result/Screening Level
Regional	R-46	1340	11/16/12	INORGANIC	Antimony	Sb	F[a]	INIT[b]	FD[c]	Y[d]	3.35	1	—[e]	—	µg/L	1	—	NQ[f]	NQ	Y	SW-846:6020	GELC[g]	6	EPA MCL[h]	0.56
Regional	R-46	1340	11/16/12	INORGANIC	Antimony	Sb	F	INIT	REG[i]	Y	3.48	1	—	—	µg/L	1	—	NQ	NQ	Y	SW-846:6020	GELC	6	EPA MCL	0.58
Regional	R-46	1340	11/16/12	SVOC[j]	Bis(2-ethylhexyl)phthalate	117-81-7	UF[k]	INIT	FD	Y	3.26	3.09	—	—	µg/L	1	J[l]	J[m]	J_LAB[n]	Y	SW-846:8270C	GELC	6	EPA MCL	0.54
Regional	R-46	1340	11/16/12	SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	UF	INIT	REG	Y	3.51	3	—	—	µg/L	1	J	J	J_LAB	Y	SW-846:8270C	GELC	6	EPA MCL	0.59
Regional	R-60	1330	11/01/12	RAD	Gross alpha	GROSSA	UF	INIT	REG	Y	62.8	—	3.67	2.41	pCi/L	1	—	NQ	NQ	Y	EPA:900	GELC	15	EPA MCL	4.19

[a] F = Filtered.
[b] INIT = Initial.
[c] FD = Field duplicate.
[d] Y = Yes.
[e] — = None.
[f] NQ = Not qualified.
[g] GELC = General Engineering Laboratories, Inc., Charleston, SC.
[h] EPA MCL = U.S. Environmental Protection Agency maximum contaminant level.
[i] REG = Regular.
[j] SVOC = Semivolatile organic compound.
[k] UF = Unfiltered.
[l] In this column, J = The associated numerical value is an estimated quantity.
[m] In this column, J = The analyte is classified as detected, but the reported concentration value is expected to be more uncertain than usual.
[n] J_LAB = The analytical laboratory qualified the detected result as estimated (J) because the result was less the practical quantitation limit but greater than the method detection limit.

Appendix E

Analytical Chemistry Graphs of Screening-Level Exceedances


R-46; unfiltered Bis(2-ethylhexyl)phthalate, depth: 1340 ft
Concentration (ug/L)
40
35
30
25
20
15
10
5
0
10/14/09
4/25/10
11/4/10
5/16/11
11/25/11
6/5/12
12/16/12
Date
Bis(2-ethylhexyl)phthalate (all results were detected)
EPA MCL
last sampling round


R-60; unfiltered Gross alpha, depth: 1330 ft
Concentration (pCi/L)
70
60
50
40
30
20
10
0
10/14/09
4/25/10
11/4/10
5/16/11
11/25/11
6/5/12
12/16/12
Date
Gross alpha (detected)
Gross alpha (undetected)
EPA MCL
last sampling round

Appendix F

Analytical Reports
(on CD included with this document)

CD Table of Contents

Chain of Custody	Category	Lab	Sample	Date	Location	Screen Top Depth (ft)	Screen Bottom Depth (ft)
2013-265	INORGANIC	GELC[a]	CAMO-13-24283	11/01/12	R-60	1330	1350.9
2013-265	INORGANIC	GELC	CAMO-13-24279	11/01/12	R-60	1330	1350.9
2013-265	ORGANIC	GELC	CAMO-13-24279	11/01/12	R-60	1330	1350.9
2013-265	RAD[b]	GELC	CAMO-13-24279	11/01/12	R-60	1330	1350.9
2013-265ARS	RAD	ARSL[c]	CAMO-13-24279	11/01/12	R-60	1330	1350.9
2013-271	INORGANIC	GELC	CAMO-13-24280	11/05/12	R-14 S1	1200.6	1233.2
2013-271	INORGANIC	GELC	CAMO-13-24276	11/05/12	R-14 S1	1200.6	1233.2
2013-271	ORGANIC	GELC	CAMO-13-24276	11/05/12	R-14 S1	1200.6	1233.2
2013-271	RAD	GELC	CAMO-13-24276	11/05/12	R-14 S1	1200.6	1233.2
2013-292	RAD	ARSL	CAMO-13-24276	11/05/12	R-14 S1	1200.6	1233.2
2013-353	INORGANIC	GELC	CAMO-13-24282	11/16/12	R-46	1340	1360.7
2013-353	INORGANIC	GELC	CAMO-13-24271	11/16/12	R-46	1340	1360.7
2013-353	INORGANIC	GELC	CAMO-13-24272	11/16/12	R-46	1340	1360.7
2013-353	INORGANIC	GELC	CAMO-13-24278	11/16/12	R-46	1340	1360.7
2013-353	ORGANIC	GELC	CAMO-13-24271	11/16/12	R-46	1340	1360.7
2013-353	ORGANIC	GELC	CAMO-13-24278	11/16/12	R-46	1340	1360.7
2013-353	RAD	GELC	CAMO-13-24271	11/16/12	R-46	1340	1360.7
2013-353	RAD	GELC	CAMO-13-24278	11/16/12	R-46	1340	1360.7
2013-361	RAD	ARSL	CAMO-13-24271	11/16/12	R-46	1340	1360.7
2013-361	RAD	ARSL	CAMO-13-24278	11/16/12	R-46	1340	1360.7

[a] GELC = General Engineering Laboratories, Inc., Charleston, SC.

[b] RAD = Radiochemistry (not gamma).

[c] ARSL = American Radiation Services, Inc.

MDA C Monitoring Group Data Validation Summary

Location	Category	Method	Qual	Qual Reason Code	Explanation	COC	Sample	Analyte
R-14 S1	INORGANIC	EPA:350.1	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-271	CAMO-13-24280	Ammonia as Nitrogen
		SW-846:6010B	J+	I6b	The associated matrix spike recovery was above the Upper Acceptance Limit (UAL). Follow the external laboratory limits located within the associated data package.	2013-271	CAMO-13-24280	Silicon Dioxide Sodium
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-271	CAMO-13-24280	Chromium
		SW-846:9060	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-271	CAMO-13-24276	Total Organic Carbon
	ORGANIC	SW-846:8270C	UJ	SV12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.	2013-271	CAMO-13-24276	Hexachlorocyclopentadiene
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-271	CAMO-13-24276	Gross alpha Gross beta
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-271	CAMO-13-24276	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-271	CAMO-13-24276	Strontium-90
		Generic:Low_Level_Tritium	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-292	CAMO-13-24276	Tritium
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-271	CAMO-13-24276	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-271	CAMO-13-24276	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-271	CAMO-13-24276	Uranium-235/236
R-46	INORGANIC	EPA:350.1	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-353	CAMO-13-24272	Ammonia as Nitrogen
		SW-846:6010B	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-353	CAMO-13-24282	Zinc
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-353	CAMO-13-24272 CAMO-13-24282	Chromium Nickel Chromium

								Nickel
	ORGANIC	SW-846:8270C	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-353	CAMO-13-24271 CAMO-13-24278	 Benzoic Acid Bis(2-ethylhexyl)phthalate Benzoic Acid Bis(2-ethylhexyl)phthalate Di-n-butylphthalate
			UJ	SV12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.	2013-353	CAMO-13-24271 CAMO-13-24278	 Hexachlorocyclopentadiene Hexachlorocyclopentadiene
	RAD	EPA:900	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-353	CAMO-13-24271 CAMO-13-24278	 Gross alpha Gross beta Gross alpha
		EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-353	CAMO-13-24271 CAMO-13-24278	 Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22 Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-353	CAMO-13-24271 CAMO-13-24278	 Strontium-90 Strontium-90
		Generic:Low_Level_Tritium	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-361	CAMO-13-24271 CAMO-13-24278	 Tritium Tritium
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-353	CAMO-13-24271 CAMO-13-24278	 Americium-241 Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-353	CAMO-13-24271 CAMO-13-24278	 Plutonium-238 Plutonium-239/240 Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-353	CAMO-13-24271 CAMO-13-24278	 Uranium-235/236 Uranium-235/236
R-60	INORGANIC	EPA:351.2	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-265	CAMO-13-24279	 Total Kjeldahl Nitrogen

		EPA:365.4	U	I4	the sample result is =<5x the concentration of related analyte in the method blank.	2013-265	CAMO-13-24283	Total Phosphate as Phosphorus
		SW-846:6020	J	J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL	2013-265	CAMO-13-24283	Chromium Nickel
	ORGANIC	SW-846:8270C	R	SV12	The LCS percent recovery was <10%. Follow the external laboratory limits located within the associated data package.	2013-265	CAMO-13-24279	Benzidine
	RAD	EPA:901.1	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-265	CAMO-13-24279	Cesium-137 Cobalt-60 Neptunium-237 Potassium-40 Sodium-22
		EPA:905.0	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-265	CAMO-13-24279	Strontium-90
		Generic:Low_Level_Tritium	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-265ARS	CAMO-13-24279	Tritium
		HASL-300:AM-241	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-265	CAMO-13-24279	Americium-241
		HASL-300:ISOPU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-265	CAMO-13-24279	Plutonium-238 Plutonium-239/240
		HASL-300:ISOU	U	R5	Analyte is not detected because the amount reported is less than the MDC.	2013-265	CAMO-13-24279	Uranium-235/236

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-361

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3
CAMO-13-24278	Nov 16 2012	10:11	W	1
CAMO-13-24271	Nov 16 2012	10:11	W	1

Special Instructions:

Special Instructions:

Relinquished by:		Date/Time: 11/19/12 3:00	Received by:	
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4031 **EVENT NAME:** Mortandad/Sandia (MDA C and GS Monitoring) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24271 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/16/2012	FIELD MATRIX:	WG	dR
TIME COLLECTED (HH:MM):		1011	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-46	↓	FIELD PREP:	UF	ok
LOCATION TYPE:		↓	FIELD QC TYPE:	FD	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	N/A
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	1	ICE 11/15/12 GS	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: refer to CAMO-13-24278

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) W. Stew

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
Andrew Stacke AS	11/16/12 1120	S. Sherwood Sheri Sherwood	11/16/12 1120
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Data Validation Report

Chain Of Custody No. 2013-361

1. Distribution Of Samples In EDD.

	Analytical	Regular	Field	Trip	Field	Equipment
SDG	Method	Samples	Duplicates	Blanks	Blanks	Blanks
ARS1-12-02340	Generic:Low_Level_Tritium	1	1			

	Analytical	Analysis	Prep	Regular	Field	Trip	Field	Equipment	Method	Matrix	Matrix
SDG	Method	Lot ID	Lot ID	Samples	Duplicates	Blanks	Blanks	Blanks	Blanks	Spikes	Spike Dups
ARS1-12-02340	Generic:Low_Level_Tritium	ARS1-B12-02782	ARS1-B12-02782	1	1				1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
Generic:Low_Level_Tritium	RAD							
LCS	ARS1-B12-02782-01	LCS	0	0	1	0		
Generic:Low_Level_Tritium	RAD	CAMO-13-24271	ARS1-B12-02782-07	FD	1	0	0	0
Generic:Low_Level_Tritium	RAD	CAMO-13-24278	ARS1-B12-02782-06	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	LCSD	ARS1-B12-02782-02	LCSD	0	0	1	0
Generic:Low_Level_Tritium	RAD	MB	ARS1-B12-02782-03	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

No.

Any samples affected by the presence of contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

No.

Data Validation Report for: Chain Of Custody No. 2013-361

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1	1						

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-46	2013-361	CAMO-13-24271	FD	INIT	RAD	Generic:Low_Level_Tritium	Tritium	U	U	R5	N
R-46	2013-361	CAMO-13-24278	REG	INIT	RAD	Generic:Low_Level_Tritium	Tritium	U	U	R5	N

Reason Code	Description
R5	Analyte is not detected because the amount reported is less than the MDC.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24271	R-46	FD	Generic:Low_Level_Tritium	0	1
CAMO-13-24278	R-46	REG	Generic:Low_Level_Tritium	0	1

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
-2.252	pCi/L	-2.252	pCi/L	2.352	0.732	W	11/16/2012		ARS1-B12-02782	VAL	Y
-0.669	pCi/L	-0.669	pCi/L	2.477	0.724	W	11/16/2012		ARS1-B12-02782	VAL	Y

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Request Number: 2013-361

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-361

Original COC

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-361

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Special Instructions:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3
CAMO-13-24278	Nov 16 2012	10:11	W	1
CAMO-13-24271	Nov 16 2012	10:11	W	1

Special Instructions:

Relinquished by: Melissa Martin		Date/Time: 11/19/12 3:00	Received by:	11/20/12 1050
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-361

Case Narrative

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

December 19, 2012

LANL
Keith Greene
PO Box 1663 MS M992
Los Alamos, NM 87545

Request Number: **2013-361**
LANL Sample ID: **CAMO-13-24278; CAMO-13-24271.**

Dear Mr. Greene;

On November 20, 2012, ARS International received two (2) water samples to be analyzed for Low Level Tritium.

The samples underwent enrichment and were counted using the appropriate counting equipment and QA/QC for this type of analysis. Results of the analysis and QA/QC are attached in the data package.

The client and QA/QC samples were counted with a count time sufficient to meet quality control parameters for counting equipment and were within acceptance criteria and statistical sound detection limits.

If you have any questions please do not hesitate to call at 225.381.2991 or email LANL@amrad.com.

Sincerely,

Laboratory Management
ARS International

ARS INTERNATIONAL
2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

COVER PAGE

PROJECT SAMPLE IDENTIFICATION CROSS-REFERENCE TO ARS SAMPLE LABORATORY IDs

Subcontract (LANL Agreement Number) 63641-001-10

Request Number	LANL PROJECT SAMPLE ID NUMBER	American Radiation Services SAMPLE ID NUMBER(S)
2013-361	CAMO-13-24278	ARS1-12-02340-001
2013-361	CAMO-13-24271	ARS1-12-02340-002

ANALYTICAL METHODS

Tritium analyses were performed using **ARS-040 Tritium Assay in Water Samples Using Electrolytic Enrichment.**

ANALYTICAL RESULTS

The result data that are flagged with "U" indicate that the activity is below the MDC.

American Radiation Services Project Manager/Laboratory Director's Comments:

"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

"I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the LANL specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."

Signature	Title	Date
James D. [illegible]	Laboratory Management, ARS International	12-19-12

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02340	**Request or PO Number:**	2013-361
Client Sample ID:	CAMO-13-24278	**ARS Sample ID:**	ARS1-12-02340-001
Sample Collection Date:	11/16/12	**Date Received:**	11/20/12
Sample Matrix:	Aqueous	**Report Date:**	12/19/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	-0.669	0.724	2.477	1.201	U	pCi/L	ARS-040	12/13/12 12:28	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02340	**Request or PO Number:**	2013-361
Client Sample ID:	CAMO-13-24271	**ARS Sample ID:**	ARS1-12-02340-002
Sample Collection Date:	11/16/12	**Date Received:**	11/20/12
Sample Matrix:	Aqueous	**Report Date:**	12/19/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	-2.252	0.732	2.352	1.141	U	pCi/L	ARS-040	12/13/12 16:39	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

QC Results Report

Sample Delivery Group: ARS1-12-02340
Date Received: 11/20/2012

Laboratory Control Sample Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Percent Recovery (%)	LCS Acceptance Range
ARS1-B12-02782	LCS	H3	22.397	3.533	2.537	25.722		pCi/L	ARS-040	12/12/12 13:33	RJU	87	80%-120%

Blank Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician
ARS1-B12-02782	MBL	H3	-0.548	0.714	2.441	NA	U	pCi/L	ARS-040	12/12/12 13:33	RJU

Sample RER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (2s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	RER	RER AcceptanceRange
ARS1-B12-02782	LCSD	H3	22.397	3.533	20.697	3.248		pCi/L	ARS-040	12/12/12 13:33	RJU	0.25	< 1

Sample DER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (2s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	DER	DER AcceptanceRange
ARS1-B12-02782	LCSD	H3	22.397	3.533	20.697	3.248		pCi/L	ARS-040	12/12/12 13:33	RJU	0.71	< 3

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of ARS International.

LELAP Certificate# 01949 NELAP Certificate # E87558

QC Evaluation

EPA Method: ARS-040
Batch ID: ARS1-B12-02782
SDG's: ARS1-12-02339; 2340; 2341

LCS	22.3970	**CSU (2s)**	6.9240
LCSD	20.6970	**CSU-D (2s)**	6.3670

DER = abs(LSC-LSCD) / sqr((2s CSU/2)^2)+((2s CSU-D/2)^2) *at 1 sigma* = **< 3**

DER 1.7 / 4.703203 = 0.361456 **< 3**

% RPD= ABS(LCS - LSCD) / (LCS+LCSD)/2 * 100 = **< 25%**

%RPD 1.7 / 21.547 *100 = 7.889729 **< 25%**

The *RPD* shall be less than 25% or other client-applied criteria

RER= abs((LCS-LCSD)) / (CSU)+(CSD) *at 2 sigma* = **<1** ***<--LANL Requirement***

RER = 1.7 / 13.2910 0.127906102 **<1**

Blank Information

	Act	CSU(2s)	MDA	Act>MDA
AM-241				
U-234				
U-235				
U-238				
Pu-238				
Pu-239/240				
Th-228				
Th-230				
Th-232				
H3	-0.548	1.399	2.441	
Ra-226				
Ra-228				
Total U				
Pb-210				
Po-209				
Sr-90				
TC-99				
NI-63				

*MDA should be below RDL
*Blank activity must be below MDA
*Blank activity must be < 1.65*CSU (DOE only)

ACT = -0.548
CSU = 1.399
Is ACT<1.65*CSU? YES

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

AMRAD AMERICAN RADIATION SERVICES, LLC

Analysis Batch ID **ARS1-B12-02782**

				Method	**ARS-040**	**Analysis**		**LSC-A-022**	**Matrix**	**AQ**
				Description	**Low Level Tritium by Electrolytic Enrichment**					
ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02782-01	LCS	B-14831								
ARS1-B12-02782-02	LCSD	B-14832								
ARS1-B12-02782-03	MBL									
ARS1-B12-02782-04	TRG				**ARS1-12-02339**	001	1	CAMO-13-24251	STD	12/16/12
ARS1-B12-02782-05	TRG				**ARS1-12-02339**	002	1	CAMO-13-24252	STD	12/16/12
ARS1-B12-02782-06	TRG				**ARS1-12-02340**	001	1	CAMO-13-24278	STD	12/16/12
ARS1-B12-02782-07	TRG				**ARS1-12-02340**	002	1	CAMO-13-24271	STD	12/16/12
ARS1-B12-02782-08	TRG				**ARS1-12-02341**	001	1	CASA-13-24212	STD	12/16/12
ARS1-B12-02782-09	TRG				**ARS1-12-02341**	002	1	CASA-13-24206	STD	12/16/12

129059
12-02339-001-1
WRAD

129061
12-02339-002-1
WRAD

129063
12-02340-001-1
WRAD

129065
12-02340-002-1
WRAD

129067
12-02341-001-1
WRAD

129069
12-02341-002-1
WRAD

American Radiation Services
Baton Rouge Laboratory

LCS Report
Analytical Batch: ARS1-B12-02782

14 of 1

BlindID	ABatch	ABatchSampleID	BlindGroup	StdID	Isotope	ExpectedAddition	ExpectedValue	EmptyWt	GrossWt	NetWt	UserID	ModDate	ExpectedValue_CT	MidPointCountDate	KnownValue
B-14831	ARS1-B12-02782	ARS1-B12-02782-01	B-H3	S-0279	H-3	5	2.549416506	13.201	18.268	5.067	AMRAD\BSTEFFENS	11/21/2012	2.541182902	12/12/2012	12.87617376
B-14832	ARS1-B12-02782	ARS1-B12-02782-02	B-H3	S-0279	H-3	5	2.549416506	13.468	18.544	5.076	AMRAD\BSTEFFENS	11/21/2012	2.541182902	12/12/2012	12.89904441

15 of 81

ID	B1001_040	ABatch	AnalysisCode	ABatchSampleID	ClientID	IC_ID	S01_1_EnrichCellNo	S01_2_TareCell	S01_3_TareResv	S02_GrossWtResv	S03_1_WtNa2O2	C_GrossSampleAdded
465		ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-01			3	334.49	198.24	698.82	2.09	500.58
466		ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-02			86	330.87	205.96	712.65	2.06	506.69
467		ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-03			11	332.72	202.13	711.08	2	508.95
468		ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-04	CAMO-13-24251		19	333.21	199.53	700.89	2	501.36
469		ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-05	CAMO-13-24252		41	332.03	212.56	717.91	2.08	505.35
470		ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-06	CAMO-13-24278		63	326.63	202.66	704.28	2.08	501.62
471		ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-07	CAMO-13-24271		21	331.93	214.5	715.82	2.05	501.32
472		ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-08	CASA-13-24212		48	336.53	212.05	715.43	2.06	503.38
473		ARS1-B12-02782	LSC-A-022	ARS1-B12-02782-09	CASA-13-24206		77	334.98	196.48	700.9	2.09	504.42

12-12-12

S04_1_ElectrolSD	S04_2_StartAmp	S04_3_StartBathC	S05_1_ElectrolED	S05_2_EndBathC	S05_3_EndCellWt	C_GrossSmplRec	C_EnrichmentF	S06_TareWt	S07_GrossWt	C_RecoveredWa
11/21/2012 13:00:00	5	2	12/04/2012 14:56:00	2.1	548.7	15.97	31.34502192	104.16	115.77	11.61
11/21/2012 13:00:00	5	2	12/10/2012 10:15:00	2	551.09	14.26	35.53225806	97.51	108.95	11.44
11/21/2012 13:00:00	5	2	12/04/2012 15:12:00	2.1	551.33	16.48	30.88288835	109.78	122.83	13.05
11/21/2012 13:00:00	5	2	12/10/2012 10:18:00	2	548.9	16.16	31.02475248	122.08	134.42	12.34
11/21/2012 13:00:00	5	2	12/10/2012 11:58:00	2	560.42	15.83	31.92356286	101.79	113.72	11.93
11/21/2012 13:00:00	5	2	12/10/2012 10:19:00	2	546.06	16.77	29.91174717	109.22	122.96	13.74
11/21/2012 13:00:00	5	2	12/04/2012 15:13:00	2.1	562.31	15.88	31.56926952	109.54	123.18	13.64
11/21/2012 13:00:00	5	2	12/04/2012 13:14:00	2.1	565.52	16.94	29.71546635	111.9	125.6	13.7
11/21/2012 13:00:00	5	2	12/10/2012 10:14:00	2	549.01	17.55	28.74188034	109.8	123.38	13.58

12-12-12

17 of 81

S08_TearWtLSCVial	S09_VialPlusSmpl	C_NetSample	S10_1_WtVislSmplDrWatFill	C_NetDeadWaterAdded	C_TareWtBFCocktail	S10_2_GrossWtVSC	C_NetWtCocktailAdded	UserID	ModDate
6.58	16.59	10.01	0	0	16.59	26.89	10.3	AMRAD\RUSEY	12/11/2012 12:05:30
6.48	16.5	10.02	0	0	16.5	27.69	11.19	AMRAD\RUSEY	12/11/2012 12:07:46
6.43	16.44	10.01	0	0	16.44	26.82	10.38	AMRAD\RUSEY	12/11/2012 12:10:30
6.52	16.54	10.02	0	0	16.54	26.84	10.3	AMRAD\RUSEY	12/11/2012 12:12:41
6.51	16.53	10.02	0	0	16.53	26.77	10.24	AMRAD\RUSEY	12/11/2012 14:42:15
6.61	16.68	10.07	0	0	16.68	26.97	10.29	AMRAD\RUSEY	12/11/2012 14:43:56
6.45	16.46	10.01	0	0	16.46	26.76	10.3	AMRAD\RUSEY	12/11/2012 14:46:31
6.48	16.49	10.01	0	0	16.49	26.74	10.25	AMRAD\RUSEY	12/11/2012 14:49:17
6.5	16.53	10.03	0	0	16.53	26.71	10.18	AMRAD\RUSEY	12/12/2012 11:20:04

12-12-12

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121212_0912
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121212_0912\20121212_0912.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121212_0912\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121212_0912\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

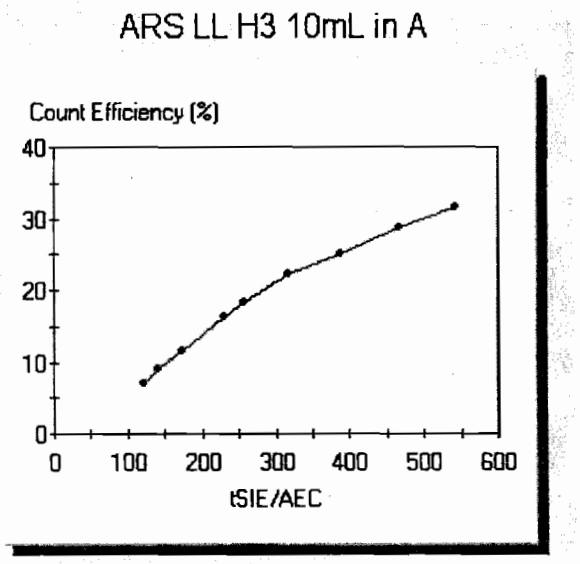
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	BACKGROUND	1.458	5.79	392.59	25.20	240.00	12/12/2012	9:21:06 AM	
2	2	B12-02782-01	4.759	19.99	357.88	23.81	240.00	12/12/2012	1:33:03 PM	
2	3	B12-02782-02	5.014	20.72	368.17	24.20	240.00	12/12/2012	5:44:02 PM	
2	4	B12-02782-03	1.374	5.49	388.73	25.01	240.00	12/12/2012	9:55:03 PM	*
2	5	B12-02782-04	6.276	24.82	394.49	25.29	240.00	12/13/2012	2:06:01 AM	*
2	6	B12-02782-05	1.802	7.09	397.31	25.42	240.00	12/13/2012	6:17:00 AM	*
2	7	B12-02782-06	1.357	5.37	394.54	25.29	240.00	12/13/2012	10:27:59 AM	
2	8	B12-02782-07	1.100	4.35	394.65	25.29	240.00	12/13/2012	2:38:56 PM	
2	9	B12-02782-08	3.261	13.06	387.95	24.97	240.00	12/13/2012	6:49:54 PM	
2	10	B12-02782-09	3.629	14.59	385.50	24.87	240.00	12/13/2012	11:00:52 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121214_0305
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121214_0305\20121214_0305.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121214_0305\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121214_0305\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
   Quench Indicator: tSIE/AEC
   External Std Terminator (sec): 0.5 2s%
   Pre-Count Delay (min): 0.00
Quench Set:
   Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 2
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

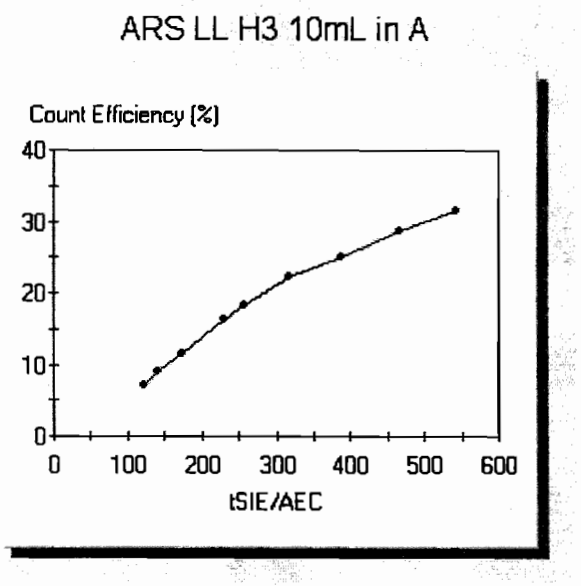
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				
B				
C				

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21

257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME
MESSAGES									
10	1	B12-02782-04	5.735	22.64	395.38	25.33	240.00	12/14/2012	7:25:18 AM

AMRAD
AMERICAN RADIATION SERVICES, LLC

LSC Instrument Data Transfer Report

\\Packard3170\Results\H3 Low Level\Low Level H3\2

Batch Sample ID	Non-BKG Samples Transferred	Samples Eligible To Save	
ARS1-B12-02782	9	9	LSC 1

LIMS Batch Sample ID	LSC P#	LSC PID	LSC S#	LSC SMPL_ID	LSC Count Date	LSC CPMA	LSC tSIE	LSC EFF	LSC Count Dur	Analysis Batch	LIMS SDG	LIMS Run
BKG	2		1	BACKGROUND	12/12/12 09:21	1.46	392.59	25.2000	240.00	ARS1-B12-02782		
ARS1-B12-02782-01	2		2	B12-02782-01	12/12/12 13:33	4.76	357.88	23.8100	240.00	ARS1-B12-02782		
ARS1-B12-02782-02	2		3	B12-02782-02	12/12/12 17:44	5.01	368.17	24.2000	240.00	ARS1-B12-02782		
ARS1-B12-02782-03	2		4	B12-02782-03	12/12/12 21:55	1.37	388.73	25.0100	240.00	ARS1-B12-02782		
ARS1-B12-02782-04	2		5	B12-02782-04	12/13/12 02:06	6.28	394.49	25.2900	240.00	ARS1-B12-02782	ARS1-12-02339	1
ARS1-B12-02782-05	2		6	B12-02782-05	12/13/12 06:17	1.80	397.31	25.4200	240.00	ARS1-B12-02782	ARS1-12-02339	1
ARS1-B12-02782-06	2		7	B12-02782-06	12/13/12 10:27	1.36	394.54	25.2900	240.00	ARS1-B12-02782	ARS1-12-02340	1
ARS1-B12-02782-07	2		8	B12-02782-07	12/13/12 14:38	1.10	394.65	25.2900	240.00	ARS1-B12-02782	ARS1-12-02340	1
ARS1-B12-02782-08	2		9	B12-02782-08	12/13/12 18:49	3.26	387.95	24.9700	240.00	ARS1-B12-02782	ARS1-12-02341	1
ARS1-B12-02782-09	2		10	B12-02782-09	12/13/12 23:00	3.63	385.50	24.8700	240.00	ARS1-B12-02782	ARS1-12-02341	1

ARS-040 Calculation Results

ARS1-B12-02782

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Initial_Mass_sample_g	Mass_Na2O2_added_g	Final_mass_electrolyzed_sample_NaOH_g	Mass_equivalent_NaOH_g	Final_Mass_Electrolyzed_sample_g	VolumeFactor_X	Enrichment_Factor_Y
LSC-A-022	ARS1-B12-02782-01	500.580	2.090	15.970	2.144	13.826	0.028	28.270
LSC-A-022	ARS1-B12-02782-02	506.690	2.060	14.260	2.114	12.146	0.024	32.392
LSC-A-022	ARS1-B12-02782-03	508.950	2.000	16.480	2.052	14.428	0.028	27.571
LSC-A-022	ARS1-B12-02782-04	501.360	2.000	16.160	2.052	14.108	0.028	27.768
LSC-A-022	ARS1-B12-02782-05	505.350	2.080	15.830	2.134	13.696	0.027	28.789
LSC-A-022	ARS1-B12-02782-06	501.620	2.080	16.770	2.134	14.636	0.029	26.818
LSC-A-022	ARS1-B12-02782-07	501.320	2.050	15.880	2.103	13.777	0.027	28.407
LSC-A-022	ARS1-B12-02782-08	503.380	2.060	16.940	2.114	14.826	0.029	26.576
LSC-A-022	ARS1-B12-02782-09	504.420	2.090	17.550	2.144	15.406	0.031	25.666

ARS-040 Calculation Results

ARS1-B12-02782

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Average_Sample_CPM	Bkg_CPM	tSIE	Detector_Eff_decimal	Aliquot	AliqUnits	Activity_reference_date	Start_Date_of_Count	Sample_Count_Duration_min
LSC-A-022	ARS1-B12-02782-01	4.759	1.458	357.880	0.238	0.01001	L	9/7/2012	12/12/2012	240.000
LSC-A-022	ARS1-B12-02782-02	5.014	1.458	368.170	0.242	0.01002	L	9/7/2012	12/12/2012	240.000
LSC-A-022	ARS1-B12-02782-03	1.374	1.458	388.730	0.250	0.01001	L	12/11/2012	12/12/2012	240.000
LSC-A-022	ARS1-B12-02782-04	6.276	1.458	394.490	0.253	0.01002	L	11/15/2012	12/13/2012	240.000
LSC-A-022	ARS1-B12-02782-05	1.802	1.458	397.310	0.254	0.01002	L	11/15/2012	12/13/2012	240.000
LSC-A-022	ARS1-B12-02782-06	1.357	1.458	394.540	0.253	0.01007	L	11/16/2012	12/13/2012	240.000
LSC-A-022	ARS1-B12-02782-07	1.100	1.458	394.650	0.253	0.01001	L	11/16/2012	12/13/2012	240.000
LSC-A-022	ARS1-B12-02782-08	3.261	1.458	387.950	0.250	0.01001	L	11/14/2012	12/13/2012	240.000
LSC-A-022	ARS1-B12-02782-09	3.629	1.458	385.500	0.249	0.01003	L	11/14/2012	12/13/2012	240.000

ABS-040 Calculation Results

ARS1-B12-02782

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Total_Bkg_Count_Duration_min	DF	Sample_Activity_Conc	Standard_Counting_Uncertainty	CU_1	CSU_1	CU_1_96	CSU_1_96	MDC	DLC	ActivityReportUnits
LSC-A-022	ARS1-B12-02782-01	240.000	0.98532	22.397	1.092	1.092	3.533	2.140	6.924	2.537	1.230	pCi
LSC-A-022	ARS1-B12-02782-02	240.000	0.98532	20.697	0.956	0.956	3.248	1.873	6.367	2.176	1.055	pCi
LSC-A-022	ARS1-B12-02782-03	240.000	0.99969	-0.548	0.709	0.709	0.714	1.390	1.399	2.441	1.184	pCi
LSC-A-022	ARS1-B12-02782-04	240.000	0.99570	30.976	1.154	1.154	4.788	2.262	9.384	2.404	1.166	pCi
LSC-A-022	ARS1-B12-02782-05	240.000	0.99570	2.122	0.719	0.719	0.786	1.409	1.541	2.307	1.119	pCi
LSC-A-022	ARS1-B12-02782-06	240.000	0.99585	-0.669	0.717	0.717	0.724	1.406	1.420	2.477	1.201	pCi
LSC-A-022	ARS1-B12-02782-07	240.000	0.99585	-2.252	0.649	0.649	0.732	1.273	1.435	2.352	1.141	pCi
LSC-A-022	ARS1-B12-02782-08	240.000	0.99554	12.281	0.955	0.955	2.075	1.872	4.067	2.547	1.235	pCi
LSC-A-022	ARS1-B12-02782-09	240.000	0.99539	15.346	1.029	1.029	2.521	2.017	4.942	2.643	1.282	pCi

ARS-040 Calculation Results

ARS1-B12-02782

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	AliquotReportUnits	UserID	ModDate
LSC-A-022	ARS1-B12-02782-01	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-02	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-03	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-04	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-05	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-06	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-07	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-08	L	AMRAD\RUSEY	12/14/2012
LSC-A-022	ARS1-B12-02782-09	L	AMRAD\RUSEY	12/14/2012

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-5-12	1604	B12-02721-09	B12-02721	1649	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
12-7-12	1026	B12-02721-18	B12-02721	1755	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]
12-12-12	0733	SNC-16	QA	QA	[illegible]
12-12-12	0855	Background	B12-02782	0912	[illegible]
↓	↓	B12-02782-01	↓	↓	[illegible]
↓	↓	B12-02782-02	↓	↓	[illegible]
↓	↓	B12-02782-03	↓	↓	[illegible]
↓	↓	B12-02782-04	↓	↓	[illegible]
↓	↓	B12-02782-05	↓	↓	[illegible]
↓	↓	B12-02782-06	↓	↓	[illegible]
↓	↓	B12-02782-07	↓	↓	[illegible]
↓	↓	B12-02782-08	↓	↓	[illegible]
↓	↓	B12-02782-01	↓	↓	[illegible]
12-12-12	0955	SNC-16	QA	QA	[illegible]
* 12-13-12	0950	B12-02782-04	B12-02782	0305	[illegible]

* Sed to count before SNC from 12-12-12. [illegible] 12-13-12

Reviewed By: [illegible] Date: 12-19-12
Initials

ARS Batch Number: ARS1-B12 - 02782

Enter these Values for LCS			Report Name	Field Name on the Report
	Current ACT	5.6414	Standards Report	ACT at Date Above (dpm/g)
	NetWt	5.0670	LCS Report	NetWt
	Aliquot	0.5006	Tritium Enrichment Data	Gross Sample Added/1000

Enter these Values for LCSD			Report Name	Field Name on the Report
	Current ACT	5.6414	Standards Report	ACT at Date Above (dpm/g)
	NetWt	5.0760	LCS Report	NetWt
	Aliquot	0.5067	Tritium Enrichment Data	Gross Sample Added/1000

Expected Value Calculations

ARS Batch Number: ARS1-B11 - 02782

LCS **CALCULATED EXPECTED VALUE** = 25.722

Range 20.578 - 30.867

LCSD **CALCULATED EXPECTED VALUE** = 25.457

Range 20.366 - 30.549

Exit

AMRAD
AMERICAN RADIATION SERVICES, LLC

Standards Activity as of: 12/12/12 13:33

Active	Std ID	Isotope	PSCLT	Verification Date	Exp Date	Status	Ref Date	Ref ACT (dpm)	ACT at Date Above (dpm/g)	Halflife (days)	Parent ID	Expended Date	Comments
A	**S-0279**	H-3	**SL**	09/10/12	09/10/13	OK	09/07/12	5.7255E+00	**5.6414**	4.500E+03	**S-0237**		H3 LCS standard. Dilution performed as stated above by B Steffens. -B

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

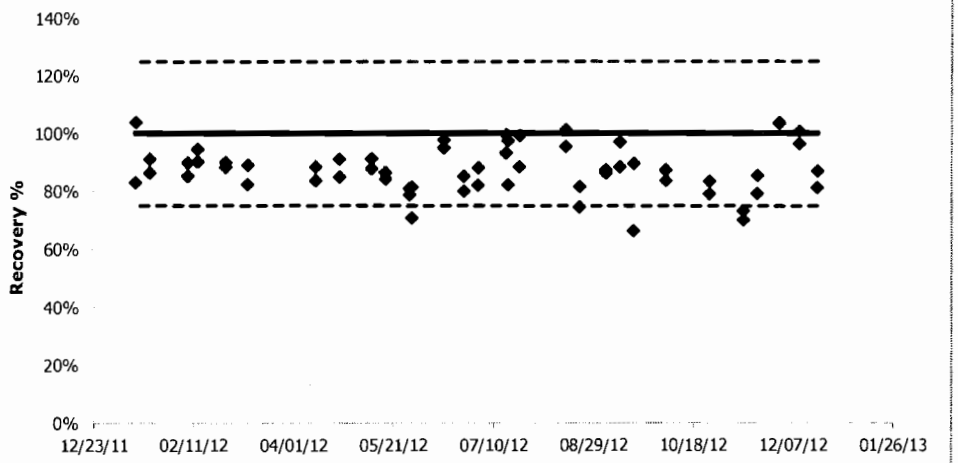
Low Level Tritium by Low Level Liquid Scintillation Counting

Control Charts

American Radiation Services
Baton Rouge Laboratory

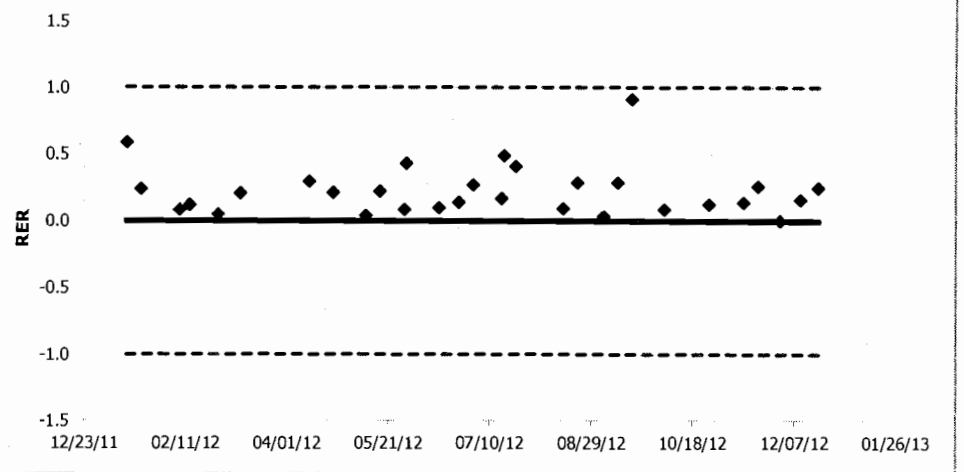
QC Chart

LLH-3 LCS



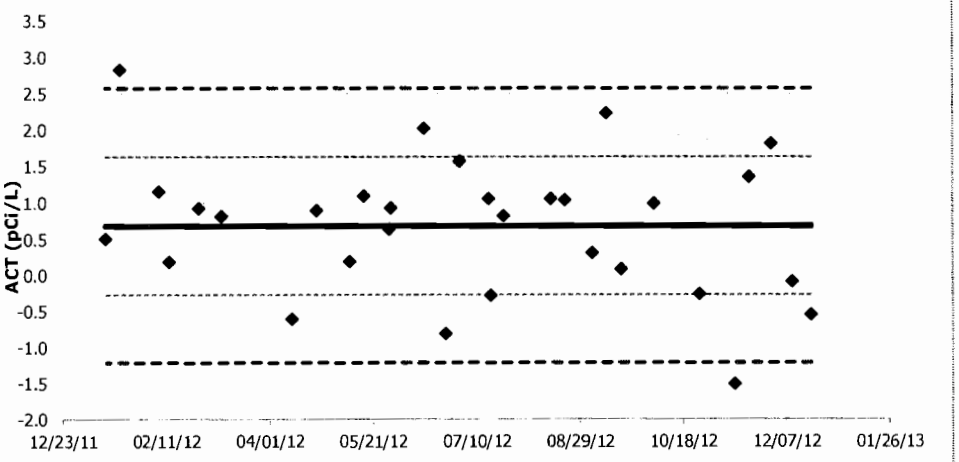
Average	STDEV	n	UCL	LCL
0.8756	0.0829	30	1.2500	0.7500

LLH-3 RER



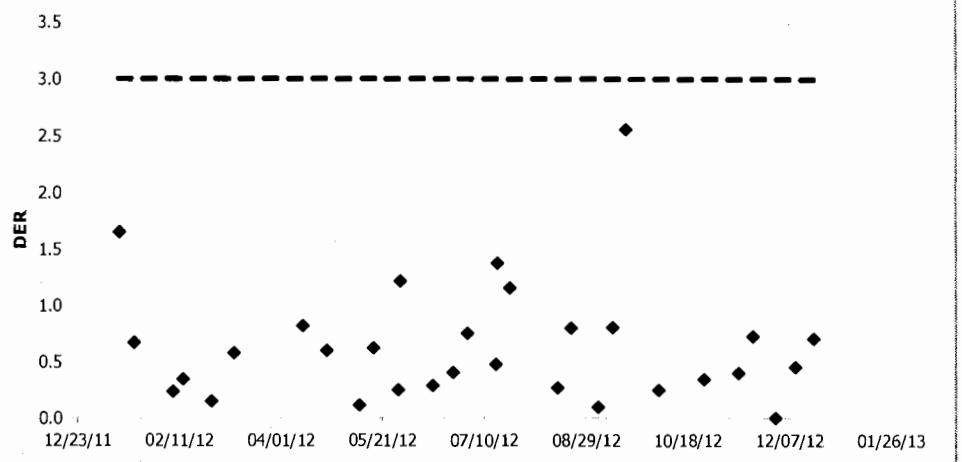
		n	UCL	LCL
		30	1.0000	-1.0000

LLH-3 Blank



Average	STDEV	n	UCL	LCL
0.6825	0.9484	30	2.5792	-1.2142

LLH-3 DER



		n	UCL	
		30	3.0000	

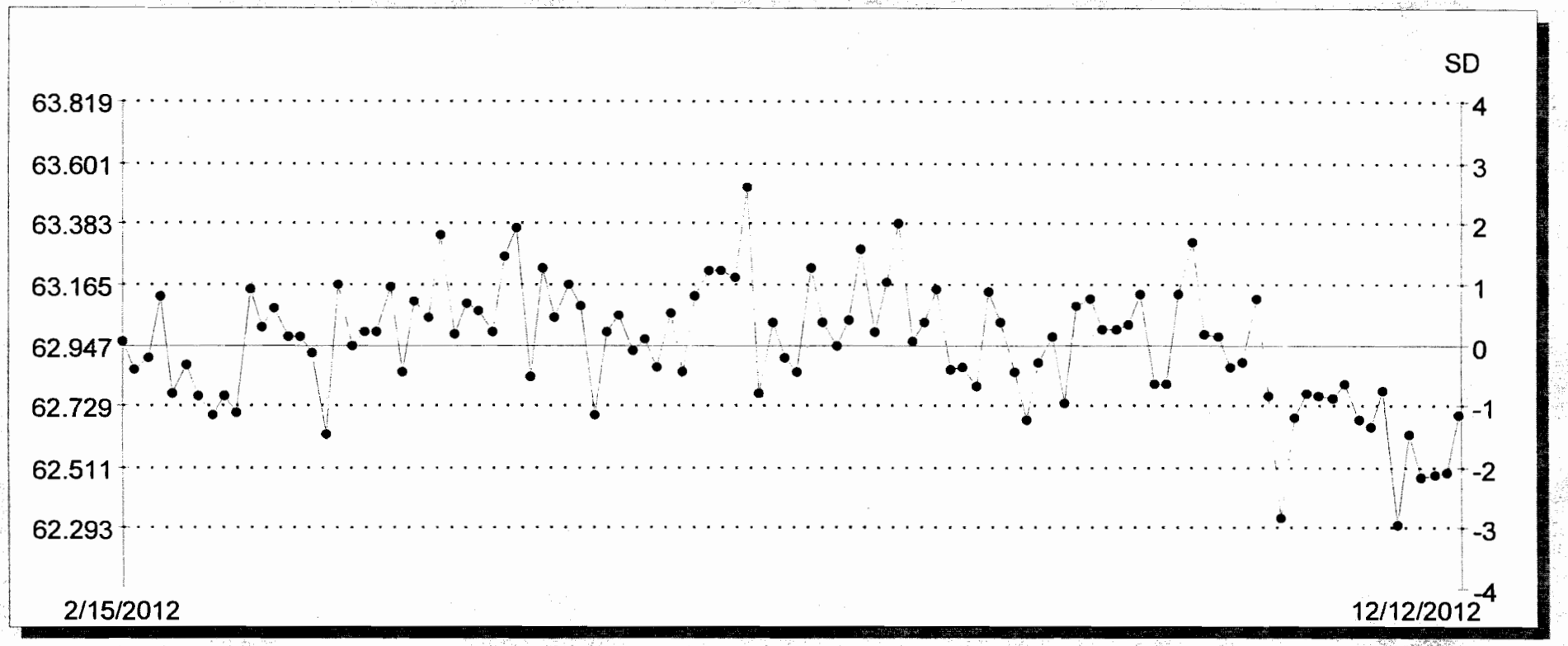
3H Efficiency
Total # pts : 5554
Valid # pts : 106
Mean : 62.95
SD : 0.22

Date	Value	Valid Pt
Feb 15, 2012	62.96	X
Feb 16, 2012	62.86	X
Feb 17, 2012	62.90	X
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X
Jun 30, 2012	62.97	X

Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X
Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 22, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X
Nov 12, 2012	62.77	X

Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X
Nov 18, 2012	62.68	X
Nov 19, 2012	62.65	X
Nov 19, 2012	62.78	X
Nov 20, 2012	62.30	X
Nov 21, 2012	62.63	X
Nov 23, 2012	62.47	X
Dec 04, 2012	62.48	X
Dec 08, 2012	62.49	X
Dec 12, 2012	62.70	X

3H Efficiency
Total # pts : 5554
Valid # pts : 106
Mean : 62.95
SD : 0.22



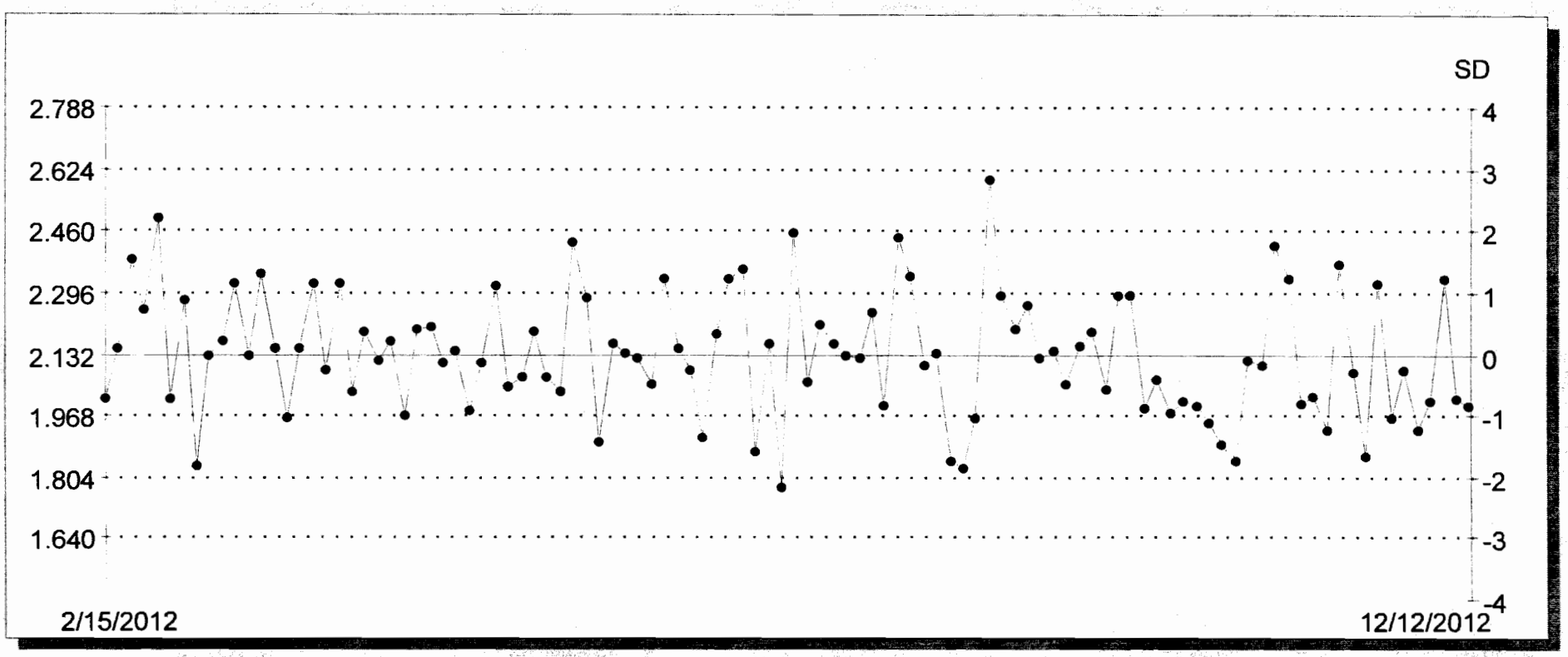
3H Background
Total # pts : 5480
Valid # pts : 106
Mean : 2.13
SD : 0.16

Date	Value	Valid Pt
Feb 15, 2012	2.01	X
Feb 16, 2012	2.15	X
Feb 17, 2012	2.39	X
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X
Jun 30, 2012	2.12	X

Jul	05,	2012	2.05	X
Jul	11,	2012	2.33	X
Jul	12,	2012	2.15	X
Jul	16,	2012	2.09	X
Jul	20,	2012	1.91	X
Jul	22,	2012	2.19	X
Jul	26,	2012	2.33	X
Jul	27,	2012	2.36	X
Aug	09,	2012	1.88	X
Aug	13,	2012	2.16	X
Aug	14,	2012	1.78	X
Aug	16,	2012	2.46	X
Aug	17,	2012	2.06	X
Aug	18,	2012	2.21	X
Aug	21,	2012	2.16	X
Aug	22,	2012	2.13	X
Aug	26,	2012	2.12	X
Aug	27,	2012	2.25	X
Aug	27,	2012	1.99	X
Sep	05,	2012	2.44	X
Sep	09,	2012	2.34	X
Sep	11,	2012	2.11	X
Sep	17,	2012	2.14	X
Sep	18,	2012	1.85	X
Sep	20,	2012	1.83	X
Sep	20,	2012	1.96	X
Sep	24,	2012	2.60	X
Sep	28,	2012	2.29	X
Oct	01,	2012	2.20	X
Oct	04,	2012	2.26	X
Oct	05,	2012	2.13	X
Oct	06,	2012	2.14	X
Oct	11,	2012	2.05	X
Oct	12,	2012	2.15	X
Oct	13,	2012	2.19	X
Oct	17,	2012	2.04	X
Oct	19,	2012	2.29	X
Oct	22,	2012	2.29	X
Oct	23,	2012	1.99	X
Oct	23,	2012	2.06	X
Oct	23,	2012	1.98	X
Oct	23,	2012	2.01	X
Oct	25,	2012	2.00	X
Oct	27,	2012	1.95	X
Oct	31,	2012	1.89	X
Nov	02,	2012	1.85	X
Nov	02,	2012	2.11	X
Nov	04,	2012	2.11	X
Nov	05,	2012	2.42	X
Nov	10,	2012	2.33	X
Nov	12,	2012	2.00	X
Nov	12,	2012	2.02	X

Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X
Nov 18, 2012	1.86	X
Nov 19, 2012	2.32	X
Nov 19, 2012	1.96	X
Nov 20, 2012	2.09	X
Nov 21, 2012	1.93	X
Nov 23, 2012	2.01	X
Dec 04, 2012	2.34	X
Dec 08, 2012	2.02	X
Dec 12, 2012	2.00	X

3H Background
Total # pts : 5480
Valid # pts : 106
Mean : 2.13
SD : 0.16



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium- Screening by Low Level Liquid Scintillation Counting

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Samples

Procedures: **ARS-060** **ARS-040** *Section 14.1 Tritium Screen in Clean Water without Distillation*

ARS File ID Numbers: ARS1-12-02339; 2340; 2341
ARS Batch ID: ARS1-B12-02779

	Sample ID:	COUNT TIME	CPMA	Background CPMA	Eff Nucl In A	Aliquot (grams)	ACTIVITY	units	MDA	Sample Must be analyzed as LSC-A-001
1	B12-02779-04	120	2.477	1.524	24.55	10.00	174.859	pCi/L	122.1564	YES, analyze by LSC-A-001.
2	B12-02779-05	120	1.728	1.524	24.35	10.00	37.738	pCi/L	123.1597	NO
3	B12-02779-06	120	1.607	1.524	24.79	10.02	15.052	pCi/L	120.7323	NO
4	B12-02779-07	120	2.166	1.524	24.67	10.00	117.223	pCi/L	121.5622	NO
5	B12-02779-08	120	1.852	1.524	24.67	10.05	59.592	pCi/L	120.9574	NO
6	B12-02779-09	120	1.662	1.524	24.56	10.04	25.209	pCi/L	121.6202	NO
7							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
8	B12-02779-04	120	1.347	1.524	24.16	10.00	-33.001	pCi/L	124.1283	NO
9	B12-02779-07	120	1.736	1.524	24.66	10.00	38.725	pCi/L	121.6115	NO
10							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
11							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
12							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
13							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
14							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
15							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
16							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
17							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
18							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
19							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
20							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
21							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
22							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
23							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!

Run all for LSC-A-022
SAL
11-21-12

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

46 of 94

AMRAD
AMERICAN RADIATION SERVICES, LLC

Analysis Batch ID **ARS1-B12-02779**

Method	ARS-054	Analysis	LSC-A-021	Matrix	AQ
Description	Low Level Tritium Screening				

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02779-01	LCS									
ARS1-B12-02779-02	LCSD									
ARS1-B12-02779-03	MBL									
ARS1-B12-02779-04	TRG				**ARS1-12-02339**	001	1	CAMO-13-24251	STD	12/16/12
ARS1-B12-02779-05	TRG				**ARS1-12-02339**	002	1	CAMO-13-24252	STD	12/16/12
ARS1-B12-02779-06	TRG				**ARS1-12-02340**	001	1	CAMO-13-24278	STD	12/16/12
ARS1-B12-02779-07	TRG				**ARS1-12-02340**	002	1	CAMO-13-24271	STD	12/16/12
ARS1-B12-02779-08	TRG				**ARS1-12-02341**	001	1	CASA-13-24212	STD	12/16/12
ARS1-B12-02779-09	TRG				**ARS1-12-02341**	002	1	CASA-13-24206	STD	12/16/12

127000
12-02339-001-1
WRAD

127001
12-02339-002-1
WRAD

127002
12-02340-001-1
WRAD

127003
12-02340-002-1
WRAD

127004
12-02341-001-1
WRAD

127005
12-02341-002-1
WRAD

ARS-054

ID_31001_054	ABatch	ABatchSampleID	ClientID	Aliquot1	AliquotUnits1	IC_ID1	Aliquot2	AliquotUnits2	IC_ID2	UserID	ModDate
12006	ARS1-B12-02779	ARS1-B12-02779-01		1	g					AMRAD\RUSEY	11/20/2012 14:56:20
12007	ARS1-B12-02779	ARS1-B12-02779-02		1	g					AMRAD\RUSEY	11/20/2012 14:56:20
12008	ARS1-B12-02779	ARS1-B12-02779-03		1	g					AMRAD\RUSEY	11/20/2012 14:56:20
12009	ARS1-B12-02779	ARS1-B12-02779-04	CAMO-13-24251	10	g	127000				AMRAD\RUSEY	11/20/2012 14:56:20
12010	ARS1-B12-02779	ARS1-B12-02779-05	CAMO-13-24252	10	g	127001				AMRAD\RUSEY	11/20/2012 14:56:20
12011	ARS1-B12-02779	ARS1-B12-02779-06	CAMO-13-24278	10.02	g	127002				AMRAD\RUSEY	11/20/2012 14:56:20
12012	ARS1-B12-02779	ARS1-B12-02779-07	CAMO-13-24271	10	g	127003				AMRAD\RUSEY	11/20/2012 14:56:20
12013	ARS1-B12-02779	ARS1-B12-02779-08	CASA-13-24212	10.05	g	127004				AMRAD\RUSEY	11/20/2012 14:56:21
12014	ARS1-B12-02779	ARS1-B12-02779-09	CASA-13-24206	10.04	g	127005				AMRAD\RUSEY	11/20/2012 14:56:21

Assay Definition-

Assay Description:
Low Low Level Tritium

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20121120_1646
Raw Results Path: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20121120_1646\20121120_1646.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20121120_1646\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium\20121120_1646\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Low Level Tritium.lsa

Count Conditions-

Nuclide: H-3 LL
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

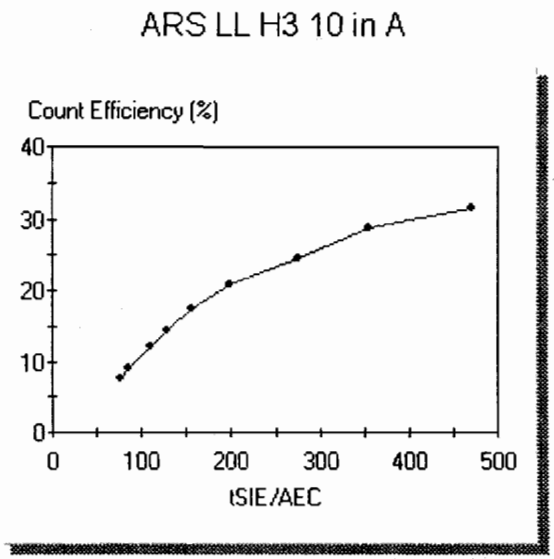
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 07/12/2012
Date Modified:
ARS LL H3 10 in A

tSIE/AEC	Count Efficiency (%)
469.86	31.67
355.16	28.64
276.20	24.37
198.58	20.90
156.80	17.54
129.38	14.41
110.19	12.01
86.31	8.98
76.97	7.55

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
41	1	BACKGROUND	1.524	6.400	263.84	23.82	120.00	11/20/2012	4:55:36 PM	
41	2	B12-02779-04	2.477	10.090	279.54	24.55	120.00	11/20/2012	7:07:37 PM	
41	3	B12-02779-05	1.728	7.097	275.87	24.35	120.00	11/20/2012	9:19:37 PM	
41	4	B12-02779-06	1.607	6.481	284.04	24.79	120.00	11/20/2012	11:31:39 PM	
41	5	B12-02779-07	2.166	8.780	281.71	24.67	120.00	11/21/2012	1:43:42 AM	
41	6	B12-02779-08	1.852	7.507	281.84	24.67	120.00	11/21/2012	3:55:45 AM	
41	7	B12-02779-09	1.662	6.770	279.72	24.56	120.00	11/21/2012	6:07:47 AM	

Assay Definition-

Assay Description:
Low Level H3

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium 2\20121121_0813
Raw Results Path: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium 2\20121121_0813\20121121_0813.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium 2\20121121_0813\Report1.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\Low Low Level Tritium 2\20121121_0813\Report1.txt
Assay File Name: C:\Packard\TriCarb\Assays\Low Low Level Tritium 2.lsa

Count Conditions-

Nuclide: H-3 LL
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

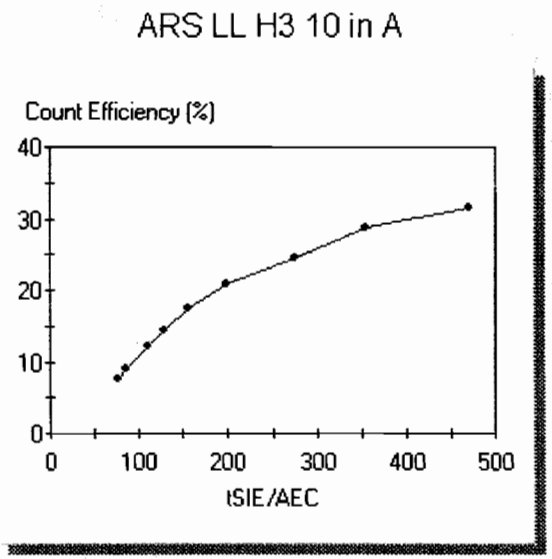
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 07/12/2012
Date Modified:
ARS LL H3 10 in A

tSIE/AEC	Count Efficiency (%)
469.86	31.67
355.16	28.64
276.20	24.37
198.58	20.90
156.80	17.54
129.38	14.41
110.19	12.01
86.31	8.98
76.97	7.55

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
49	1	B12-02779-04	1.347	5.575	271.65	24.16	120.00	11/21/2012	8:22:43 AM	
49	2	B12-02779-07	1.736	7.041	281.62	24.66	120.00	11/21/2012	10:34:45 AM	

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
11-15-12	1203	B12-02687-06	B12-02687	1354	[illegible]
↓	↓	B12-02687-07	↓	↓	[illegible]
↓	↓	B12-02687-08	↓	↓	[illegible]
↓	↓	B12-02687-09	↓	↓	[illegible]
↓	↓	B12-02687-10	↓	↓	[illegible]
↓	↓	B12-02687-11	↓	↓	[illegible]
↓	↓	B12-02687-12	↓	↓	[illegible]
↓	↓	B12-02687-13	↓	↓	[illegible]
↓	↓	B12-02687-14	↓	↓	[illegible]
11-20-12	1501	SNC KS	QA	QA	[illegible]
11-20-12	1502	Background	B12-02779	1646	[illegible]
↓	↓	B12-02779-04	↓	↓	[illegible]
↓	↓	B12-02779-05	↓	↓	[illegible]
↓	↓	B12-02779-06	↓	↓	[illegible]
↓	↓	B12-02779-07	↓	↓	[illegible]
↓	↓	B12-02779-08	↓	↓	[illegible]
↓	↓	B12-02779-09	↓	↓	[illegible]
11-21-12	0720	B12-02779-04	B12-02779	0813	[illegible]
↓	↓	B12-02779-07	↓	↓	[illegible]
				[illegible] 11-21-12	

Reviewed By: [illegible] Date: 12-19-12
Initials

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Control Charts

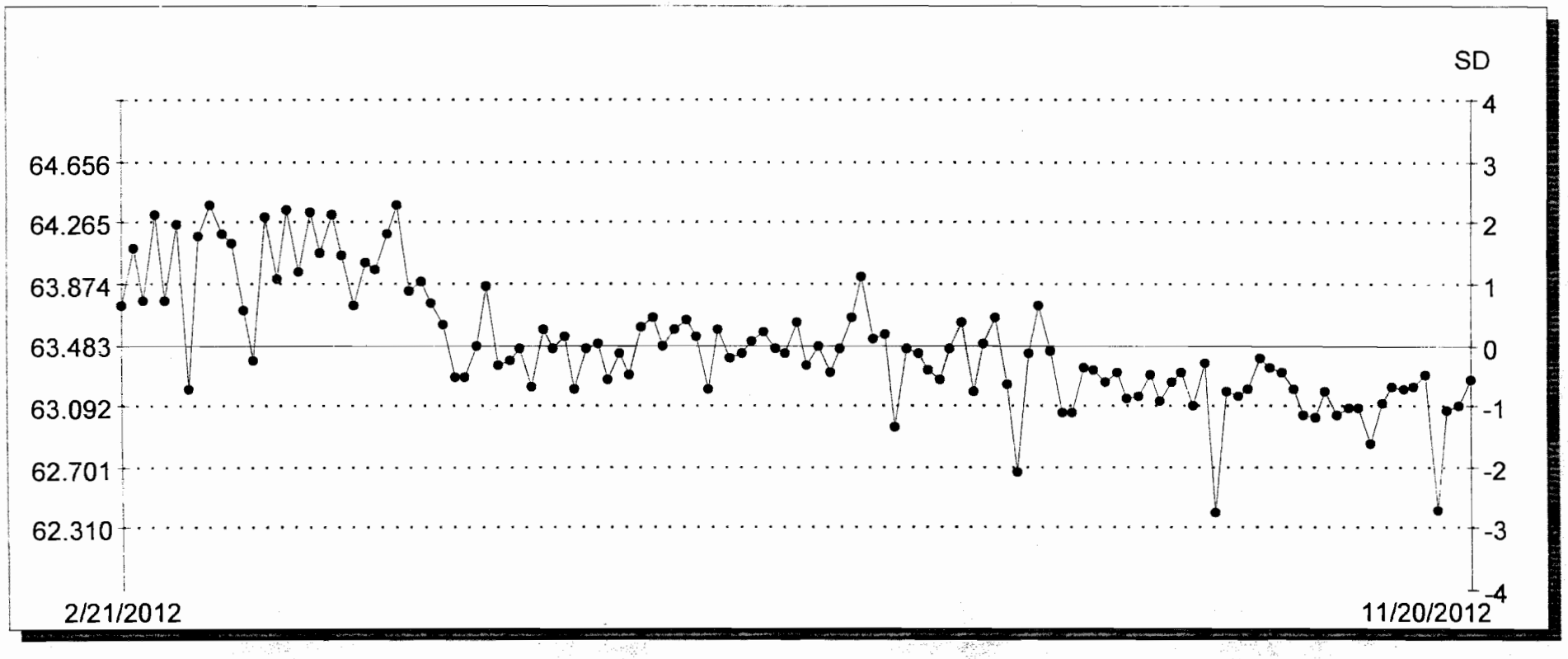
3H Efficiency
Total # pts : 1872
Valid # pts : 123
Mean : 63.48
SD : 0.39

Date	Value	Valid Pt
Feb 21, 2012	63.73	X
Feb 23, 2012	64.10	X
Feb 28, 2012	63.77	X
Mar 02, 2012	64.32	X
Mar 05, 2012	63.77	X
Mar 08, 2012	64.25	X
Mar 13, 2012	63.20	X
Mar 13, 2012	64.18	X
Mar 15, 2012	64.37	X
Mar 20, 2012	64.19	X
Mar 23, 2012	64.13	X
Mar 27, 2012	63.71	X
Mar 27, 2012	63.39	X
Mar 30, 2012	64.29	X
Apr 03, 2012	63.89	X
Apr 10, 2012	64.34	X
Apr 13, 2012	63.95	X
Apr 16, 2012	64.32	X
Apr 20, 2012	64.07	X
Apr 23, 2012	64.31	X
Apr 27, 2012	64.05	X
Apr 30, 2012	63.74	X
Apr 30, 2012	64.01	X
May 04, 2012	63.97	X
May 07, 2012	64.20	X
May 14, 2012	64.37	X
May 16, 2012	63.83	X
May 17, 2012	63.89	X
Jun 01, 2012	63.75	X
Jun 01, 2012	63.62	X
Jun 01, 2012	63.27	X
Jun 01, 2012	63.28	X
Jun 01, 2012	63.47	X
Jun 02, 2012	63.86	X
Jun 02, 2012	63.35	X
Jun 02, 2012	63.39	X
Jun 02, 2012	63.46	X
Jun 02, 2012	63.21	X
Jun 02, 2012	63.59	X
Jun 02, 2012	63.46	X
Jun 02, 2012	63.54	X
Jun 02, 2012	63.20	X
Jun 02, 2012	63.46	X
Jun 02, 2012	63.50	X
Jun 02, 2012	63.27	X
Jun 02, 2012	63.43	X
Jun 02, 2012	63.29	X

Jun	02, 2012	63.60	X
Jun	03, 2012	63.65	X
Jun	03, 2012	63.47	X
Jun	03, 2012	63.57	X
Jun	03, 2012	63.65	X
Jun	03, 2012	63.53	X
Jun	03, 2012	63.21	X
Jun	03, 2012	63.58	X
Jun	03, 2012	63.39	X
Jun	03, 2012	63.43	X
Jun	03, 2012	63.50	X
Jun	03, 2012	63.56	X
Jun	03, 2012	63.46	X
Jun	03, 2012	63.43	X
Jun	03, 2012	63.63	X
Jun	03, 2012	63.36	X
Jun	04, 2012	63.47	X
Jun	04, 2012	63.31	X
Jun	04, 2012	63.46	X
Jun	04, 2012	63.66	X
Jun	04, 2012	63.91	X
Jun	13, 2012	63.52	X
Jun	14, 2012	63.56	X
Jun	21, 2012	62.96	X
Jun	22, 2012	63.46	X
Jun	26, 2012	63.43	X
Jun	27, 2012	63.32	X
Jun	28, 2012	63.27	X
Jul	03, 2012	63.45	X
Jul	09, 2012	63.63	X
Jul	12, 2012	63.19	X
Jul	13, 2012	63.49	X
Jul	13, 2012	63.66	X
Jul	16, 2012	63.24	X
Jul	18, 2012	62.67	X
Jul	18, 2012	63.42	X
Jul	19, 2012	63.73	X
Jul	20, 2012	63.44	X
Jul	23, 2012	63.05	X
Jul	26, 2012	63.04	X
Jul	28, 2012	63.34	X
Jul	30, 2012	63.33	X
Jul	30, 2012	63.25	X
Jul	31, 2012	63.31	X
Aug	03, 2012	63.15	X
Aug	06, 2012	63.16	X
Aug	08, 2012	63.30	X
Aug	08, 2012	63.13	X
Aug	24, 2012	63.24	X
Sep	05, 2012	63.31	X
Sep	07, 2012	63.10	X
Sep	10, 2012	63.36	X
Sep	12, 2012	62.40	X
Sep	14, 2012	63.19	X
Sep	14, 2012	63.16	X
Sep	17, 2012	63.19	X
Sep	19, 2012	63.39	X

Sep 26, 2012	63.33	X
Sep 27, 2012	63.31	X
Sep 29, 2012	63.20	X
Oct 10, 2012	63.04	X
Oct 16, 2012	63.02	X
Oct 19, 2012	63.19	X
Oct 24, 2012	63.03	X
Oct 26, 2012	63.07	X
Oct 29, 2012	63.07	X
Oct 30, 2012	62.84	X
Oct 30, 2012	63.11	X
Nov 01, 2012	63.22	X
Nov 04, 2012	63.20	X
Nov 06, 2012	63.21	X
Nov 09, 2012	63.29	X
Nov 10, 2012	62.43	X
Nov 14, 2012	63.07	X
Nov 15, 2012	63.09	X
Nov 20, 2012	63.26	X

3H Efficiency
Total # pts : 1872
Valid # pts : 123
Mean : 63.48
SD : 0.39



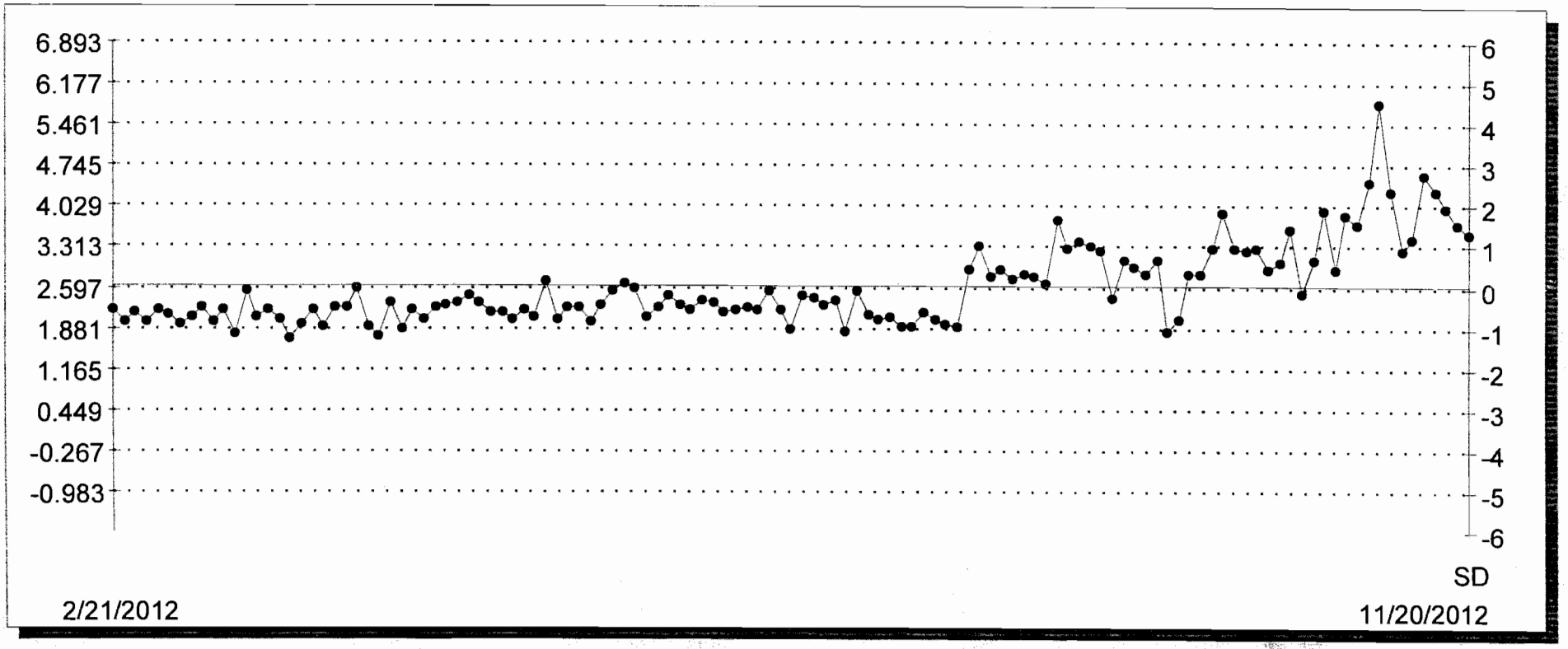
3H Background
Total # pts : 1828
Valid # pts : 123
Mean : 2.60
SD : 0.72

Date	Value	Valid Pt
Feb 21, 2012	2.20	X
Feb 23, 2012	2.01	X
Feb 28, 2012	2.14	X
Mar 02, 2012	1.99	X
Mar 05, 2012	2.21	X
Mar 08, 2012	2.14	X
Mar 13, 2012	1.96	X
Mar 13, 2012	2.08	X
Mar 15, 2012	2.26	X
Mar 20, 2012	1.99	X
Mar 23, 2012	2.21	X
Mar 27, 2012	1.80	X
Mar 27, 2012	2.55	X
Mar 30, 2012	2.07	X
Apr 03, 2012	2.19	X
Apr 10, 2012	2.03	X
Apr 13, 2012	1.69	X
Apr 16, 2012	1.93	X
Apr 20, 2012	2.21	X
Apr 23, 2012	1.89	X
Apr 27, 2012	2.25	X
Apr 30, 2012	2.24	X
Apr 30, 2012	2.58	X
May 04, 2012	1.90	X
May 07, 2012	1.75	X
May 14, 2012	2.33	X
May 16, 2012	1.87	X
May 17, 2012	2.20	X
Jun 01, 2012	2.03	X
Jun 01, 2012	2.22	X
Jun 01, 2012	2.27	X
Jun 01, 2012	2.35	X
Jun 01, 2012	2.45	X
Jun 02, 2012	2.32	X
Jun 02, 2012	2.15	X
Jun 02, 2012	2.18	X
Jun 02, 2012	2.05	X
Jun 02, 2012	2.22	X
Jun 02, 2012	2.08	X
Jun 02, 2012	2.72	X
Jun 02, 2012	2.03	X
Jun 02, 2012	2.26	X
Jun 02, 2012	2.25	X
Jun 02, 2012	1.99	X
Jun 02, 2012	2.29	X
Jun 02, 2012	2.55	X
Jun 02, 2012	2.66	X

Jun 02, 2012	2.56	x
Jun 03, 2012	2.06	x
Jun 03, 2012	2.23	x
Jun 03, 2012	2.45	x
Jun 03, 2012	2.28	x
Jun 03, 2012	2.19	x
Jun 03, 2012	2.36	x
Jun 03, 2012	2.33	x
Jun 03, 2012	2.14	x
Jun 03, 2012	2.21	x
Jun 03, 2012	2.23	x
Jun 03, 2012	2.20	x
Jun 03, 2012	2.55	x
Jun 03, 2012	2.19	x
Jun 03, 2012	1.88	x
Jun 03, 2012	2.43	x
Jun 04, 2012	2.42	x
Jun 04, 2012	2.29	x
Jun 04, 2012	2.37	x
Jun 04, 2012	1.84	x
Jun 04, 2012	2.52	x
Jun 13, 2012	2.14	x
Jun 14, 2012	2.01	x
Jun 21, 2012	2.09	x
Jun 22, 2012	1.91	x
Jun 26, 2012	1.90	x
Jun 27, 2012	2.18	x
Jun 28, 2012	2.04	x
Jul 03, 2012	1.96	x
Jul 09, 2012	1.90	x
Jul 12, 2012	2.91	x
Jul 13, 2012	3.33	x
Jul 13, 2012	2.78	x
Jul 16, 2012	2.93	x
Jul 18, 2012	2.76	x
Jul 18, 2012	2.85	x
Jul 19, 2012	2.79	x
Jul 20, 2012	2.65	x
Jul 23, 2012	3.78	x
Jul 26, 2012	3.28	x
Jul 28, 2012	3.41	x
Jul 30, 2012	3.33	x
Jul 30, 2012	3.24	x
Jul 31, 2012	2.42	x
Aug 03, 2012	3.09	x
Aug 06, 2012	2.96	x
Aug 08, 2012	2.82	x
Aug 08, 2012	3.09	x
Aug 24, 2012	1.84	x
Sep 05, 2012	2.04	x
Sep 07, 2012	2.81	x
Sep 10, 2012	2.84	x
Sep 12, 2012	3.31	x
Sep 14, 2012	3.90	x
Sep 14, 2012	3.28	x
Sep 17, 2012	3.26	x
Sep 19, 2012	3.27	x

Sep 26, 2012	2.90	X
Sep 27, 2012	3.03	X
Sep 29, 2012	3.61	X
Oct 10, 2012	2.51	X
Oct 16, 2012	3.08	X
Oct 19, 2012	3.94	X
Oct 24, 2012	2.93	X
Oct 26, 2012	3.87	X
Oct 29, 2012	3.71	X
Oct 30, 2012	4.48	X
Oct 30, 2012	5.86	X
Nov 01, 2012	4.30	X
Nov 04, 2012	3.23	X
Nov 06, 2012	3.47	X
Nov 09, 2012	4.61	X
Nov 10, 2012	4.31	X
Nov 14, 2012	3.99	X
Nov 15, 2012	3.72	X
Nov 20, 2012	3.56	X

3H Background
Total # pts : 1828
Valid # pts : 123
Mean : 2.60
SD : 0.72



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Liquid Scintillation Counting

Calibration Information

ARS INTERNATIONAL

QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS

ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE 9/10/2012 20:16 *date counted*
STANDARD REFERENCE # S-0279

Principal Radionuclide		Half Life, Years		Half Life, Days
H-3	*ENTER -->*		*OR -->*	4.4998E+03
		1.232E+01		4.4998E+03

Radionuclide H-3 Dilution Reference Date 9/7/2012 10:40

Dilution Activity	2.58	pCi per gram ===> dpm/g	5.73
Verif. Date Decay Corrected	2.58	pCi per gram ===> dpm/g	5.72

Minimum of 3 Required

Trial ID	Sample Counts	Count Time (min)	Detector	Efficiency	Bkg. (cpm)	Net Weight	Decay Corrected Activity Result (dpm/g)	Decay Corrected Activity Result (pCi/g)
S-0279-V1	15.91	1	LSC	0.3302	6.49	5.019	5.68	2.56
S-0279-V2	16.21	1	LSC	0.3291	6.49	5.018	5.89	2.65
S-0279-V3	15.76	1	LSC	0.3290	6.49	5.018	5.62	2.53
S-0279-V4	15.62	1	LSC	0.3293	6.49	5.008	5.54	2.49
S-0279-V5	15.76	1	LSC	0.3280	6.49	5.018	5.63	2.54

	Average	5.67	2.55
	Two Sigma Uncertainty	0.26	0.12
10% Max *PASS*	Standard Deviation percent of known concentration	2.30%	2.30%
	Target Activity	5.72	2.58
5% Max *PASS*	% Diff	-0.91%	-0.91%

Verification Expiration Date: ##############

Prepared & Counted By [signature] Date: 9/10/2012 20:16

Verified & Approved By [signature] Date: 9-11-12 0817

QC Approval [signature] Date: 9-11-12 0817

S-0279		
H-3	Verified	*9/10/12*
SL	**Expires**	**9/10/13**
Manufactuer	**NIST SRM 4927F**	
Sol Matrix	H2O	
Ref No	NIST SRM 4927F	
Tech	Unknown	
Parent ID	S-0237	

ARS INTERNATIONAL

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

H-3 Standard Verification

Verifier's Name: Brian Steffens **Date:** 9/7/2012

Pipettor ID: FJ40469

Pipettor ID: Auto-pipettor

Pipettor ID: na

Standard ID: S-0279

Standard ID: N/A

Standards brought up to ~5g with distilled dead water.
Standards made in glass vials.

15mL of Ultima Gold added to standard

	Weight of Standard
S-0279-V1	5.019 **g**
S-0279-V2	5.018 **g**
S-0279-V3	5.018 **g**
S-0279-V4	5.008 **g**
S-0279-V5	5.018 **g**

Balance ID: H1331122173560P

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931
Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\20120910_0931.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\H-3 Normal 3.lsa

Count Conditions-

Nuclide: H-3 Normal
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: UG STD H-3
Count Time (min): 120.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

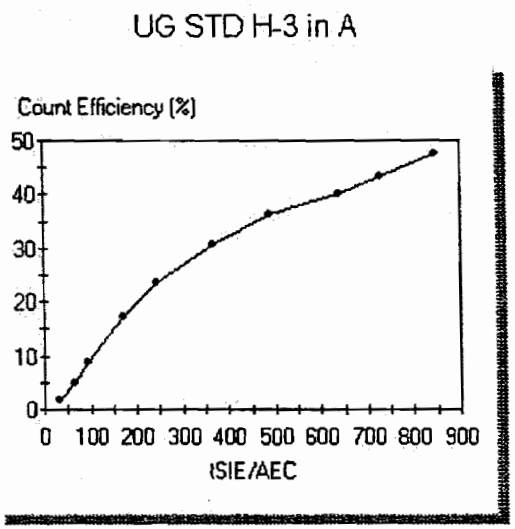
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off
Regions Half Life Units Reference Date Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 06/27/2012
Date Modified:
UG STD H-3 in A

tSIE/AEC	Count Efficiency (%)
846.90	47.58
730.85	43.21
639.47	40.08
487.78	36.36
365.41	30.73
244.81	23.69
169.28	17.31
95.01	8.79
64.60	4.97
34.32	[illegible].64

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
54	1	BACKGROUND	6.49	19.81	409.74	32.77	120.00	9/10/2012	9:36:46 AM	
54	2	S-0279-V1	15.91	48.18	415.20	33.02	120.00	9/10/2012	11:44:40 AM	
54	3	S-0279-V2	16.21	49.25	412.72	32.91	120.00	9/10/2012	1:52:36 PM	
54	4	S-0279-V3	15.76	47.89	412.56	32.90	120.00	9/10/2012	4:00:32 PM	
54	5	S-0279-V4	15.62	47.44	413.22	32.93	120.00	9/10/2012	6:08:27 PM	
54	6	S-0279-V5	15.76	48.04	410.40	32.80	120.00	9/10/2012	8:16:20 PM	

STD ID: S-0279

ARS INTERNATIONAL

Add/Edit *Secondary Stds*

Planning

Planning Comments	Create a H3 LCS standard.
Target dpm/g (on dil. date)	5.5
Target Final volume mL	2000
Appx mass g of Parent Sol'n	3.606433954
Appx vol ml of Parent Sol'n	3.612937241
Expected Addition for Analysis g	5

Standards Preparation / Dilution

Secondary Solution #	S-0279
Dilution Date (New Ref Date)	09/07/2012 10:40
Ampoule, Empty (g)	
Ampoule /Solution Gross (g)	
Net Wt Removed (g)	
Transfer Container, empty (g)	13.144
Container Plus Solution (g)	16.89
Net Wt Transferred (g)	3.746
DPM Xferred on 09/07/2012 10:40	11425.69101
Diluent/matrix	DI H2O
Diluent Density Cont, empty (g)	
Test Mass of 5 ml of Diluent (g)	
Diluent Density Test - (g/mL)	
Dilution Empty Container Mass (g)	473.93
Dilution Full Cont g (if measured)	2469.52
Dilution Final Volume ml (if measured)	2000
Final Dilution Density (g/mL)	0.997795
Final Dilution Measured Mass g	1995.59
Comments	H3 LCS standard. Dilution performed as stated above by B Steffens. -BJS 9/7/12
Final Dilution dpm/g	5.725470166
Final Dil New Ref Date/Time	09/07/2012 10:40

Parent Standard Data

Parent Solution Reference #	NIST SRM 4927F			
Parent Solution #	S-0237			
Parent Principal Radionuclide	H-3	Half Life (Days)	4499.8000000	
Parent Reference Date	03/22/2010 10:10			
Parent Certified Act	3503.682716	Certi Act/Vol Units	dpm	g
Parent Cert Act Uncert 1 Sigma	0.0036			
Parent Sp. Gravity G/Ml	0.9982			
Parent Supplier	NIST SRM 4927F			
Parent Date Recvd	01/02/00			
Parent Received By	Unknown			
Parent Cert Exp Date				
Parent Matrix	H2O			
Certified dpm/g At Ref Date	3503.682716			
Certified dpm/g on 09/07/2012 10:40	3050.10438			
Parent Comments	Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Steffens. -BJS 3/22/10			
Parent Tech	Unknown			
Is_Primary	FALSE			
Is_LCS	TRUE			
Is_Tracer	FALSE			
Is_Calib	FALSE			

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Folder Duplicate

ARS INTERNATIONAL

Report Compilation Checklist

ARS SDG: 12-02340 **Client Name:** LANL **Sample Matrix:** AQ

LEVEL 1 COMPONENTS	1st Reviewer	
1) Cover Page Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
2) Technical Review Checklist(s) Complete and Accurate?	~~Yes~~ No N/A	
3) Case Narrative Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
4) Form 1s Present for all Samples and Tests?	~~Yes~~ No N/A	
5) Client Specific Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 2 COMPONENTS	1st Reviewer	
6) Batch Quality Control Report is Present and Accurate?	~~Yes~~ No N/A	
7) DQO Report is Present and Accurate?	~~Yes~~ No N/A	
8) Client Specific Batch QC Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 3 COMPONENTS	1st Reviewer	
9) Efficiencies are Present?	~~Yes~~ No N/A	
10) Calibrations are Present?	~~Yes~~ No N/A	
11) Backgrounds are Present?	~~Yes~~ No N/A	
12) Spectrum Analysis is Present?	~~Yes~~ No N/A	
13) Spectral Plots are Present?	~~Yes~~ No N/A	
14) Plateaus are Present?	~~Yes~~ No N/A	
15) Control Charts are Present?	~~Yes~~ No N/A	
16) Other:	Yes No ~~N/A~~	

LEVEL 4 COMPONENTS	1st Reviewer	
17) Preparation Raw Data Present, Signed and Complete?	~~Yes~~ No N/A	
18) Instrument Raw Data Present and Complete?	~~Yes~~ No N/A	
19) Calibration Certificates Present?	~~Yes~~ No N/A	
20) Copies of Log Book Pages Present?	~~Yes~~ No N/A	
21) Sample Receiving Documentation Present?	~~Yes~~ No N/A	
22) LIMS Reports Present?	~~Yes~~ No N/A	
23) Applicable Correspondence Present?	~~Yes~~ No N/A	
24) Other:	Yes No ~~N/A~~	

SOL 12-19-12
Report Generator Signature **Date**

James D. [illegible] 12-19-12
Management Review Signature **Date**

LSC
Technical Review Checklist

ARS SDG ARS1-12-02340

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-B12-02779 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-021 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) Sample Prep Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Chemist Signature 11-20-12 Date N/A Verifier Review Signature Date

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature 12-19-12 Date

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		NA
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) NCR # (If initiated): _____

Analyst Signature 11-21-12 Date NA Technicial Reviewer Signature Date

Batch A: ARS1-B12-02779

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes No ~~N/A~~	Yes No (N/A)
2) RDL Criteria are Met?	Yes No ~~N/A~~	Yes No (N/A)
3) Method Blank Criterion Met?	Yes No ~~N/A~~	Yes No (N/A)
4) LCS/LCD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
[signature]	12-19-12	[signature]	12-19-12

GENERAL COMMENTS

LSC
Technical Review Checklist

ARS SDG ARS1-12-02340

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-B12-02782 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-022 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) Sample Prep Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Chemist Signature 12-12-12 Date Verifier Review Signature 12-12-12 Date

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature 12-19-12 Date

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) NCR # (If initiated): _____

Analyst Signature 12-14-12 Date Technicial Reviewer Signature 12-14-12 Date

Batch A: ARS1-B12-02782

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes ~~No~~ N/A	Yes (No) N/A
2) RDL Criteria are Met?	~~Yes~~ No N/A	(Yes) No N/A
3) Method Blank Criterion Met?	~~Yes~~ No N/A	(Yes) No N/A
4) LCS/LCD Criteria Met?	~~Yes~~ No N/A	(Yes) No N/A
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	~~Yes~~ No N/A	(Yes) No N/A
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
[signature]	12-19-12	[signature]	12-19-12

GENERAL COMMENTS

DQO Report for SDG

ARS1-12-02340

Analysis Code	Group	Isotope	Activity Units	Aliquot Units	ProcedureNo	RDL	LCS_LL	LCS_UL	MS_LL	MS_UL	RadY_LL	RadY_UL	GravY_LL	GravY_LL	RER	RPD	DiltionReq	RoughPrepReq	BlankCorrectionMDA	BlankCorrectionAll	CountTimeReq	AliquotRequired
LSC-A-021	STD	H-3	pCi	L	ARS-054	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		
LSC-A-022	STD	Enriched H-3	pCi	L	ARS-040	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		

ARS International
Baton Rouge Laboratory

SDG Report - Samples and Containers

SDG Specific Data

SDG	ARS1-12-02340	TAT Days	28	Project Type	Environmental
Sample Count	2 Rpt Level 4	Date Received	11/20/2012	COC Number	2013-361
Client	Los Alamos National Laboratory	Client Deadline	12/20/2012	PO Number	63641-001-10
Client Code	114	Internal Deadline	12/19/2012	Job Number	
Profile Number	PN-00094	Lab Deadline	12/16/2012	Job Location	
Comments					

Samples and Containers (➔) Checked In Thus Far

FR	ClientID	Matrix	SampleStartDate	SampleEndDate	Disp	Hold	Arch	Storage	X	Units	Y	Units	Z	Units	Comments
001	CAMO-13-24278	AQ	11/16/12 10:11 AM	11/16/12 10:11 AM	H	90	5	A4							
➔	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126983	1	1000.00				80	24		N	N/A				
002	CAMO-13-24271	AQ	11/16/12 10:11 AM	11/16/12 10:11 AM	H	90	5	A4							
➔	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126984	1	1000.00				80	24		N	N/A				

SDG Report - Analysis Assignments

Temp SDG	ARS1-12-02340	Sample Count	2
Client	Los Alamos National Laboratory	Analysis Count	2-4

Samples Count Totals per Analysis

Analysis Code	Analysis Description	Samples Count
LSC-A-021	Low Level Tritium Screen in (Aqueous)	2
LSC-A-022	Low Level Tritium by Enrichment Process in (Aqueous [AQ])	2

Analyses Assigned Per Fraction

Fraction	Analysis Code	X = Assigned
001	LSC-A-021	X
001	LSC-A-022	X
002	LSC-A-021	X
002	LSC-A-022	X

ARS FILE TRACKING SHEET

SDG: ARS1-12-02340

Task	Date / Time	Initials
Date & Time Samples Received	11/20/12 10:50	cad
ICOC Initiated / Storage Location: A4	11/20/12 11:31	cad
Technical Checks Performed	See Batch	
Report Written / EDD Generated: ____/____ | ____ (Date/Time, Initials)	12-19-12 1409	SDR
Quality Assurance Checks Performed on Report	12-19-12 1505	JDL
Management Check Performed on Report		
Preliminary Report Sent		
Report E-mailed		
Report Faxed		
Report Reviewed		
Report Mailed		
Invoice Completed Invoice #:_____		
Report Imaged		

SPECIAL REQUIREMENTS

Requirement	Yes	No
3 Hour Rush		✓
24 Hour Rush		✓
48 Hour Rush		✓
3 Day TAT		✓
5 Day TAT		✓

NOTES:

ARS-062
08/08/2012

COMPANY NAME: LANL **SDG:** ARS1-12-02340

SHIPPING CONTAINER

Good Condition	☑ Yes	☐ No
Radioactive	☐ Yes	☑ No
UN2910	☐ Yes	☑ No
Sec. Seals	☑ Yes	☑ No
Seals Intact	☑ Yes ☐ No	☐ N/A
Air Bill	☐ Yes	☑ No

COC PRESENT WITH SAMPLES

COC	☑ Yes	☐ No

SAMPLE CONTAINER(S)

Good Condition	☑ Yes	☐ No
Sec. Seals	☑ Yes	☐ No
Seal Intact	☑ Yes ☐ No	☐ N/A
Marked Radioactive	☐ Yes	☑ No

Samples Rcv 11 6

Matrix [AF , AQ , BI , FE , LT , SI 5 , SO , UR , VG]

External and Internal Surveys

Exposure Rate Meter: M3 242861 Serial No.: PR 264266 Calibration Due Date: 4-18-13

Count Rate Meter: M2 ~~1345~~ 154859 11/20/12 Serial No.: PR 184559 Calibration Due Date: 4-18-13

Background Exposure Rate (µR/hr) 24 Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd) 30 µR/hr

Background Count Rate (cpm) 80 Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd) 80 cpm

Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd) cpm

Sample Label/Comments/Notes	pH Orig	pH Final (pH ≤ 2 is Acceptable)	Mark if Preserve	Acid Lot #	Weight(g) / Volume(mL)	Acceptance Limits <500 µR/hr: µR/hr	Acceptance Limits <100 cpm/cm²: cpm
MD90-13-24153			☐			24	80
-24154			☐			24	80
-24155			☐			24	80
-24156			☐			24	80
-24157			☐			24	80
			☐				
CAMO-13-24251			☐		1000 mL	24	80
-24252			☐		↓	24	80
			☐				
* CAMO-13-24278			☐		1000 mL	24	80
-24271			☐		↓	24	80
			☐				
CASA-13-24212			☐		1000 mL	26	90
-24206			☐		↓	26	90
			☐				
			☐				
			☐				
			☐				
			☐				

11/20/12

Surveyors' Name: Date/Time Surveyed: 11/20/12 1150

* These samples order in this SDG.

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-353

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CAMO-13-24278	Nov 16 2012	10:11	W	2	3		1			1	1	
CAMO-13-24282	Nov 16 2012	10:11	W			1		1	1			
CAMO-13-24271	Nov 16 2012	10:11	W	2	3		1			1	1	
CAMO-13-24272	Nov 16 2012	10:11	W			1		1	1			
CAMO-13-24273	Nov 16 2012	10:11	W	2								

Special Instructions:

Relinquished by: Melissa Martyn		Date/Time: 11/19/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4031 **EVENT NAME:** Mortandad/Sandia (MDA C and GS Monitoring) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24278 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/16/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1011	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-46	↓	FIELD PREP:	UF	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	N/A
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	2	ICE 11/15/12	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS:
Sampled within 40' of diesel generator

LOCATION COMMENTS:
N/A

FIELD PARAMETERS:
Dissolved Oxygen 0.50 mg/L Oxidation-Reduction Potential 176.3 MV pH 8.01 SU
Specific Conductance 121 uS/cm Temperature 18.59 deg C Turbidity 0.50 NTU

COLLECTED BY (PRINT) W. Slaw

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
Arlen Stalter	11/16/12 1120	S. Shepherd	11/16/12 1120
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4031 **EVENT NAME:** Mortandad/Sandia (MDA C and GS Monitoring) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24271 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/16/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1011	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-46	↓	FIELD PREP:	UF	ok
LOCATION TYPE:		↓	FIELD QC TYPE:	FD	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
↓	WSP-8270C-SVOA	1 LITER AMBER GLASS	1	ICE 11/16/12 US	↓	↓
↓	WSP-GrossA/B	1 LITER POLY	1	NONE	↓	↓
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓
↓	WSP-RAD	1 GAL POLY	1	HNO3	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: refer to CAMO-13-24278

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Andrew Stacke (Signature) AStacke	11/16/12 1120	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	11/16/12 1120
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4031

EVENT NAME: Mortandad/Sandia (MDA C and GS Monitoring) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24282

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/16/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1011	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-46	↓	FIELD PREP:	F	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-GENINORG	1 LITER POLY	1	ICE	Y	N/A
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS:

Refer to CAMO-13-24278

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Andrew Stocker	11/16/12 1120	(Printed Name) S. Sherwood	11/16/12 1120
(Signature)		(Signature) Sheri Sherwood	
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4031

EVENT NAME: Mortandad/Sandia (MDA C and GS Monitoring) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24272

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/16/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1011	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-46	↓	FIELD PREP:	F	ok
LOCATION TYPE:		↓	FIELD QC TYPE:	FD	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NM	WSP-GENINORG	1 LITER POLY	1	ICE	Y	NM
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS:

LOCATION COMMENTS: refer to CAMO-13-24278

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Ashley Shaw (Signature)	11/16/12 1120	(Printed Name) S. Sherwood (Signature)	11/16/12 1120
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4031 **EVENT NAME:** Mortandad/Sandia (MDA C and GS Monitoring) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24273 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/16/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1011	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	DL
LOCATION ID:	R-46		FIELD PREP:	UF	ok
LOCATION TYPE:			FIELD QC TYPE:	FTB	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	N/A

SAMPLE COMMENTS: refer to CAMO-13-24278

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) N. Star

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
Andrew Stocker	11/16/12 1120	Sherri Henwood	11/16/12 1120
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-353

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
315545	EPA:120.1	1	1			
315545	EPA:150.1	1	1			
315545	EPA:160.1	1	1			
315545	EPA:245.2	1	1			
315545	EPA:300.0	1	1			
315545	EPA:310.1	1	1			
315545	EPA:350.1	1	1			
315545	EPA:351.2	1	1			
315545	EPA:353.2	1	1			
315545	EPA:365.4	1	1			
315545	EPA:900	1	1			
315545	EPA:901.1	1	1			
315545	EPA:905.0	1	1			
315545	HASL-300:AM-241	1	1			
315545	HASL-300:ISOPU	1	1			
315545	HASL-300:ISOU	1	1			
315545	SM:A2340B	1	1			
315545	SW-846:6010B	1	1			
315545	SW-846:6020	1	1			
315545	SW-846:8260B	1	1	1		
315545	SW-846:8270C	1	1			
315545	SW-846:9060	1	1			

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
315545	EPA:120.1	1267060	1267060	1	1						
315545	EPA:150.1	1265360	1265360	1	1						
315545	EPA:160.1	1264928	1264928	1	1				1		
315545	EPA:245.2	1268112	1268111	1	1				1	1	
315545	EPA:300.0	1264118	1264118	1	1				1		
315545	EPA:310.1	1266562	1266562	1	1				2	1	
315545	EPA:350.1	1265956	1265955	1	1				1	1	1
315545	EPA:351.2	1265958	1265957	1	1				1	1	
315545	EPA:353.2	1265759	1265759	1	1				1		
315545	EPA:365.4	1263579	1263578	1	1				1	1	1
315545	EPA:900	1268150	1268150	1	1				1	1	1
315545	EPA:901.1	1265828	1265828	1	1				1		
315545	EPA:905.0	1266694	1266694	1	1				1	1	
315545	HASL-300:AM-241	1264269	1264269	1	1				1		
315545	HASL-300:ISOPU	1264270	1264270	1	1				1		
315545	HASL-300:ISOU	1264271	1264271	1	1				1		
315545	SM:A2340B	1270221	1270221	1	1						
315545	SW-846:6010B	1265069	1265068	1	1				1	1	
315545	SW-846:6020	1265063	1265062	1	1				1	1	
315545	SW-846:8260B	1266476	1266476	1	1	1			2		
315545	SW-846:8270C	1265254	1265252	1	1				1	1	1
315545	SW-846:9060	1265851	1265851	1	1				1		

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		2				1			
		1				1			
		1				1			
		1				2			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		4							
		1							
		1				1			

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24272	315545004	FD	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24282	315545002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CASA-13-24219	1202788865	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202788867	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24272	315545004	FD	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24282	315545002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24219	1202784743	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202784744	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24268	1202784567	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24272	315545004	FD	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24282	315545002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202783778	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202783776	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24272	315545004	FD	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24282	1202791369	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24282	1202791370	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24282	315545002	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202791368	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202791367	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24272	315545004	FD	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24282	315545002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CASA-13-24218	1202781991	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202781993	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202781990	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24268	1202787691	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24268	1202787695	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24272	315545004	FD	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24282	315545002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202787698	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202787699	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202787688	MB	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202787689	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24272	315545004	FD	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24282	315545002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	1202786154	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	1202786155	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CASA-13-24218	1202786156	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202786157	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202786153	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24271	315545003	FD	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24278	315545001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24210	1202786159	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CASA-13-24210	1202786161	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202786165	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202786158	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24268	1202785634	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24272	315545004	FD	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24282	1202785635	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24282	315545002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202785638	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202785633	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24272	315545004	FD	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24282	315545002	REG	1	0	0	0

EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	1202786124	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	1202786125	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CASA-13-24218	1202786126	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202780727	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202780723	MB	1	0	0	0
EPA:900	RAD	CAMO-13-24249	1202791496	DUP	2	0	0	0
EPA:900	RAD	CAMO-13-24249	1202791497	MS	0	0	2	0
EPA:900	RAD	CAMO-13-24249	1202791498	MSD	0	0	2	0
EPA:900	RAD	CAMO-13-24271	315545003	FD	2	0	0	0
EPA:900	RAD	CAMO-13-24278	315545001	REG	2	0	0	0
EPA:900	RAD	LCS	1202791499	LCS	0	0	2	0
EPA:900	RAD	MB	1202791495	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24271	315545003	FD	5	0	0	0
EPA:901.1	RAD	CAMO-13-24278	1202785778	DUP	6	0	0	0
EPA:901.1	RAD	CAMO-13-24278	315545001	REG	5	0	0	0
EPA:901.1	RAD	LCS	1202785779	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202785777	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24271	315545003	FD	1	0	0	0
EPA:905.0	RAD	CAMO-13-24278	1202788013	DUP	1	0	0	0
EPA:905.0	RAD	CAMO-13-24278	1202788014	MS	0	0	1	0
EPA:905.0	RAD	CAMO-13-24278	315545001	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202788015	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202788012	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24271	1202782356	DUP	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24271	315545003	FD	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24278	315545001	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202782357	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202782355	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24271	1202782359	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24271	315545003	FD	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24278	315545001	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202782360	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202782358	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24271	1202782362	DUP	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24271	315545003	FD	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24278	315545001	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202782363	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202782361	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24272	315545004	FD	1	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24282	315545002	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24272	315545004	FD	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24282	1202784099	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24282	1202784100	MS	0	0	17	0
SW-846:6010B	INORGANIC	CAMO-13-24282	315545002	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202784098	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202784097	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24272	315545004	FD	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24282	1202784090	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24282	1202784091	MS	0	0	11	0
SW-846:6020	INORGANIC	CAMO-13-24282	315545002	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202784089	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202784088	MB	11	0	0	0
SW-846:8260B	VOC	CAMO-13-24271	315545003	FD	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24273	315545005	FTB	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24278	315545001	REG	80	3	0	0
SW-846:8260B	VOC	LCS	1202787467	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202787468	LCS	0	3	10	0

SW-846:8260B	VOC	LCS	1202788455	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202788456	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1202787464	MB	80	3	0	0
SW-846:8260B	VOC	MB	1202788454	MB	80	3	0	0
SW-846:8270C	SVOC	CAMO-13-24271	315545003	FD	80	6	0	0
SW-846:8270C	SVOC	CAMO-13-24278	1202784550	MS	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24278	1202784551	MSD	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24278	315545001	REG	80	6	0	0
SW-846:8270C	SVOC	LCS	1202784552	LCS	0	6	76	0
SW-846:8270C	SVOC	MB	1202784549	MB	80	6	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24271	315545003	FD	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24278	315545001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CASA-13-24211	1202785853	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202785855	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202785852	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202784088	METHOD BLANK	SW-846:6020	W	Molybdenum	-0.231	J	ug/L	0.5
MB	1202784097	METHOD BLANK	SW-846:6010B	W	Sodium	-163	J	ug/L	300

Any samples affected by the presence of contaminants in blanks?

Field Sample ID	Blank Field Sample ID	Blank Lab Sample ID	Blank Type	Analytical Method	Parameter Name	Units	Blank Result	Sample Result	Lab Qualifier	Detect Limit	Detected
CAMO-13-24282	MB	1202784097	METHOD BLANK	SW-846:6010B	Sodium	ug/L	-163	10600		300	Y
CAMO-13-24272	MB	1202784097	METHOD BLANK	SW-846:6010B	Sodium	ug/L	-163	10300		300	Y
CAMO-13-24282	MB	1202784088	METHOD BLANK	SW-846:6020	Molybdenum	ug/L	-0.231	0.849		0.5	Y
CAMO-13-24272	MB	1202784088	METHOD BLANK	SW-846:6020	Molybdenum	ug/L	-0.231	0.96		0.5	Y

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CASA-13-24218	1202786155	1202786156	EPA:350.1	Ammonia as Nitrogen	1265955	11/27/2012	W	93.1	110	110	90
CASA-13-24210	1202786161		EPA:351.2	Total Kjeldahl Nitrogen	1265957	12/7/2012	W	88.1		110	90
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Benzidine	1265252	11/23/2012	W	18	41	125	10
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Benzyl Alcohol	1265252	11/23/2012	W	93	66	98	34
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Bis(2-chloroethyl)ether	1265252	11/23/2012	W	68	49	114	27

Correction Factor (ND)	Correction Factor (J)	Use Factors
5		Y
5		Y
5		Y
5		Y

Rejection Limit	RPD	RPD Limit
10	15.9	15
10		
10	80	30
10	34	30
10	33	30

CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Bis(2-ethylhexyl)phthalate	1265252	11/23/2012	W	89	64	121	30
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Butylbenzylphthalate	1265252	11/23/2012	W	89	65	120	32
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Chloro-3-methylphenol[4-]	1265252	11/23/2012	W	96	70	116	36
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Chlorophenol[2-]	1265252	11/23/2012	W	82	58	103	32
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Dibenz(a,h)anthracene	1265252	11/23/2012	W	93	135	124	26
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Dichlorobenzene[1,2-]	1265252	11/23/2012	W	60	42	86	24
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Dichlorobenzene[1,3-]	1265252	11/23/2012	W	60	41	84	23
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Dichlorobenzene[1,4-]	1265252	11/23/2012	W	61	40	88	23
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Diethylphthalate	1265252	11/23/2012	W	96	69	116	43
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Dimethyl Phthalate	1265252	11/23/2012	W	95	69	115	43
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Dinitro-2-methylphenol[4,6-]	1265252	11/23/2012	W	105	76	113	31
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Dinitrophenol[2,4-]	1265252	11/23/2012	W	107	74	108	25
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Dinitrotoluene[2,4-]	1265252	11/23/2012	W	104	75	125	37
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Fluoranthene	1265252	11/23/2012	W	97	70	116	35
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Hexachlorobutadiene	1265252	11/23/2012	W	66	48	96	19
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Hexachlorocyclopentadiene	1265252	11/23/2012	W	39	27	75	25
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Hexachloroethane	1265252	11/23/2012	W	54	37	82	25
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Methylphenol[2-]	1265252	11/23/2012	W	81	59	96	29
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Methylphenol[4-]	1265252	11/23/2012	W	92	65	111	26
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Nitroaniline[2-]	1265252	11/23/2012	W	78	57	120	31
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Nitroaniline[3-]	1265252	11/23/2012	W	89	64	123	32
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Nitroaniline[4-]	1265252	11/23/2012	W	94	69	131	28
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Nitrosodimethylamine[N-]	1265252	11/23/2012	W	74	52	85	27
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Nitrosopyrrolidine[N-]	1265252	11/23/2012	W	90	66	113	40
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Pentachlorophenol	1265252	11/23/2012	W	111	83	110	25
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Phenol	1265252	11/23/2012	W	54	39	100	15
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Tetrachlorophenol[2,3,4,6-]	1265252	11/23/2012	W	116	82	123	33
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Trichlorobenzene[1,2,4-]	1265252	11/23/2012	W	66	47	90	23
CAMO-13-24278	1202784550	1202784551	SW-846:8270C	Trichlorophenol[2,4,6-]	1265252	11/23/2012	W	100	71	111	36

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

LCS Sample ID	LCSD Sample ID	Analytical Method	Parameter Name	Lab Lot ID	Analysis Date	Sample Matrix	LCS Recovery	LCSD Recovery	Upper Limit	Lower Limit	Lower Reject Limit
1202784552		SW-846:8270C	Hexachlorocyclopentadiene	1265252	11/23/2012	W	31		79	38	10

9. Any Field Duplicate RPDs outside the desired limits?

No.

10	31	30
10	32	30
10	31	30
10	35	30
10	36	30
10	36	30
10	38	30
10	41	30
10	33	30
10	32	30
10	32	30
10	36	30
10	32	30
10	33	30
10	33	30
10	37	30
10	37	30
10	32	30
10	34	30
10	31	30
10	32	30
10	31	30
10	35	30
10	32	30
10	29	30
10	32	30
10	34	30
10	34	30
10	33	30

Upper Reject		RPD
Limit	RPD	Limit

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	UJ	SV12a	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-46	2013-353	CAMO-13-24271	FD	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	UJ	SV12a	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-46	2013-353	CAMO-13-24278	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N

Reason Code	Description
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.
SV12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.
U_LAB	The analytical laboratory qualified the analyte as not detected.

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
0.01	pCi/L	0.01	pCi/L	0.0285	0.00793	W	11/16/2012		1264269	VAL	Y
1.53	pCi/L	1.53	pCi/L	4.83	1.19	W	11/16/2012		1265828	VAL	Y
-0.585	pCi/L	-0.585	pCi/L	3.18	0.871	W	11/16/2012		1265828	VAL	Y
0.773	pCi/L	0.773	pCi/L	2.32	0.651	W	11/16/2012		1268150	VAL	Y
2.06	pCi/L	2.06	pCi/L	2.43	0.802	W	11/16/2012		1268150	VAL	Y
3.09	ug/L	3.09	ug/L			W	11/16/2012		1265254	VAL	Y
0.0659	pCi/L	0.0659	pCi/L	7.74	2.13	W	11/16/2012		1265828	VAL	Y
-0.0027	pCi/L	-0.0027	pCi/L	0.0259	0.00468	W	11/16/2012		1264270	VAL	Y
0	pCi/L	0	pCi/L	0.0431	0.0054	W	11/16/2012		1264270	VAL	Y
-11.8	pCi/L	-11.8	pCi/L	65.1	16.9	W	11/16/2012		1265828	VAL	Y
1.14	pCi/L	1.14	pCi/L	4.91	1.19	W	11/16/2012		1265828	VAL	Y
-0.221	pCi/L	-0.221	pCi/L	0.488	0.131	W	11/16/2012		1266694	VAL	Y
0.00648	pCi/L	0.00648	pCi/L	0.038	0.00916	W	11/16/2012		1264271	VAL	Y
0.00233	pCi/L	0.00233	pCi/L	0.0265	0.00403	W	11/16/2012		1264269	VAL	Y
-0.0834	pCi/L	-0.0834	pCi/L	4.88	1.39	W	11/16/2012		1265828	VAL	Y
1.25	pCi/L	1.25	pCi/L	4.83	1.15	W	11/16/2012		1265828	VAL	Y
0.353	pCi/L	0.353	pCi/L	2.27	0.554	W	11/16/2012		1268150	VAL	Y
3	ug/L	3	ug/L			W	11/16/2012		1265254	VAL	Y
-2.77	pCi/L	-2.77	pCi/L	8.63	2.53	W	11/16/2012		1265828	VAL	Y
0	pCi/L	0	pCi/L	0.0294	0.00611	W	11/16/2012		1264270	VAL	Y
0.00917	pCi/L	0.00917	pCi/L	0.0488	0.00683	W	11/16/2012		1264270	VAL	Y
-28.6	pCi/L	-28.6	pCi/L	60.8	15.9	W	11/16/2012		1265828	VAL	Y
-0.152	pCi/L	-0.152	pCi/L	3.69	0.956	W	11/16/2012		1265828	VAL	Y
-0.15	pCi/L	-0.15	pCi/L	0.487	0.132	W	11/16/2012		1266694	VAL	Y
0.00334	pCi/L	0.00334	pCi/L	0.0391	0.00747	W	11/16/2012		1264271	VAL	Y

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24271	R-46	FD	EPA:351.2	0	1
CAMO-13-24271	R-46	FD	EPA:900	0	2
CAMO-13-24271	R-46	FD	EPA:901.1	0	5
CAMO-13-24271	R-46	FD	EPA:905.0	0	1
CAMO-13-24271	R-46	FD	HASL-300:AM-241	0	1
CAMO-13-24271	R-46	FD	HASL-300:ISOPU	0	2
CAMO-13-24271	R-46	FD	HASL-300:ISOU	0	3
CAMO-13-24271	R-46	FD	SW-846:8260B	0	80
CAMO-13-24271	R-46	FD	SW-846:8270C	0	80
CAMO-13-24271	R-46	FD	SW-846:9060	0	1
CAMO-13-24272	R-46	FD	EPA:120.1	0	1
CAMO-13-24272	R-46	FD	EPA:150.1	0	1
CAMO-13-24272	R-46	FD	EPA:160.1	0	1
CAMO-13-24272	R-46	FD	EPA:245.2	0	1
CAMO-13-24272	R-46	FD	EPA:300.0	0	4
CAMO-13-24272	R-46	FD	EPA:310.1	0	2
CAMO-13-24272	R-46	FD	EPA:350.1	0	1
CAMO-13-24272	R-46	FD	EPA:353.2	0	1
CAMO-13-24272	R-46	FD	EPA:365.4	0	1
CAMO-13-24272	R-46	FD	SM:A2340B	0	1
CAMO-13-24272	R-46	FD	SW-846:6010B	0	17
CAMO-13-24272	R-46	FD	SW-846:6020	0	11
CAMO-13-24273	R-46	FTB	SW-846:8260B	0	80
CAMO-13-24278	R-46	REG	EPA:351.2	0	1
CAMO-13-24278	R-46	REG	EPA:900	0	2
CAMO-13-24278	R-46	REG	EPA:901.1	0	5
CAMO-13-24278	R-46	REG	EPA:905.0	0	1
CAMO-13-24278	R-46	REG	HASL-300:AM-241	0	1
CAMO-13-24278	R-46	REG	HASL-300:ISOPU	0	2
CAMO-13-24278	R-46	REG	HASL-300:ISOU	0	3
CAMO-13-24278	R-46	REG	SW-846:8260B	0	80
CAMO-13-24278	R-46	REG	SW-846:8270C	0	80
CAMO-13-24278	R-46	REG	SW-846:9060	0	1
CAMO-13-24282	R-46	REG	EPA:120.1	0	1
CAMO-13-24282	R-46	REG	EPA:150.1	0	1
CAMO-13-24282	R-46	REG	EPA:160.1	0	1
CAMO-13-24282	R-46	REG	EPA:245.2	0	1
CAMO-13-24282	R-46	REG	EPA:300.0	0	4
CAMO-13-24282	R-46	REG	EPA:310.1	0	2
CAMO-13-24282	R-46	REG	EPA:350.1	0	1
CAMO-13-24282	R-46	REG	EPA:353.2	0	1
CAMO-13-24282	R-46	REG	EPA:365.4	0	1
CAMO-13-24282	R-46	REG	SM:A2340B	0	1
CAMO-13-24282	R-46	REG	SW-846:6010B	0	17
CAMO-13-24282	R-46	REG	SW-846:6020	0	11

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

December 14, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 315545
SDG: 2013-353

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 20, 2012, and analyzed for GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

for

Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-353
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 315545
SDG: 2013-353

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....10

Volatile Analysis.....12

Case Narrative.....13

Sample Data Summary.....19

Quality Control Summary.....29

Quality Control Data.....51

Miscellaneous.....76

Semi-Volatile Analysis.....78

Case Narrative.....79

Sample Data Summary.....85

Quality Control Summary.....92

Quality Control Data.....107

Miscellaneous.....120

Metals Analysis.....122

Case Narrative.....123

Sample Data Summary.....129

Quality Control Summary.....135

General Chem Analysis.....149

Case Narrative.....150

Sample Data Summary.....178

Quality Control Summary.....186

Miscellaneous.....191

Radiological Analysis.....197

Sample Data Summary.....209

Quality Control Data.....214

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 315545
SDG # : 2013-353

December 14, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 20, 2012 for analysis. Please see attached email for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. The containers for Gross A/B were preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). The containers for radiochemistry were received at a temperature of 19C. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
315545001	CAMO-13-24278
315545002	CAMO-13-24282
315545003	CAMO-13-24271
315545004	CAMO-13-24272
315545005	CAMO-13-24273

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

for

Valerie Davis
Project Manager

List of current GEL Certifications as of 14 December 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

315545

COC/Lab Request #: 2013-353

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Special Instructions:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAMO-13-24278	Nov 16 2012	10:11	W	2	3		1			1	1
CAMO-13-24282	Nov 16 2012	10:11	W			1		1	1		
CAMO-13-24271	Nov 16 2012	10:11	W	2	3		1			1	1
CAMO-13-24272	Nov 16 2012	10:11	W			1		1	1		
CAMO-13-24273	Nov 16 2012	10:11	W	2							

Special Instructions:

Relinquished by: Melissa Martyn		Date/Time: 11/19/12 3:00	Received by: P. Dent	11-20-12 09:10
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/AR/COC/Work Order: 2013-353**
Received By: Patricia Dent	**Date Received:November 20, 2012**

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0CPM**
Classified Radioactive II or III by RSO?		X	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		X	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **2,3,19C**
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):**61524646**
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			X	Sample ID's, containers affected and observed pH: **CAMO-13-24278,CAMO-13-24271 for Gross A/B** If Preservation added, Lot# **L03022**
6	VOA vials free of headspace (defined as < 6mm bubble)?	X			Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?			X	Sample ID's affected: **CAMO-13-24273 the lab rec'd 1 8260b container, coc indicates 2. CAMO-13-24271 the lab rec'd 1SVOA container, CAMO-13-24278 the lab rec'd 2 SVOA containers coc indicates 3 each.**
12	Are sample containers identifiable as GEL provided?			X	**CLIENTS**
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.	X			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9832 5653 2C 5462 9832 5664 3C 5462 9832 5675 19C**

Comments (Use Continuation Form if needed):

PM (PMA) review Initials P.D. Date 11-21-12 Page 1 of 1

Subject: Sample Issues from 11/20/12
From: Pat Dent <Pat.Dent@gel.com>
Date: 11/20/2012 5:29 PM
To: "Keith R. Greene" <kgreene@lanl.gov>
CC: "team.shaffer" <team.shaffer@gel.com>, LANL@amrad.com

Good Evening all listed below are issues that occurred today

Containers received for Gross A/B was preserved prior to analysis

RN#2013-353
Sample ID-CAMO-13-24279 the lab rec'd 1 voa container instead of 2 as indicated on coc.
CAMO-13-24278 the lab received 2 SVOA, containers, CAMO-13-24271 the lab received 1 SVOA container coc indicates 3 each.

RN#2013-354
Sample ID WT_IPL-13-24803 the lab rec'd 2 containers for Ra226+Ra228 coc indicates 4.

Thanks!! Pat Dent

--
Patricia Dent
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Rd.
Charleston, S.C. 29407
Main: 843-556-8171 Ext 4264
Fax: 843-766-1178
Email: pad@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 19NOV12
ACTWGT: 28.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWL0

2c

FedEx Express

1 of 3

TRK# 0201 5462 9832 5653

MASTER

TUE - 20 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 19NOV12
ACTWGT: 55.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWL0

3c

FedEx Express

2 of 3

MPS# 0263 5462 9832 5664

Mstr# 5462 9832 5653 0201

TUE - 20 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 19NOV12
ACTWGT: 30.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MR1A015AGWL0

19c

FedEx Express

TUE - 20 NOV A1
PRIORITY OVERNIGHT

3 of 3
MPS# 5462 9832 5675
Mstr# 5462 9832 5653

0263

0201

29407
SC-US CHS

XX CHSA

Part # 156148-434 RIT2 08/10

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Volatile Analysis

Case Narrative

ChemStation Case Narrative
ARS International (ARSL)
SDG 2013-353

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 8260B DOE-AL
Analytical Batch Number:	1266476

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

Sample ID	Client ID
315545001	CAMO-13-24278
315545003	CAMO-13-24271
315545005	CAMO-13-24273
1202787464	Method Blank (MB)
1202787465	315545003(CAMO-13-24271) Post Spike (PS)
1202787466	315545003(CAMO-13-24271) Post Spike Duplicate (PSD)
1202787467	Laboratory Control Sample (LCS)
1202787468	Laboratory Control Sample (LCS)
1202788454	Method Blank (MB)
1202788455	Laboratory Control Sample (LCS)
1202788456	Laboratory Control Sample (LCS)

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 18.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 19.1.2. False positive analytes are designated on the quantitation report with a ’d’ qualifier.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package.

The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

Initial Calibration
At the request of the client, linear curve fits, for target analytes that did not meet the x-intercept criteria of less than or equal to 3 times the MDL and had %RSDs less than 60%, were set to use the average response factor to quantitate data in this SDG.

Continuing Calibration Verification Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement
The blanks analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
Surrogate recoveries in all client and quality control samples were within the acceptance limits.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Sample 315545003 (CAMO-13-24271) was designated for spike analysis.

Matrix Spike (PS) Recovery Statement
The spike 1202787465 (CAMO-13-24271) recoveries were not all within the acceptance limits. See the Data Exception Report in the miscellaneous section of the data package.

Matrix Spike Duplicate (PSD) Recovery Statement
The spike duplicate recoveries were within the required acceptance limits.

Relative Percent Difference (RPD) Statement
The RPDs between the matrix spike pair met the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-analyses were not required for samples in this SDG.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1144834.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) may be requested for this sample delivery group/work order. Please note that non-requested target analytes that are reported on the quantitation reports will be present on the Form I. These detected analytes are included in the calibrated method and as a result will be reported on the Sample Data Summary (Form I) or Certificate of Analysis (C of A). TIC data, if requested, are included on the Sample Data Summary (Form I) and are also included with the sample raw data.

Additional Comments
Additional comments were not required for this SDG.

Residual Chlorine
Residual Chlorine was not detected in any of the samples in this SDG.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOA9.I	Agilent 6890/5973 GC/MS w/ OI Eclipse/Archon Autosampler	HP6890/HP5973	DB-624	J&W, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all the

requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-353 GEL Work Order: 315545

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Erin Haubert **Name:** **Erin Haubert**

Date: **14 DEC 2012** **Title:** **Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545001**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24278**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 11:14**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 11:14**				
Data File:	**112912V9\9O410.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545001**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24278**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 11:14**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 11:14**				
Data File:	**112912V9\9O410.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545001**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24278**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 11:14**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 11:14**				
Data File:	**112912V9\9O410.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	44.7	50.0	ug/L	89.4	(78%-124%)
Bromofluorobenzene	48.6	50.0	ug/L	97.2	(80%-120%)
Toluene-d8	46.2	50.0	ug/L	92.4	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.315	15.6	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545003**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24271**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 15:08**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 15:08**				
Data File:	**112812V9\9O321.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545003**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24271**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 15:08**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 15:08**				
Data File:	**112812V9\9O321.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545003**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24271**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 15:08**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 15:08**				
Data File:	**112812V9\9O321.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	45.5	50.0	ug/L	91.1	(78%-124%)
Bromofluorobenzene	48.8	50.0	ug/L	97.6	(80%-120%)
Toluene-d8	45.3	50.0	ug/L	90.5	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.33	15.6	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545005**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24273**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 12:22**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 12:22**				
Data File:	**112812V9\9O315.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545005**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24273**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 12:22**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 12:22**				
Data File:	**112812V9\9O315.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545005**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24273**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 12:22**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 12:22**				
Data File:	**112812V9\9O315.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	46.6	50.0	ug/L	93.3	(78%-124%)
Bromofluorobenzene	51.7	50.0	ug/L	103	(80%-120%)
Toluene-d8	47.7	50.0	ug/L	95.4	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.301	11.1	ug/L	0	J

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2013-353

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1202787467	LCS for batch 1266476	91	94	96
1202787468	LCS for batch 1266476	89	92	99
1202787464	MB for batch 1266476	93	93	100
315545005	CAMO-13-24273	93	95	103
315545003	CAMO-13-24271	91	91	98
1202787465	CAMO-13-24271PS	92	96	102
1202787466	CAMO-13-24271PSD	85	88	95
1202788455	LCS for batch 1266476	86	92	97
1202788456	LCS for batch 1266476	86	91	95
1202788454	MB for batch 1266476	90	92	97
315545001	CAMO-13-24278	89	92	97

Surrogate			Acceptance Limits
DCED4	=	1,2-Dichloroethane-d4	(78%-124%)
TOL	=	Toluene-d8	(80%-120%)
BFB	=	Bromofluorobenzene	(80%-120%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **CAMO-13-24271PS**
Lab Sample ID: **1202787465**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/28/2012 17:21**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	PS	Dichlorodifluoromethane	50.0	0.00	U	44.8	90	36-123
74-87-3	PS	Chloromethane	50.0	0.00	U	40.9	82	47-134
75-01-4	PS	Vinyl chloride	50.0	0.00	U	38.6	77	49-129
74-83-9	PS	Bromomethane	50.0	0.00	U	45.7	91	56-127
75-00-3	PS	Chloroethane	50.0	0.00	U	47.9	96	67-122
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	U	45.2	90	60-123
60-29-7	PS	Ethyl ether	50.0	0.00	U	50.0	100	69-121
67-64-1	PS	Acetone	250	0.00	U	142	57	30-143
75-05-8	PS	Acetonitrile	1250	0.00	U	1200	96	60-133
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	U	47.9	96	67-132
74-88-4	PS	Iodomethane	250	0.00	U	269	107	69-147
75-09-2	PS	Methylene chloride	50.0	0.00	U	49.3	99	56-135
75-15-0	PS	Carbon disulfide	250	0.00	U	241	96	65-153
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	U	49.0	98	73-126
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	U	47.4	95	69-128
108-05-4	PS	Vinyl acetate	250	0.00	U	209	84	50-143
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	U	47.0	94	75-124
78-93-3	PS	2-Butanone	250	0.00	U	178	71	30-140
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	U	47.0	94	52-147
594-20-7	PS	2,2-Dichloropropane	50.0	0.00	U	46.9	94	67-143
67-66-3	PS	Chloroform	50.0	0.00	U	47.3	95	75-125
74-97-5	PS	Bromochloromethane	50.0	0.00	U	55.0	110	80-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **CAMO-13-24271PS**
Lab Sample ID: **1202787465**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/28/2012 17:21**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	PS	1,1,1-Trichloroethane	50.0	0.00	U	48.8	98	69-140
563-58-6	PS	1,1-Dichloropropene	50.0	0.00	U	48.0	96	71-130
71-36-3	PS	n-Butyl alcohol	5000	0.00	U	5440	109	53-150
56-23-5	PS	Carbon tetrachloride	50.0	0.00	U	51.3	103	69-142
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	U	46.7	93	72-126
71-43-2	PS	Benzene	50.0	0.00	U	48.2	96	73-119
79-01-6	PS	Trichloroethylene	50.0	0.00	U	49.9	100	54-147
78-87-5	PS	1,2-Dichloropropane	50.0	0.00	U	48.6	97	78-123
75-27-4	PS	Bromodichloromethane	50.0	0.00	U	53.5	107	76-131
74-95-3	PS	Dibromomethane	50.0	0.00	U	52.1	104	79-120
108-10-1	PS	4-Methyl-2-pentanone	250	0.00	U	244	97	68-136
10061-01-5	PS	cis-1,3-Dichloropropylene	50.0	0.00	U	54.7	109	72-134
108-88-3	PS	Toluene	50.0	0.00	U	45.2	90	62-126
10061-02-6	PS	trans-1,3-Dichloropropylene	50.0	0.00	U	51.4	103	72-133
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	U	48.9	98	74-120
591-78-6	PS	2-Hexanone	250	0.00	U	182	73	31-132
142-28-9	PS	1,3-Dichloropropane	50.0	0.00	U	45.4	91	73-121
127-18-4	PS	Tetrachloroethylene	50.0	0.00	U	46.7	93	54-139
124-48-1	PS	Dibromochloromethane	50.0	0.00	U	55.9	112	74-128
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	U	53.3	107	80-120
108-90-7	PS	Chlorobenzene	50.0	0.00	U	47.1	94	73-119
100-41-4	PS	Ethylbenzene	50.0	0.00	U	44.1	88	66-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **CAMO-13-24271PS**
Lab Sample ID: **1202787465**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/28/2012 17:21**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	PS	m,p-Xylenes	100	0.00	U	93.9	94	56-134
95-47-6	PS	o-Xylene	50.0	0.00	U	46.9	94	68-126
100-42-5	PS	Styrene	50.0	0.00	U	48.7	97	57-138
75-25-2	PS	Bromoform	50.0	0.00	U	64.8	130 *	66-129
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	U	52.4	105	44-146
96-18-4	PS	1,2,3-Trichloropropane	50.0	0.00	U	50.5	101	68-129
108-86-1	PS	Bromobenzene	50.0	0.00	U	49.6	99	70-122
103-65-1	PS	n-Propylbenzene	50.0	0.00	U	44.1	88	61-131
95-49-8	PS	2-Chlorotoluene	50.0	0.00	U	47.4	95	66-126
98-82-8	PS	Isopropylbenzene	50.0	0.00	U	47.9	96	65-130
108-67-8	PS	1,3,5-Trimethylbenzene	50.0	0.00	U	46.1	92	58-134
106-43-4	PS	4-Chlorotoluene	50.0	0.00	U	44.7	89	63-125
98-06-6	PS	tert-Butylbenzene	50.0	0.00	U	49.9	100	66-129
95-63-6	PS	1,2,4-Trimethylbenzene	50.0	0.00	U	45.8	92	60-131
135-98-8	PS	sec-Butylbenzene	50.0	0.00	U	46.9	94	62-130
99-87-6	PS	4-Isopropyltoluene	50.0	0.00	U	46.4	93	62-132
541-73-1	PS	1,3-Dichlorobenzene	50.0	0.00	U	46.6	93	66-121
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	U	45.9	92	65-119
104-51-8	PS	n-Butylbenzene	50.0	0.00	U	43.5	87	55-134
96-12-8	PS	1,2-Dibromo-3-chloropropane	50.0	0.00	U	63.5	127	58-137
87-68-3	PS	Hexachlorobutadiene	50.0	0.00	U	49.4	99	49-139
91-20-3	PS	Naphthalene	50.0	0.00	U	53.0	106	46-145

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Sample Type: **Post Spike**
Client ID: **CAMO-13-24271PS**
Matrix: **W**
Lab Sample ID: **1202787465**
Instrument: **VOA9.I**
Analysis Date: **11/28/2012 17:21**
Dilution: 1
Analyst: **RXY1**
Prep Batch ID: **1266476**
Purge Vol: **5 mL**
Batch ID: **1266476**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	PS	1,2,3-Trichlorobenzene	50.0	0.00	U	48.8	98	54-134
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	U	49.7	99	79-128
120-82-1	PS	1,2,4-Trichlorobenzene	50.0	0.00	U	46.8	94	55-128
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	U	48.5	97	68-121

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **CAMO-13-24271PSD**
Lab Sample ID: **1202787466**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/28/2012 17:48**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
75-71-8	PSD	Dichlorodifluoromethane	50.0	0.00	U	45.0	90	36-123	0	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	U	42.0	84	47-134	3	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	U	39.7	79	49-129	3	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	U	47.6	95	56-127	4	0-20
75-00-3	PSD	Chloroethane	50.0	0.00	U	49.0	98	67-122	2	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	U	45.9	92	60-123	2	0-20
60-29-7	PSD	Ethyl ether	50.0	0.00	U	48.9	98	69-121	2	0-20
67-64-1	PSD	Acetone	250	0.00	U	133	53	30-143	6	0-20
75-05-8	PSD	Acetonitrile	1250	0.00	U	1160	93	60-133	4	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	U	49.3	99	67-132	3	0-20
74-88-4	PSD	Iodomethane	250	0.00	U	278	111	69-147	3	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	U	50.3	101	56-135	2	0-20
75-15-0	PSD	Carbon disulfide	250	0.00	U	249	100	65-153	3	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	U	49.2	98	73-126	0	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	U	47.9	96	69-128	1	0-20
108-05-4	PSD	Vinyl acetate	250	0.00	U	200	80	50-143	4	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	U	47.3	95	75-124	1	0-20
78-93-3	PSD	2-Butanone	250	0.00	U	165	66	30-140	8	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	U	47.0	94	52-147	0	0-20
594-20-7	PSD	2,2-Dichloropropane	50.0	0.00	U	47.4	95	67-143	1	0-20
67-66-3	PSD	Chloroform	50.0	0.00	U	46.8	94	75-125	1	0-20
74-97-5	PSD	Bromochloromethane	50.0	0.00	U	54.7	109	80-120	0	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **CAMO-13-24271PSD**
Lab Sample ID: **1202787466**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/28/2012 17:48**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
71-55-6	PSD	1,1,1-Trichloroethane	50.0	0.00	U	49.7	99	69-140	2	0-20
563-58-6	PSD	1,1-Dichloropropene	50.0	0.00	U	47.9	96	71-130	0	0-20
71-36-3	PSD	n-Butyl alcohol	5000	0.00	U	5060	101	53-150	7	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	U	53.2	106	69-142	4	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	U	46.1	92	72-126	1	0-20
71-43-2	PSD	Benzene	50.0	0.00	U	47.8	96	73-119	1	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	U	49.8	100	54-147	0	0-20
78-87-5	PSD	1,2-Dichloropropane	50.0	0.00	U	48.5	97	78-123	0	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	U	53.6	107	76-131	0	0-20
74-95-3	PSD	Dibromomethane	50.0	0.00	U	51.0	102	79-120	2	0-20
108-10-1	PSD	4-Methyl-2-pentanone	250	0.00	U	220	88	68-136	10	0-20
10061-01-5	PSD	cis-1,3-Dichloropropylene	50.0	0.00	U	54.8	110	72-134	0	0-20
108-88-3	PSD	Toluene	50.0	0.00	U	43.4	87	62-126	4	0-20
10061-02-6	PSD	trans-1,3-Dichloropropylene	50.0	0.00	U	49.1	98	72-133	5	0-20
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	U	46.2	92	74-120	6	0-20
591-78-6	PSD	2-Hexanone	250	0.00	U	165	66	31-132	10	0-20
142-28-9	PSD	1,3-Dichloropropane	50.0	0.00	U	43.6	87	73-121	4	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	U	45.7	91	54-139	2	0-20
124-48-1	PSD	Dibromochloromethane	50.0	0.00	U	53.9	108	74-128	4	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	U	51.1	102	80-120	4	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.00	U	46.5	93	73-119	1	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	U	43.6	87	66-125	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **CAMO-13-24271PSD**
Lab Sample ID: **1202787466**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/28/2012 17:48**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	PSD	m,p-Xylenes	100	0.00	U	93.0	93	56-134	1	0-20
95-47-6	PSD	o-Xylene	50.0	0.00	U	46.2	92	68-126	1	0-20
100-42-5	PSD	Styrene	50.0	0.00	U	48.7	97	57-138	0	0-20
75-25-2	PSD	Bromoform	50.0	0.00	U	60.9	122	66-129	6	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	U	48.3	97	44-146	8	0-20
96-18-4	PSD	1,2,3-Trichloropropane	50.0	0.00	U	48.5	97	68-129	4	0-20
108-86-1	PSD	Bromobenzene	50.0	0.00	U	48.9	98	70-122	1	0-20
103-65-1	PSD	n-Propylbenzene	50.0	0.00	U	43.3	87	61-131	2	0-20
95-49-8	PSD	2-Chlorotoluene	50.0	0.00	U	46.4	93	66-126	2	0-20
98-82-8	PSD	Isopropylbenzene	50.0	0.00	U	46.0	92	65-130	4	0-20
108-67-8	PSD	1,3,5-Trimethylbenzene	50.0	0.00	U	45.2	90	58-134	2	0-20
106-43-4	PSD	4-Chlorotoluene	50.0	0.00	U	44.3	89	63-125	1	0-20
98-06-6	PSD	tert-Butylbenzene	50.0	0.00	U	48.1	96	66-129	4	0-20
95-63-6	PSD	1,2,4-Trimethylbenzene	50.0	0.00	U	45.1	90	60-131	2	0-20
135-98-8	PSD	sec-Butylbenzene	50.0	0.00	U	45.7	91	62-130	3	0-20
99-87-6	PSD	4-Isopropyltoluene	50.0	0.00	U	45.7	91	62-132	2	0-20
541-73-1	PSD	1,3-Dichlorobenzene	50.0	0.00	U	46.7	93	66-121	0	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	U	45.9	92	65-119	0	0-20
104-51-8	PSD	n-Butylbenzene	50.0	0.00	U	43.4	87	55-134	0	0-20
96-12-8	PSD	1,2-Dibromo-3-chloropropane	50.0	0.00	U	58.5	117	58-137	8	0-20
87-68-3	PSD	Hexachlorobutadiene	50.0	0.00	U	48.7	97	49-139	2	0-20
91-20-3	PSD	Naphthalene	50.0	0.00	U	48.0	96	46-145	10	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Sample Type: **Post Spike Duplicate**
Client ID: **CAMO-13-24271PSD**
Matrix: **W**
Lab Sample ID: **1202787466**
Instrument: **VOA9.I**
Analysis Date: **11/28/2012 17:48**
Dilution: 1
Analyst: **RXY1**
Prep Batch ID: **1266476**
Purge Vol: **5 mL**
Batch ID: **1266476**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
87-61-6	PSD	1,2,3-Trichlorobenzene	50.0	0.00	U	45.7	91	54-134	7	0-20
630-20-6	PSD	1,1,1,2-Tetrachloroethane	50.0	0.00	U	47.8	96	79-128	4	0-20
120-82-1	PSD	1,2,4-Trichlorobenzene	50.0	0.00	U	44.7	89	55-128	5	0-20
95-50-1	PSD	1,2-Dichlorobenzene	50.0	0.00	U	47.6	95	68-121	2	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **LCS for batch 1266476**
Lab Sample ID: **1202787467**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/28/2012 07:00**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	51.1	102	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	45.1	90	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	43.3	87	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	49.7	99	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	53.9	108	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	52.8	106	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	51.8	104	74-120
67-64-1	LCS	Acetone	250	0.0	258	103	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	1120	90	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	54.4	109	76-127
74-88-4	LCS	Iodomethane	250	0.0	293	117	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	52.7	105	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	269	108	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	50.0	100	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	53.2	106	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	253	101	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	51.2	102	79-120
78-93-3	LCS	2-Butanone	250	0.0	263	105	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	51.7	103	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	55.4	111	76-145
67-66-3	LCS	Chloroform	50.0	0.0	50.4	101	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	55.8	112	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **LCS for batch 1266476**
Lab Sample ID: **1202787467**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/28/2012 07:00**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	55.3	111	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	53.9	108	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	4510	90	66-138
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	59.6	119	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	47.9	96	75-121
71-43-2	LCS	Benzene	50.0	0.0	51.8	104	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	54.7	109	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	50.4	101	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	55.6	111	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	51.9	104	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	248	99	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	57.1	114	80-127
108-88-3	LCS	Toluene	50.0	0.0	48.5	97	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	52.5	105	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	48.2	96	79-120
591-78-6	LCS	2-Hexanone	250	0.0	284	113	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	45.1	90	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	52.7	105	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	55.9	112	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	52.3	105	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	49.8	100	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	47.9	96	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **LCS for batch 1266476**
Lab Sample ID: **1202787467**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/28/2012 07:00**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	101	101	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	50.2	100	80-120
100-42-5	LCS	Styrene	50.0	0.0	51.7	103	80-121
75-25-2	LCS	Bromoform	50.0	0.0	60.1	120	72-125
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	47.3	95	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	46.9	94	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	50.4	101	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	48.0	96	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	50.1	100	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	51.3	103	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	50.2	100	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	48.2	96	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	53.2	106	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	49.6	99	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	50.7	101	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	51.5	103	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	51.0	102	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	49.8	100	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	49.9	100	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	58.7	117	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	56.9	114	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	50.6	101	71-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **LCS for batch 1266476**
Lab Sample ID: **1202787467**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/28/2012 07:00**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	52.1	104	73-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	51.8	104	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	54.8	110	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	50.0	100	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **LCS for batch 1266476**
Lab Sample ID: **1202787468**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/28/2012 08:20**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS	Acrolein	250	0.0	248	99	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	235	94	65-157
107-05-1	LCS	Allyl chloride	250	0.0	225	90	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	222	89	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	50.4	101	45-159
107-12-0	LCS	Propionitrile	250	0.0	229	92	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	212	85	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2030	81	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	216	86	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	197	79	66-132

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **LCS for batch 1266476**
Lab Sample ID: **1202788455**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/29/2012 08:08**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	46.1	92	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	43.3	87	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	41.7	83	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	46.4	93	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	51.0	102	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	49.9	100	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	48.2	96	74-120
67-64-1	LCS	Acetone	250	0.0	245	98	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	1100	88	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	51.2	102	76-127
74-88-4	LCS	Iodomethane	250	0.0	280	112	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	48.7	97	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	257	103	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	47.6	95	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	50.2	100	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	240	96	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	48.4	97	79-120
78-93-3	LCS	2-Butanone	250	0.0	253	101	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	48.7	97	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	52.8	106	76-145
67-66-3	LCS	Chloroform	50.0	0.0	47.9	96	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	53.2	106	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **LCS for batch 1266476**
Lab Sample ID: **1202788455**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/29/2012 08:08**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	52.2	104	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	50.7	101	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	4660	93	66-138
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	56.7	113	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	45.3	91	75-121
71-43-2	LCS	Benzene	50.0	0.0	49.5	99	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	51.5	103	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	48.4	97	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	53.3	107	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	49.5	99	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	237	95	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	55.7	111	80-127
108-88-3	LCS	Toluene	50.0	0.0	45.4	91	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	49.6	99	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	44.8	90	79-120
591-78-6	LCS	2-Hexanone	250	0.0	270	108	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	42.2	84	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	50.0	100	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	54.2	108	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	50.9	102	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	48.5	97	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	46.0	92	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **LCS for batch 1266476**
Lab Sample ID: **1202788455**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/29/2012 08:08**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	98.8	99	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	48.5	97	80-120
100-42-5	LCS	Styrene	50.0	0.0	50.7	101	80-121
75-25-2	LCS	Bromoform	50.0	0.0	58.7	117	72-125
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	46.6	93	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	46.8	94	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	48.8	98	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	46.3	93	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	48.8	98	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	49.0	98	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	48.0	96	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	46.7	93	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	50.3	101	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	48.1	96	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	48.4	97	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	49.5	99	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	49.0	98	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	48.3	97	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	47.7	95	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	58.4	117	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	52.7	105	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	47.5	95	71-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **LCS for batch 1266476**
Lab Sample ID: **1202788455**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/29/2012 08:08**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	48.6	97	73-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	49.3	99	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	51.5	103	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	49.0	98	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **LCS for batch 1266476**
Lab Sample ID: **1202788456**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/29/2012 09:28**
Prep Batch ID: **1266476**
Batch ID: **1266476**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS	Acrolein	250	0.0	241	96	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	237	95	65-157
107-05-1	LCS	Allyl chloride	250	0.0	214	86	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	215	86	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	48.0	96	45-159
107-12-0	LCS	Propionitrile	250	0.0	220	88	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	203	81	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	1920	77	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	209	83	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	191	76	66-132

Method Blank Summary

SDG Number:	**2013-353**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1266476**	**Instrument ID:**	**VOA9.I**	**Data File:**	**112812V9\9O309B.D**
Lab Sample ID:	**1202787464**	**Prep Date:**	**11/28/2012 09:41**	**Analyzed:**	**11/28/12 09:41**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1266476	1202787467	112812V9\9O303L.D	11/28/12	0700
02 LCS for batch 1266476	1202787468	112812V9\9O306L.D	11/28/12	0820
03 CAMO-13-24273	315545005	112812V9\9O315.D	11/28/12	1222
04 CAMO-13-24271	315545003	112812V9\9O321.D	11/28/12	1508
05 CAMO-13-24271PS	1202787465	112812V9\9O326.D	11/28/12	1721
06 CAMO-13-24271PSD	1202787466	112812V9\9O327.D	11/28/12	1748

Method Blank Summary

SDG Number:	**2013-353**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1266476**	**Instrument ID:**	**VOA9.I**	**Data File:**	**112912V9\9O408B.D**
Lab Sample ID:	**1202788454**	**Prep Date:**	**11/29/2012 10:21**	**Analyzed:**	**11/29/12 10:21**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
08 LCS for batch 1266476	1202788455	112912V9\9O403L.D	11/29/12	0808
09 LCS for batch 1266476	1202788456	112912V9\9O406L.D	11/29/12	0928
10 CAMO-13-24278	315545001	112912V9\9O410.D	11/29/12	1114

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787464**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 09:41**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 09:41**				
Data File:	**112812V9\9O309B.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787464**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 09:41**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 09:41**				
Data File:	**112812V9\9O309B.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787464**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 09:41**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 09:41**				
Data File:	**112812V9\9O309B.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	46.6	50.0	ug/L	93.2	(78%-124%)
Bromofluorobenzene	49.9	50.0	ug/L	99.8	(80%-120%)
Toluene-d8	46.4	50.0	ug/L	92.7	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.301	6.71	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202787465**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24271PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 17:21**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 17:21**				
Data File:	**112812V9\9O326.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		44.8	ug/L	0.300	1.00
74-87-3	Chloromethane		40.9	ug/L	0.300	1.00
75-01-4	Vinyl chloride		38.6	ug/L	0.300	1.00
74-83-9	Bromomethane		45.7	ug/L	0.300	1.00
75-00-3	Chloroethane		47.9	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		45.2	ug/L	0.300	1.00
60-29-7	Ethyl ether		50.0	ug/L	0.300	1.00
67-64-1	Acetone		142	ug/L	3.00	10.0
75-05-8	Acetonitrile		1200	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		47.9	ug/L	0.300	1.00
74-88-4	Iodomethane		269	ug/L	1.50	5.00
75-09-2	Methylene chloride		49.3	ug/L	3.00	10.0
75-15-0	Carbon disulfide		241	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		49.0	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		47.4	ug/L	0.300	1.00
108-05-4	Vinyl acetate		209	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		47.0	ug/L	0.300	1.00
78-93-3	2-Butanone		178	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		47.0	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		46.9	ug/L	0.300	1.00
67-66-3	Chloroform		47.3	ug/L	0.300	1.00
74-97-5	Bromochloromethane		55.0	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		48.8	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		48.0	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5440	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		51.3	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		46.7	ug/L	0.300	1.00
71-43-2	Benzene		48.2	ug/L	0.300	1.00
79-01-6	Trichloroethylene		49.9	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.6	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		53.5	ug/L	0.300	1.00
74-95-3	Dibromomethane		52.1	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		244	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		54.7	ug/L	0.300	1.00
108-88-3	Toluene		45.2	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		51.4	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.9	ug/L	0.300	1.00
591-78-6	2-Hexanone		182	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202787465**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24271PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 17:21**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 17:21**				
Data File:	**112812V9\9O326.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		45.4	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		46.7	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		55.9	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		53.3	ug/L	0.300	1.00
108-90-7	Chlorobenzene		47.1	ug/L	0.300	1.00
100-41-4	Ethylbenzene		44.1	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		93.9	ug/L	0.300	2.00
95-47-6	o-Xylene		46.9	ug/L	0.300	1.00
100-42-5	Styrene		48.7	ug/L	0.300	1.00
75-25-2	Bromoform		64.8	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		52.4	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		50.5	ug/L	0.300	1.00
108-86-1	Bromobenzene		49.6	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		44.1	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		47.4	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		47.9	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		46.1	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		44.7	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		49.9	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		45.8	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		46.9	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		46.4	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		46.6	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		45.9	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		43.5	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		63.5	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		49.4	ug/L	0.300	1.00
91-20-3	Naphthalene		53.0	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		48.8	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202787465**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24271PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 17:21**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 17:21**				
Data File:	**112812V9\9O326.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		49.7	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		46.8	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		48.5	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	45.9	50.0	ug/L	91.8	(78%-124%)
Bromofluorobenzene	51.1	50.0	ug/L	102	(80%-120%)
Toluene-d8	47.9	50.0	ug/L	95.8	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202787466**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24271PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 17:48**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 17:48**				
Data File:	**112812V9\9O327.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		45.0	ug/L	0.300	1.00
74-87-3	Chloromethane		42.0	ug/L	0.300	1.00
75-01-4	Vinyl chloride		39.7	ug/L	0.300	1.00
74-83-9	Bromomethane		47.6	ug/L	0.300	1.00
75-00-3	Chloroethane		49.0	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		45.9	ug/L	0.300	1.00
60-29-7	Ethyl ether		48.9	ug/L	0.300	1.00
67-64-1	Acetone		133	ug/L	3.00	10.0
75-05-8	Acetonitrile		1160	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		49.3	ug/L	0.300	1.00
74-88-4	Iodomethane		278	ug/L	1.50	5.00
75-09-2	Methylene chloride		50.3	ug/L	3.00	10.0
75-15-0	Carbon disulfide		249	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		49.2	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		47.9	ug/L	0.300	1.00
108-05-4	Vinyl acetate		200	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		47.3	ug/L	0.300	1.00
78-93-3	2-Butanone		165	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		47.0	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		47.4	ug/L	0.300	1.00
67-66-3	Chloroform		46.8	ug/L	0.300	1.00
74-97-5	Bromochloromethane		54.7	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		49.7	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		47.9	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5060	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		53.2	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		46.1	ug/L	0.300	1.00
71-43-2	Benzene		47.8	ug/L	0.300	1.00
79-01-6	Trichloroethylene		49.8	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.5	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		53.6	ug/L	0.300	1.00
74-95-3	Dibromomethane		51.0	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		220	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		54.8	ug/L	0.300	1.00
108-88-3	Toluene		43.4	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		49.1	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		46.2	ug/L	0.300	1.00
591-78-6	2-Hexanone		165	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202787466**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24271PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 17:48**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 17:48**				
Data File:	**112812V9\9O327.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		43.6	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		45.7	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		53.9	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		51.1	ug/L	0.300	1.00
108-90-7	Chlorobenzene		46.5	ug/L	0.300	1.00
100-41-4	Ethylbenzene		43.6	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		93.0	ug/L	0.300	2.00
95-47-6	o-Xylene		46.2	ug/L	0.300	1.00
100-42-5	Styrene		48.7	ug/L	0.300	1.00
75-25-2	Bromoform		60.9	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		48.3	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		48.5	ug/L	0.300	1.00
108-86-1	Bromobenzene		48.9	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		43.3	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		46.4	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		46.0	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		45.2	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		44.3	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		48.1	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		45.1	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		45.7	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		45.7	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		46.7	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		45.9	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		43.4	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		58.5	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		48.7	ug/L	0.300	1.00
91-20-3	Naphthalene		48.0	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		45.7	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202787466**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24271PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 17:48**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 17:48**				
Data File:	**112812V9\9O327.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		47.8	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		44.7	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		47.6	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	42.5	50.0	ug/L	85.1	(78%-124%)
Bromofluorobenzene	47.4	50.0	ug/L	94.8	(80%-120%)
Toluene-d8	44.1	50.0	ug/L	88.3	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787467**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 07:00**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 07:00**				
Data File:	**112812V9\9O303L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		51.1	ug/L	0.300	1.00
74-87-3	Chloromethane		45.1	ug/L	0.300	1.00
75-01-4	Vinyl chloride		43.3	ug/L	0.300	1.00
74-83-9	Bromomethane		49.7	ug/L	0.300	1.00
75-00-3	Chloroethane		53.9	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		52.8	ug/L	0.300	1.00
60-29-7	Ethyl ether		51.8	ug/L	0.300	1.00
67-64-1	Acetone		258	ug/L	3.00	10.0
75-05-8	Acetonitrile		1120	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		54.4	ug/L	0.300	1.00
74-88-4	Iodomethane		293	ug/L	1.50	5.00
75-09-2	Methylene chloride		52.7	ug/L	3.00	10.0
75-15-0	Carbon disulfide		269	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		50.0	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		53.2	ug/L	0.300	1.00
108-05-4	Vinyl acetate		253	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		51.2	ug/L	0.300	1.00
78-93-3	2-Butanone		263	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		51.7	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		55.4	ug/L	0.300	1.00
67-66-3	Chloroform		50.4	ug/L	0.300	1.00
74-97-5	Bromochloromethane		55.8	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		55.3	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		53.9	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		4510	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		59.6	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		47.9	ug/L	0.300	1.00
71-43-2	Benzene		51.8	ug/L	0.300	1.00
79-01-6	Trichloroethylene		54.7	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		50.4	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		55.6	ug/L	0.300	1.00
74-95-3	Dibromomethane		51.9	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		248	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		57.1	ug/L	0.300	1.00
108-88-3	Toluene		48.5	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		52.5	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.2	ug/L	0.300	1.00
591-78-6	2-Hexanone		284	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787467**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 07:00**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 07:00**				
Data File:	**112812V9\9O303L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		45.1	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		52.7	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		55.9	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		52.3	ug/L	0.300	1.00
108-90-7	Chlorobenzene		49.8	ug/L	0.300	1.00
100-41-4	Ethylbenzene		47.9	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		101	ug/L	0.300	2.00
95-47-6	o-Xylene		50.2	ug/L	0.300	1.00
100-42-5	Styrene		51.7	ug/L	0.300	1.00
75-25-2	Bromoform		60.1	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		47.3	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		46.9	ug/L	0.300	1.00
108-86-1	Bromobenzene		50.4	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		48.0	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		50.1	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		51.3	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		50.2	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		48.2	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		53.2	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		49.6	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		50.7	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		51.5	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		51.0	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		49.8	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		49.9	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		58.7	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		56.9	ug/L	0.300	1.00
91-20-3	Naphthalene		50.6	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		52.1	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787467**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 07:00**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 07:00**				
Data File:	**112812V9\9O303L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		51.8	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		54.8	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		50.0	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	45.7	50.0	ug/L	91.3	(78%-124%)
Bromofluorobenzene	48.2	50.0	ug/L	96.4	(80%-120%)
Toluene-d8	47.2	50.0	ug/L	94.5	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787468**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 08:20**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 08:20**				
Data File:	**112812V9\9O306L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787468**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 08:20**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 08:20**				
Data File:	**112812V9\9O306L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein		248	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		235	ug/L	1.50	5.00
107-05-1	Allyl chloride		225	ug/L	1.50	5.00
107-13-1	Acrylonitrile		222	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		50.4	ug/L	0.300	1.00
107-12-0	Propionitrile		229	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		212	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2030	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		216	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202787468**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/28/2012 08:20**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/28/2012 08:20**				
Data File:	**112812V9\9O306L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		197	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	44.4	50.0	ug/L	88.8	(78%-124%)
Bromofluorobenzene	49.5	50.0	ug/L	99.0	(80%-120%)
Toluene-d8	46.0	50.0	ug/L	92.0	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202788454**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 10:21**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 10:21**				
Data File:	**112912V9\9O408B.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202788454**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 10:21**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 10:21**				
Data File:	**112912V9\9O408B.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202788454**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 10:21**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 10:21**				
Data File:	**112912V9\9O408B.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	44.8	50.0	ug/L	89.6	(78%-124%)
Bromofluorobenzene	48.4	50.0	ug/L	96.7	(80%-120%)
Toluene-d8	46.1	50.0	ug/L	92.3	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.286	6.72	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202788455**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 08:08**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 08:08**				
Data File:	**112912V9\9O403L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		46.1	ug/L	0.300	1.00
74-87-3	Chloromethane		43.3	ug/L	0.300	1.00
75-01-4	Vinyl chloride		41.7	ug/L	0.300	1.00
74-83-9	Bromomethane		46.4	ug/L	0.300	1.00
75-00-3	Chloroethane		51.0	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		49.9	ug/L	0.300	1.00
60-29-7	Ethyl ether		48.2	ug/L	0.300	1.00
67-64-1	Acetone		245	ug/L	3.00	10.0
75-05-8	Acetonitrile		1100	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		51.2	ug/L	0.300	1.00
74-88-4	Iodomethane		280	ug/L	1.50	5.00
75-09-2	Methylene chloride		48.7	ug/L	3.00	10.0
75-15-0	Carbon disulfide		257	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		47.6	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		50.2	ug/L	0.300	1.00
108-05-4	Vinyl acetate		240	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		48.4	ug/L	0.300	1.00
78-93-3	2-Butanone		253	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		48.7	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		52.8	ug/L	0.300	1.00
67-66-3	Chloroform		47.9	ug/L	0.300	1.00
74-97-5	Bromochloromethane		53.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		52.2	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		50.7	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		4660	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		56.7	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		45.3	ug/L	0.300	1.00
71-43-2	Benzene		49.5	ug/L	0.300	1.00
79-01-6	Trichloroethylene		51.5	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.4	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		53.3	ug/L	0.300	1.00
74-95-3	Dibromomethane		49.5	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		237	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		55.7	ug/L	0.300	1.00
108-88-3	Toluene		45.4	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		49.6	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		44.8	ug/L	0.300	1.00
591-78-6	2-Hexanone		270	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202788455**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 08:08**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 08:08**				
Data File:	**112912V9\9O403L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		42.2	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		50.0	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		54.2	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		50.9	ug/L	0.300	1.00
108-90-7	Chlorobenzene		48.5	ug/L	0.300	1.00
100-41-4	Ethylbenzene		46.0	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		98.8	ug/L	0.300	2.00
95-47-6	o-Xylene		48.5	ug/L	0.300	1.00
100-42-5	Styrene		50.7	ug/L	0.300	1.00
75-25-2	Bromoform		58.7	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		46.6	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		46.8	ug/L	0.300	1.00
108-86-1	Bromobenzene		48.8	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		46.3	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		48.8	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		49.0	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		48.0	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		46.7	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		50.3	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		48.1	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		48.4	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		49.5	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		49.0	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		48.3	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		47.7	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		58.4	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		52.7	ug/L	0.300	1.00
91-20-3	Naphthalene		47.5	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		48.6	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202788455**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 08:08**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 08:08**				
Data File:	**112912V9\9O403L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		49.3	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		51.5	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		49.0	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	43.0	50.0	ug/L	86.0	(78%-124%)
Bromofluorobenzene	48.3	50.0	ug/L	96.6	(80%-120%)
Toluene-d8	46.1	50.0	ug/L	92.3	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202788456**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 09:28**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 09:28**				
Data File:	**112912V9\9O406L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202788456**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 09:28**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 09:28**				
Data File:	**112912V9\9O406L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein		241	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		237	ug/L	1.50	5.00
107-05-1	Allyl chloride		214	ug/L	1.50	5.00
107-13-1	Acrylonitrile		215	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		48.0	ug/L	0.300	1.00
107-12-0	Propionitrile		220	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		203	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		1920	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		209	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202788456**				
Client Sample:	**QC for batch 1266476**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1266476**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1266476**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/29/2012 09:28**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/29/2012 09:28**				
Data File:	**112912V9\9O406L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		191	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	43.2	50.0	ug/L	86.3	(78%-124%)
Bromofluorobenzene	47.3	50.0	ug/L	94.5	(80%-120%)
Toluene-d8	45.7	50.0	ug/L	91.4	(80%-120%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
29-NOV-12	Federal	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
VOA GC/MS	SW846 8260B DOE-AL	Liquid	ESHL 315450, 315545
Batch ID:	**Sample Numbers:**		
1266476	1202787465		

Potentially affected work order(s)(SDG): 315450(2013-334),315545(2013-353)

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. The MS 1202787465 did not meet the acceptable recovery criteria for Bromoform. MS: 130% (Limits of: 66.00% - 129.00%)	1. The data were narrated and reported with an accepable MS/MSD %RPD for Bromoform.

Originator's Name:

Ramona Yarbrough 29-NOV-12

Data Validator/Group Leader:

Erin Haubert 13-DEC-12

Semi-Volatile Analysis

Case Narrative

Semi-Volatile Case Narrative
ARS International (ARSL)
SDG 2013-353

Method/Analysis Information

Procedure:	**Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method:	SW846 8270C
Prep Method:	SW846 3510C
Analytical Batch Number:	1265254
Prep Batch Number:	1265252

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8270C:

Sample ID	Client ID
315545001	CAMO-13-24278
315545003	CAMO-13-24271
1202784549	Method Blank (MB)
1202784550	315545001(CAMO-13-24278) Matrix Spike (MS)
1202784551	315545001(CAMO-13-24278) Matrix Spike Duplicate (MSD)
1202784552	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 30.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 18.2.

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

CCV Requirements
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG in this batch met the acceptance criteria.

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria for this SDG in this batch.

Laboratory Control Sample (LCS) Recovery
The LCS(1202784552) recovered Hexachlorocyclopentadiene at 31%. The limits are 38%-79%. The LCS failure represents less than 5% of the total requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported. Please note that Hexachlorocyclopentadiene is known to be a poor responding analyte as stated in the Method. This may account for the low recovery in the LCS and the low but passing recovery in the MS and MSD.

QC Sample Designation
Sample 315545001 (CAMO-13-24278) was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) Recovery Statement
The MS(1202784550(CAMO-13-24278)) recovered Pentachlorophenol at 111%. The limits are 25%-110%. Since Pentachlorophenol was not detected in the associated parent sample, the biased high recovery had no adverse impact on the data and the results have been reported.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD(1202784551(CAMO-13-24278)) recovered Dibenzo(a,h)anthracene at 135%. The limits are 26%-124%. Since Dibenzo(a,h)anthracene was not detected in the associated parent sample, the biased high recovery had no adverse impact on the data and the results have been reported.

MS/MSD Relative Percent Difference (RPD) Statement
The MSD(1202784550(CAMO-13-24278))/MSD(1202784551(CAMO-13-24278)) RPD values were outside of the acceptance limits. Please see the QC Summary report for specific failures. Since the failed RPD analytes were individually within the acceptance limits for the MS and MSD, with the exception of Dibenzo(a,h)anthracene, the non-conformance had no adverse impact on the data and the results have been reported. The Dibenzo(a,h)anthracene RPD failure was attributed to the biased high recovery in the MSD when compared to the MS. The data results have been reported.

Internal Standard (ISTD) Acceptance
The internal standard responses used to quantitate the requested target analytes were within the required acceptance criteria for the SDG associated samples in this batch.

Technical Information:

Holding Time Specifications
All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

Sample Dilutions
The samples in this SDG in this batch did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG in this analytical batch unless confirmations or dilutions were required.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception report 1143357 was generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

TIC Comment
Tentatively identified compounds (TIC) may be requested for samples in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

Additional Comments
Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

System Configuration

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
MSD8.I	Agilent 6890/5973 GC/MS w/ 7683 Autosampler	HP6890/HP5973	DB-5MS	25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-353 GEL Work Order: 315545

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Barbara Bailey **Name: Barbara Bailey**

Date: 13 DEC 2012 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545001**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24278**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 19:49**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2318.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
62-53-3	Aniline	U	10.0	ug/L	3.00	10.0
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
78-59-1	Isophorone	U	10.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
65-85-0	Benzoic acid	J	13.1	ug/L	6.00	20.0
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene	U	10.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	10.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545001**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24278**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 19:49**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2318.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline	U	10.0	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene	U	10.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	J	4.01	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	J	3.51	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545001**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24278**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 19:49**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2318.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	117	100	ug/L	117	(23%-130%)
2-Fluorobiphenyl	43.0	50.0	ug/L	85.9	(30%-104%)
2-Fluorophenol	45.9	100	ug/L	45.9	(14%-77%)
Nitrobenzene-d5	42.3	50.0	ug/L	84.6	(34%-125%)
Phenol-d5	30.7	100	ug/L	30.7	(10%-78%)
p-Terphenyl-d14	39.8	50.0	ug/L	79.6	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000067-66-3	Trichloromethane	1.978	6.19	ug/L	91	NJ
	unknown	2.181	53.9	ug/L	0	J
	unknown	2.251	4.17	ug/L	0	J
	unknown	2.315	19.5	ug/L	0	J
000110-83-8	Cyclohexene	2.368	18.6	ug/L	91	NJ
	unknown	3.475	5.18	ug/L	0	J
000080-05-7	Phenol, 4,4'-(1-methylethylidene)b	13.755	15	ug/L	98	NJ

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545003**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24271**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 21:31**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**970 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2321.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.3	ug/L	3.09	10.3
110-86-1	Pyridine	U	10.3	ug/L	3.09	10.3
62-53-3	Aniline	U	10.3	ug/L	3.09	10.3
108-95-2	Phenol	U	10.3	ug/L	3.09	10.3
111-44-4	bis(2-Chloroethyl) ether	U	10.3	ug/L	3.09	10.3
95-57-8	2-Chlorophenol	U	10.3	ug/L	3.09	10.3
541-73-1	1,3-Dichlorobenzene	U	10.3	ug/L	3.09	10.3
106-46-7	1,4-Dichlorobenzene	U	10.3	ug/L	3.09	10.3
95-50-1	1,2-Dichlorobenzene	U	10.3	ug/L	3.09	10.3
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.3	ug/L	3.09	10.3
100-51-6	Benzyl alcohol	U	10.3	ug/L	3.09	10.3
95-48-7	o-Cresol	U	10.3	ug/L	3.09	10.3
65794-96-9	m,p-Cresols	U	10.3	ug/L	3.09	10.3
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.3	ug/L	3.09	10.3
67-72-1	Hexachloroethane	U	10.3	ug/L	3.09	10.3
98-95-3	Nitrobenzene	U	10.3	ug/L	3.09	10.3
78-59-1	Isophorone	U	10.3	ug/L	3.09	10.3
88-75-5	2-Nitrophenol	U	10.3	ug/L	3.09	10.3
105-67-9	2,4-Dimethylphenol	U	10.3	ug/L	3.09	10.3
111-91-1	bis(2-Chloroethoxy)methane	U	10.3	ug/L	3.09	10.3
120-83-2	2,4-Dichlorophenol	U	10.3	ug/L	3.09	10.3
65-85-0	Benzoic acid	J	14.0	ug/L	6.19	20.6
106-47-8	4-Chloroaniline	U	10.3	ug/L	3.40	10.3
87-68-3	Hexachlorobutadiene	U	10.3	ug/L	3.09	10.3
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.3	ug/L	3.09	10.3
91-57-6	2-Methylnaphthalene	U	1.03	ug/L	0.309	1.03
91-20-3	Naphthalene	U	1.03	ug/L	0.309	1.03
90-12-0	1-Methylnaphthalene	U	1.03	ug/L	0.309	1.03
77-47-4	Hexachlorocyclopentadiene	U	10.3	ug/L	3.09	10.3
88-06-2	2,4,6-Trichlorophenol	U	10.3	ug/L	3.09	10.3
95-95-4	2,4,5-Trichlorophenol	U	10.3	ug/L	3.09	10.3
91-58-7	2-Chloronaphthalene	U	1.03	ug/L	0.309	1.03
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.3	ug/L	3.09	10.3
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.3	ug/L	3.09	10.3
131-11-3	Dimethylphthalate	U	10.3	ug/L	3.09	10.3
606-20-2	2,6-Dinitrotoluene	U	10.3	ug/L	3.09	10.3

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545003**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24271**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 21:31**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**970 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2321.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.3	ug/L	3.09	10.3
208-96-8	Acenaphthylene	U	1.03	ug/L	0.309	1.03
83-32-9	Acenaphthene	U	1.03	ug/L	0.309	1.03
51-28-5	2,4-Dinitrophenol	U	20.6	ug/L	5.15	20.6
132-64-9	Dibenzofuran	U	10.3	ug/L	3.09	10.3
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.3	ug/L	3.09	10.3
84-66-2	Diethylphthalate	U	10.3	ug/L	3.09	10.3
100-02-7	4-Nitrophenol	U	10.3	ug/L	3.09	10.3
86-73-7	Fluorene	U	1.03	ug/L	0.309	1.03
7005-72-3	4-Chlorophenylphenylether	U	10.3	ug/L	3.09	10.3
100-01-6	4-Nitroaniline	U	10.3	ug/L	3.09	10.3
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.3	ug/L	3.09	10.3
122-39-4	Diphenylamine	U	10.3	ug/L	3.09	10.3
122-66-7	Azobenzene	U	10.3	ug/L	3.09	10.3
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.3	ug/L	3.09	10.3
118-74-1	Hexachlorobenzene	U	10.3	ug/L	3.09	10.3
87-86-5	Pentachlorophenol	U	10.3	ug/L	3.09	10.3
88-85-7	Dinoseb	U	10.3	ug/L	3.09	10.3
85-01-8	Phenanthrene	U	1.03	ug/L	0.309	1.03
120-12-7	Anthracene	U	1.03	ug/L	0.309	1.03
84-74-2	Di-n-butylphthalate	U	10.3	ug/L	3.09	10.3
206-44-0	Fluoranthene	U	1.03	ug/L	0.309	1.03
129-00-0	Pyrene	U	1.03	ug/L	0.309	1.03
85-68-7	Butylbenzylphthalate	U	10.3	ug/L	3.09	10.3
117-81-7	bis(2-Ethylhexyl)phthalate	J	3.26	ug/L	3.09	10.3
56-55-3	Benzo(a)anthracene	U	1.03	ug/L	0.309	1.03
218-01-9	Chrysene	U	1.03	ug/L	0.309	1.03
117-84-0	Di-n-octylphthalate	U	10.3	ug/L	3.09	10.3
205-99-2	Benzo(b)fluoranthene	U	1.03	ug/L	0.309	1.03
207-08-9	Benzo(k)fluoranthene	U	1.03	ug/L	0.309	1.03
50-32-8	Benzo(a)pyrene	U	1.03	ug/L	0.454	1.03
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.03	ug/L	0.309	1.03
53-70-3	Dibenzo(a,h)anthracene	U	1.03	ug/L	0.309	1.03
191-24-2	Benzo(ghi)perylene	U	1.03	ug/L	0.309	1.03
123-91-1	1,4-Dioxane	U	10.3	ug/L	3.09	10.3
55-18-5	N-Nitrosodiethylamine	U	10.3	ug/L	3.09	10.3
930-55-2	N-Nitrosopyrrolidine	U	10.3	ug/L	3.09	10.3

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**315545003**	**Date Received:**	**11/20/2012 09:10**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24271**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 21:31**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**970 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2321.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.3	ug/L	3.09	10.3
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.3	ug/L	3.09	10.3
608-93-5	Pentachlorobenzene	U	10.3	ug/L	3.09	10.3
1912-24-9	Atrazine	U	10.3	ug/L	3.09	10.3
92-87-5	Benzidine	U	10.3	ug/L	3.09	10.3
91-94-1	3,3'-Dichlorobenzidine	U	10.3	ug/L	3.09	10.3
120-82-1	1,2,4-Trichlorobenzene	U	10.3	ug/L	3.09	10.3

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	113	103	ug/L	110	(23%-130%)
2-Fluorobiphenyl	40.4	51.5	ug/L	78.4	(30%-104%)
2-Fluorophenol	46.5	103	ug/L	45.2	(14%-77%)
Nitrobenzene-d5	40.0	51.5	ug/L	77.7	(34%-125%)
Phenol-d5	28.6	103	ug/L	27.8	(10%-78%)
p-Terphenyl-d14	40.4	51.5	ug/L	78.3	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000067-66-3	Trichloromethane	1.978	8.71	ug/L	91	NJ
	unknown	2.181	55.1	ug/L	0	J
000594-36-5	Butane, 2-chloro-2-methyl-	2.251	5.33	ug/L	90	NJ
	unknown	2.315	21.4	ug/L	0	J
001528-21-8	Ethylidenecyclobutane	2.368	21.8	ug/L	94	NJ
	unknown	3.476	5.09	ug/L	0	J
000080-05-7	Phenol, 4,4'-(1-methylethylidene)b	13.756	14.7	ug/L	98	NJ

Quality Control Summary

Semi-Volatile

Surrogate Recovery Report

SDG Number: 2013-353

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1202784549	MB for batch 1265252	42	27	74	65	85	66
1202784552	LCS for batch 1265252	37	23	59	63	82	57
315545001	CAMO-13-24278	46	31	85	86	117	80
1202784550	CAMO-13-24278MS	67	53	86	80	108	76
1202784551	CAMO-13-24278MSD	43	35	57	56	74	53
315545003	CAMO-13-24271	45	28	78	78	110	78

Surrogate			Acceptance Limits
2FP	=	2-Fluorophenol	(14%-77%)
PHL	=	Phenol-d5	(10%-78%)
NBZ	=	Nitrobenzene-d5	(34%-125%)
FBP	=	2-Fluorobiphenyl	(30%-104%)
TBP	=	2,4,6-Tribromophenol	(23%-130%)
TPH	=	p-Terphenyl-d14	(33%-136%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **CAMO-13-24278MS**
Lab Sample ID: **1202784550**
Instrument: **MSD8.I**
Analyst: **RMB**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/23/2012 20:23**
Prep Batch ID: **1265252**
Batch ID: **1265254**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	MS	N-Methyl-N-nitrosomethylam	108	0.00	U	79.2	74	27-85
110-86-1	MS	Pyridine	108	0.00	U	72.6	68	21-93
62-53-3	MS	Aniline	108	0.00	U	79.4	74	28-108
108-95-2	MS	Phenol	108	0.00	U	57.6	54	15-100
111-44-4	MS	bis(2-Chloroethyl) ether	108	0.00	U	73.6	68	27-114
95-57-8	MS	2-Chlorophenol	108	0.00	U	88.4	82	32-103
541-73-1	MS	1,3-Dichlorobenzene	108	0.00	U	64.7	60	23-84
106-46-7	MS	1,4-Dichlorobenzene	108	0.00	U	65.7	61	23-88
95-50-1	MS	1,2-Dichlorobenzene	108	0.00	U	65.0	60	24-86
39638-32-9	MS	bis(2-Chloroisopropyl)ether	108	0.00	U	60.7	56	19-122
100-51-6	MS	Benzyl alcohol	108	0.00	U	100	93	34-98
95-48-7	MS	o-Cresol	108	0.00	U	87.0	81	29-96
65794-96-9	MS	m,p-Cresols	108	0.00	U	98.7	92	26-111
621-64-7	MS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	108	0.00	U	92.4	86	32-115
67-72-1	MS	Hexachloroethane	108	0.00	U	57.9	54	25-82
98-95-3	MS	Nitrobenzene	108	0.00	U	102	95	35-124
78-59-1	MS	Isophorone	108	0.00	U	107	99	37-140
88-75-5	MS	2-Nitrophenol	108	0.00	U	94.7	88	33-115
105-67-9	MS	2,4-Dimethylphenol	108	0.00	U	89.5	83	31-106
111-91-1	MS	bis(2-Chloroethoxy)methane	108	0.00	U	91.8	85	35-112
120-83-2	MS	2,4-Dichlorophenol	108	0.00	U	101	94	36-110
65-85-0	MS	Benzoic acid	215	13.1	J	165	71	12-108

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **CAMO-13-24278MS**
Lab Sample ID: **1202784550**
Instrument: **MSD8.I**
Analyst: **RMB**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/23/2012 20:23**
Prep Batch ID: **1265252**
Batch ID: **1265254**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS	4-Chloroaniline	108	0.00	U	100	93	33-120
87-68-3	MS	Hexachlorobutadiene	108	0.00	U	71.4	66	19-96
59-50-7	MS	Parachlorometa cresol *4-Chloro-3-methylphenol*	108	0.00	U	103	96	36-116
91-57-6	MS	2-Methylnaphthalene	108	0.00	U	73.7	69	27-103
91-20-3	MS	Naphthalene	108	0.00	U	74.1	69	28-99
90-12-0	MS	1-Methylnaphthalene	108	0.00	U	77.8	72	29-107
77-47-4	MS	Hexachlorocyclopentadiene	108	0.00	U	41.8	39	25-75
88-06-2	MS	2,4,6-Trichlorophenol	108	0.00	U	107	100	36-111
95-95-4	MS	2,4,5-Trichlorophenol	108	0.00	U	114	106	34-115
91-58-7	MS	2-Chloronaphthalene	108	0.00	U	78.3	73	33-96
88-74-4	MS	2-Nitroaniline *o-Nitroaniline*	108	0.00	U	83.7	78	31-120
99-09-2	MS	3-Nitroaniline *m-Nitroaniline*	108	0.00	U	95.7	89	32-123
131-11-3	MS	Dimethylphthalate	108	0.00	U	103	95	43-115
606-20-2	MS	2,6-Dinitrotoluene	108	0.00	U	107	100	42-121
121-14-2	MS	2,4-Dinitrotoluene	108	0.00	U	112	104	37-125
208-96-8	MS	Acenaphthylene	108	0.00	U	87.9	82	34-103
83-32-9	MS	Acenaphthene	108	0.00	U	78.9	73	31-104
51-28-5	MS	2,4-Dinitrophenol	108	0.00	U	115	107	25-108
132-64-9	MS	Dibenzofuran	108	0.00	U	97.4	91	38-106
58-90-2	MS	2,3,4,6-Tetrachlorophenol	108	0.00	U	124	116	33-123
84-66-2	MS	Diethylphthalate	108	0.00	U	103	96	43-116
100-02-7	MS	4-Nitrophenol	108	0.00	U	70.7	66	26-72

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353** **Sample Type:** **Matrix Spike**
Client ID: **CAMO-13-24278MS** **Matrix:** **W**
Lab Sample ID: **1202784550**
Instrument: **MSD8.I** **Analysis Date:** **11/23/2012 20:23** **Dilution: 1**
Analyst: **RMB** **Prep Batch ID:** **1265252**
Inj. Vol: **1 uL** **Batch ID:** **1265254**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	108	0.00	U	90.4	84	33-110
7005-72-3	MS	4-Chlorophenylphenylether	108	0.00	U	90.0	84	30-112
100-01-6	MS	4-Nitroaniline *p-Nitroaniline*	108	0.00	U	101	94	28-131
534-52-1	MS	2-Methyl-4,6-dinitrophenol	108	0.00	U	113	105	31-113
122-39-4	MS	Diphenylamine	108	0.00	U	93.1	87	36-110
122-66-7	MS	Azobenzene *1,2-Diphenylhydrazine*	108	0.00	U	86.6	81	33-110
101-55-3	MS	4-Bromophenylphenylether	108	0.00	U	95.8	89	33-111
118-74-1	MS	Hexachlorobenzene	108	0.00	U	97.0	90	36-113
87-86-5	MS	Pentachlorophenol	108	0.00	U	119	111 *	25-110
85-01-8	MS	Phenanthrene	108	0.00	U	96.6	90	36-111
120-12-7	MS	Anthracene	108	0.00	U	96.2	89	36-107
84-74-2	MS	Di-n-butylphthalate	108	4.01	J	103	92	38-116
206-44-0	MS	Fluoranthene	108	0.00	U	105	97	35-116
129-00-0	MS	Pyrene	108	0.00	U	91.8	85	28-126
85-68-7	MS	Butylbenzylphthalate	108	0.00	U	95.9	89	32-120
117-81-7	MS	bis(2-Ethylhexyl)phthalate	108	3.51	J	99.3	89	30-121
56-55-3	MS	Benzo(a)anthracene	108	0.00	U	101	94	38-110
218-01-9	MS	Chrysene	108	0.00	U	97.9	91	35-115
117-84-0	MS	Di-n-octylphthalate	108	0.00	U	97.1	90	30-115
205-99-2	MS	Benzo(b)fluoranthene	108	0.00	U	97.7	91	37-115
207-08-9	MS	Benzo(k)fluoranthene	108	0.00	U	94.6	88	36-118
50-32-8	MS	Benzo(a)pyrene	108	0.00	U	94.3	88	36-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **CAMO-13-24278MS**
Lab Sample ID: **1202784550**
Instrument: **MSD8.I**
Analyst: **RMB**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/23/2012 20:23**
Prep Batch ID: **1265252**
Batch ID: **1265254**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	MS	Indeno(1,2,3-cd)pyrene	108	0.00	U	98.0	91	28-121
53-70-3	MS	Dibenzo(a,h)anthracene	108	0.00	U	100	93	26-124
191-24-2	MS	Benzo(ghi)perylene	108	0.00	U	99.8	93	25-122
123-91-1	MS	1,4-Dioxane	108	0.00	U	77.2	72	26-90
930-55-2	MS	N-Nitrosopyrrolidine	108	0.00	U	97.3	90	40-113
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	108	0.00	U	78.2	73	32-94
1912-24-9	MS	Atrazine	108	0.00	U	73.6	68	36-119
92-87-5	MS	Benzidine	215	0.00	U	38.0	18	10-125
91-94-1	MS	3,3'-Dichlorobenzidine	108	0.00	U	88.0	82	27-109
120-82-1	MS	1,2,4-Trichlorobenzene	108	0.00	U	71.4	66	23-90

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24278MSD** **Matrix:** **W**

Lab Sample ID: **1202784551**

Instrument: **MSD8.I** **Analysis Date:** **11/23/2012 20:57** **Dilution: 1**

Analyst: **RMB** **Prep Batch ID:** **1265252**

Inj. Vol: **1 uL** **Batch ID:** **1265254**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
62-75-9	MSD	N-Methyl-N-nitrosomethylam	108	0.00	U	55.4	52	27-85	35 *	0-30
110-86-1	MSD	Pyridine	108	0.00	U	62.8	58	21-93	14	0-30
62-53-3	MSD	Aniline	108	0.00	U	65.7	61	28-108	19	0-30
108-95-2	MSD	Phenol	108	0.00	U	41.8	39	15-100	32 *	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	108	0.00	U	52.6	49	27-114	33 *	0-30
95-57-8	MSD	2-Chlorophenol	108	0.00	U	61.8	58	32-103	35 *	0-30
541-73-1	MSD	1,3-Dichlorobenzene	108	0.00	U	44.3	41	23-84	38 *	0-30
106-46-7	MSD	1,4-Dichlorobenzene	108	0.00	U	43.3	40	23-88	41 *	0-30
95-50-1	MSD	1,2-Dichlorobenzene	108	0.00	U	45.2	42	24-86	36 *	0-30
39638-32-9	MSD	bis(2-Chloroisopropyl)ether	108	0.00	U	45.2	42	19-122	29	0-30
100-51-6	MSD	Benzyl alcohol	108	0.00	U	70.9	66	34-98	34 *	0-30
95-48-7	MSD	o-Cresol	108	0.00	U	63.3	59	29-96	32 *	0-30
65794-96-9	MSD	m,p-Cresols	108	0.00	U	70.2	65	26-111	34 *	0-30
621-64-7	MSD	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	108	0.00	U	70.1	65	32-115	28	0-30
67-72-1	MSD	Hexachloroethane	108	0.00	U	39.8	37	25-82	37 *	0-30
98-95-3	MSD	Nitrobenzene	108	0.00	U	75.6	70	35-124	30	0-30
78-59-1	MSD	Isophorone	108	0.00	U	81.4	76	37-140	27	0-30
88-75-5	MSD	2-Nitrophenol	108	0.00	U	69.9	65	33-115	30	0-30
105-67-9	MSD	2,4-Dimethylphenol	108	0.00	U	70.1	65	31-106	24	0-30
111-91-1	MSD	bis(2-Chloroethoxy)methane	108	0.00	U	70.0	65	35-112	27	0-30
120-83-2	MSD	2,4-Dichlorophenol	108	0.00	U	74.9	70	36-110	30	0-30
65-85-0	MSD	Benzoic acid	215	13.1	J	130	54	12-108	24	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **CAMO-13-24278MSD**
Lab Sample ID: **1202784551**
Instrument: **MSD8.I**
Analyst: **RMB**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/23/2012 20:57**
Prep Batch ID: **1265252**
Batch ID: **1265254**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
106-47-8	MSD	4-Chloroaniline	108	0.00	U	75.0	70	33-120	29	0-30
87-68-3	MSD	Hexachlorobutadiene	108	0.00	U	51.2	48	19-96	33 *	0-30
59-50-7	MSD	Parachlorometa cresol *4-Chloro-3-methylphenol*	108	0.00	U	75.3	70	36-116	31 *	0-30
91-57-6	MSD	2-Methylnaphthalene	108	0.00	U	55.2	51	27-103	29	0-30
91-20-3	MSD	Naphthalene	108	0.00	U	55.2	51	28-99	29	0-30
90-12-0	MSD	1-Methylnaphthalene	108	0.00	U	59.2	55	29-107	27	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	108	0.00	U	28.6	27	25-75	37 *	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	108	0.00	U	76.8	71	36-111	33 *	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	108	0.00	U	86.7	81	34-115	27	0-30
91-58-7	MSD	2-Chloronaphthalene	108	0.00	U	60.8	57	33-96	25	0-30
88-74-4	MSD	2-Nitroaniline *o-Nitroaniline*	108	0.00	U	61.2	57	31-120	31 *	0-30
99-09-2	MSD	3-Nitroaniline *m-Nitroaniline*	108	0.00	U	69.0	64	32-123	32 *	0-30
131-11-3	MSD	Dimethylphthalate	108	0.00	U	74.2	69	43-115	32 *	0-30
606-20-2	MSD	2,6-Dinitrotoluene	108	0.00	U	80.4	75	42-121	29	0-30
121-14-2	MSD	2,4-Dinitrotoluene	108	0.00	U	80.7	75	37-125	32 *	0-30
208-96-8	MSD	Acenaphthylene	108	0.00	U	66.2	62	34-103	28	0-30
83-32-9	MSD	Acenaphthene	108	0.00	U	59.5	55	31-104	28	0-30
51-28-5	MSD	2,4-Dinitrophenol	108	0.00	U	79.7	74	25-108	36 *	0-30
132-64-9	MSD	Dibenzofuran	108	0.00	U	73.4	68	38-106	28	0-30
58-90-2	MSD	2,3,4,6-Tetrachlorophenol	108	0.00	U	88.6	82	33-123	34 *	0-30
84-66-2	MSD	Diethylphthalate	108	0.00	U	74.2	69	43-116	33 *	0-30
100-02-7	MSD	4-Nitrophenol	108	0.00	U	55.0	51	26-72	25	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24278MSD** **Matrix:** **W**

Lab Sample ID: **1202784551**

Instrument: **MSD8.I** **Analysis Date:** **11/23/2012 20:57** **Dilution: 1**

Analyst: **RMB** **Prep Batch ID:** **1265252**

Inj. Vol: **1 uL** **Batch ID:** **1265254**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
86-73-7	MSD	Fluorene	108	0.00	U	68.7	64	33-110	27	0-30
7005-72-3	MSD	4-Chlorophenylphenylether	108	0.00	U	68.8	64	30-112	27	0-30
100-01-6	MSD	4-Nitroaniline *p-Nitroaniline*	108	0.00	U	74.0	69	28-131	31 *	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	108	0.00	U	81.6	76	31-113	32 *	0-30
122-39-4	MSD	Diphenylamine	108	0.00	U	70.0	65	36-110	28	0-30
122-66-7	MSD	Azobenzene *1,2-Diphenylhydrazine*	108	0.00	U	67.5	63	33-110	25	0-30
101-55-3	MSD	4-Bromophenylphenylether	108	0.00	U	71.7	67	33-111	29	0-30
118-74-1	MSD	Hexachlorobenzene	108	0.00	U	73.8	69	36-113	27	0-30
87-86-5	MSD	Pentachlorophenol	108	0.00	U	88.7	83	25-110	29	0-30
85-01-8	MSD	Phenanthrene	108	0.00	U	71.8	67	36-111	30	0-30
120-12-7	MSD	Anthracene	108	0.00	U	71.5	66	36-107	30	0-30
84-74-2	MSD	Di-n-butylphthalate	108	4.01	J	79.3	70	38-116	26	0-30
206-44-0	MSD	Fluoranthene	108	0.00	U	75.3	70	35-116	33 *	0-30
129-00-0	MSD	Pyrene	108	0.00	U	67.9	63	28-126	30	0-30
85-68-7	MSD	Butylbenzylphthalate	108	0.00	U	69.8	65	32-120	32 *	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	108	3.51	J	72.8	64	30-121	31 *	0-30
56-55-3	MSD	Benzo(a)anthracene	108	0.00	U	76.0	71	38-110	29	0-30
218-01-9	MSD	Chrysene	108	0.00	U	74.0	69	35-115	28	0-30
117-84-0	MSD	Di-n-octylphthalate	108	0.00	U	72.5	67	30-115	29	0-30
205-99-2	MSD	Benzo(b)fluoranthene	108	0.00	U	73.9	69	37-115	28	0-30
207-08-9	MSD	Benzo(k)fluoranthene	108	0.00	U	71.8	67	36-118	27	0-30
50-32-8	MSD	Benzo(a)pyrene	108	0.00	U	72.1	67	36-109	27	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **CAMO-13-24278MSD**
Lab Sample ID: **1202784551**
Instrument: **MSD8.I**
Analyst: **RMB**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/23/2012 20:57**
Prep Batch ID: **1265252**
Batch ID: **1265254**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
193-39-5	MSD	Indeno(1,2,3-cd)pyrene	108	0.00	U	74.3	69	28-121	28	0-30
53-70-3	MSD	Dibenzo(a,h)anthracene	108	0.00	U	145	135 *	26-124	36 *	0-30
191-24-2	MSD	Benzo(ghi)perylene	108	0.00	U	74.6	69	25-122	29	0-30
123-91-1	MSD	1,4-Dioxane	108	0.00	U	58.8	55	26-90	27	0-30
930-55-2	MSD	N-Nitrosopyrrolidine	108	0.00	U	70.7	66	40-113	32 *	0-30
95-94-3	MSD	1,2,4,5-Tetrachlorobenzene	108	0.00	U	61.1	57	32-94	25	0-30
1912-24-9	MSD	Atrazine	108	0.00	U	56.9	53	36-119	26	0-30
92-87-5	MSD	Benzidine	215	0.00	U	88.1	41	10-125	80 *	0-30
91-94-1	MSD	3,3'-Dichlorobenzidine	108	0.00	U	68.1	63	27-109	26	0-30
120-82-1	MSD	1,2,4-Trichlorobenzene	108	0.00	U	50.7	47	23-90	34 *	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **LCS for batch 1265252**
Lab Sample ID: **1202784552**
Instrument: **MSD8.I**
Analyst: **RMB**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/23/2012 19:15**
Prep Batch ID: **1265252**
Batch ID: **1265254**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	LCS	N-Methyl-N-nitrosomethylam	50.0	0.0	19.3	39	29-86
110-86-1	LCS	Pyridine	50.0	0.0	19.5	39	25-96
62-53-3	LCS	Aniline	50.0	0.0	27.6	55	38-105
108-95-2	LCS	Phenol	50.0	0.0	12.4	25	13-137
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	26.6	53	37-110
95-57-8	LCS	2-Chlorophenol	50.0	0.0	30.5	61	41-98
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	24.6	49	33-86
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	25.2	50	33-87
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	25.1	50	34-86
39638-32-9	LCS	bis(2-Chloroisopropyl)ether	50.0	0.0	21.1	42	30-118
100-51-6	LCS	Benzyl alcohol	50.0	0.0	29.6	59	39-88
95-48-7	LCS	o-Cresol	50.0	0.0	27.2	54	37-89
65794-96-9	LCS	m,p-Cresols	50.0	0.0	29.2	58	33-99
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	32.0	64	40-112
67-72-1	LCS	Hexachloroethane	50.0	0.0	22.8	46	31-87
98-95-3	LCS	Nitrobenzene	50.0	0.0	33.2	66	42-118
78-59-1	LCS	Isophorone	50.0	0.0	35.1	70	50-132
88-75-5	LCS	2-Nitrophenol	50.0	0.0	30.6	61	45-109
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	30.0	60	44-98
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	30.9	62	45-109
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	33.4	67	46-106
65-85-0	LCS	Benzoic acid	100	0.0	34.2	34	4-134

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **LCS for batch 1265252**
Lab Sample ID: **1202784552**
Instrument: **MSD8.I**
Analyst: **RMB**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/23/2012 19:15**
Prep Batch ID: **1265252**
Batch ID: **1265254**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	LCS	4-Chloroaniline	50.0	0.0	32.9	66	50-122
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	25.7	51	29-94
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	32.5	65	47-110
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	25.2	50	37-100
91-20-3	LCS	Naphthalene	50.0	0.0	25.7	51	35-97
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	26.2	52	38-105
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	15.4	31 *	38-79
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	37.4	75	43-108
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	40.1	80	43-110
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	28.5	57	40-96
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	30.7	61	45-116
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	33.5	67	46-123
131-11-3	LCS	Dimethylphthalate	50.0	0.0	35.9	72	53-111
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	38.7	77	52-117
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	38.6	77	46-124
208-96-8	LCS	Acenaphthylene	50.0	0.0	31.9	64	42-105
83-32-9	LCS	Acenaphthene	50.0	0.0	28.5	57	42-103
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	37.1	74	33-105
132-64-9	LCS	Dibenzofuran	50.0	0.0	34.9	70	46-106
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	42.4	85	46-119
84-66-2	LCS	Diethylphthalate	50.0	0.0	35.6	71	52-115
100-02-7	LCS	4-Nitrophenol	50.0	0.0	15.4	31	12-130

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **LCS for batch 1265252**
Lab Sample ID: **1202784552**
Instrument: **MSD8.I**
Analyst: **RMB**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/23/2012 19:15**
Prep Batch ID: **1265252**
Batch ID: **1265254**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	LCS	Fluorene	50.0	0.0	32.2	64	44-110
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	32.2	64	41-113
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	34.9	70	39-132
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	36.5	73	39-111
122-39-4	LCS	Diphenylamine	50.0	0.0	33.2	66	47-111
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	31.1	62	41-111
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	33.1	66	42-113
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	32.9	66	44-115
87-86-5	LCS	Pentachlorophenol	50.0	0.0	37.6	75	36-99
85-01-8	LCS	Phenanthrene	50.0	0.0	34.2	68	47-111
120-12-7	LCS	Anthracene	50.0	0.0	33.2	66	46-109
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	35.2	70	49-115
206-44-0	LCS	Fluoranthene	50.0	0.0	34.9	70	45-118
129-00-0	LCS	Pyrene	50.0	0.0	31.4	63	39-126
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	31.9	64	41-121
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	32.2	64	38-124
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	34.6	69	49-110
218-01-9	LCS	Chrysene	50.0	0.0	33.5	67	45-117
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	32.6	65	34-121
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	34.0	68	47-116
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	33.0	66	47-119
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	32.7	65	48-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-353**
Client ID: **LCS for batch 1265252**
Lab Sample ID: **1202784552**
Instrument: **MSD8.I**
Analyst: **RMB**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/23/2012 19:15**
Prep Batch ID: **1265252**
Batch ID: **1265254**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	LCS	Indeno(1,2,3-cd)pyrene	50.0	0.0	33.7	67	38-124
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	46.4	93	38-124
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	34.5	69	36-124
123-91-1	LCS	1,4-Dioxane	50.0	0.0	21.8	44	41-69
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	32.0	64	42-105
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	29.8	60	40-93
1912-24-9	LCS	Atrazine	50.0	0.0	27.3	55	47-115
92-87-5	LCS	Benzidine	100	0.0	41.9	42	19-124
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	31.2	62	36-111
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	24.9	50	32-92

Method Blank Summary

SDG Number:	**2013-353**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1265252**	**Instrument ID:**	**MSD8.I**	**Data File:**	**s112312.B\s8k2316.D**
Lab Sample ID:	**1202784549**	**Prep Date:**	**11/23/2012 06:35**	**Analyzed:**	**11/23/12 18:41**
Column:	**DB-5ms**				

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 1265252	1202784552	s112312.B\s8k2317.D	11/23/12	1915
02	CAMO-13-24278	315545001	s112312.B\s8k2318.D	11/23/12	1949
03	CAMO-13-24278MS	1202784550	s112312.B\s8k2319.D	11/23/12	2023
04	CAMO-13-24278MSD	1202784551	s112312.B\s8k2320.D	11/23/12	2057
05	CAMO-13-24271	315545003	s112312.B\s8k2321.D	11/23/12	2131

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784549**				
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1265252**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 18:41**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2316.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
62-53-3	Aniline	U	10.0	ug/L	3.00	10.0
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
78-59-1	Isophorone	U	10.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
65-85-0	Benzoic acid	U	20.0	ug/L	6.00	20.0
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene	U	10.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	10.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784549**				
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1265252**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 18:41**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2316.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline	U	10.0	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene	U	10.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.0	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784549**				
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1265252**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 18:41**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2316.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	84.8	100	ug/L	84.8	(23%-130%)
2-Fluorobiphenyl	32.5	50.0	ug/L	64.9	(30%-104%)
2-Fluorophenol	41.7	100	ug/L	41.7	(14%-77%)
Nitrobenzene-d5	37.2	50.0	ug/L	74.5	(34%-125%)
Phenol-d5	26.7	100	ug/L	26.7	(10%-78%)
p-Terphenyl-d14	33.2	50.0	ug/L	66.3	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000067-66-3	Trichloromethane	1.978	4.88	ug/L	91	NJ
	unknown	2.186	49.5	ug/L	0	J
	unknown	2.251	4.3	ug/L	0	J
	unknown	2.315	18.5	ug/L	0	J
000110-83-8	Cyclohexene	2.374	18.3	ug/L	93	NJ
	unknown	3.475	4.4	ug/L	0	J

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202784550**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24278MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 20:23**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**465 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2319.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		79.2	ug/L	6.45	21.5
110-86-1	Pyridine		72.6	ug/L	6.45	21.5
62-53-3	Aniline		79.4	ug/L	6.45	21.5
108-95-2	Phenol		57.6	ug/L	6.45	21.5
111-44-4	bis(2-Chloroethyl) ether		73.6	ug/L	6.45	21.5
95-57-8	2-Chlorophenol		88.4	ug/L	6.45	21.5
541-73-1	1,3-Dichlorobenzene		64.7	ug/L	6.45	21.5
106-46-7	1,4-Dichlorobenzene		65.7	ug/L	6.45	21.5
95-50-1	1,2-Dichlorobenzene		65.0	ug/L	6.45	21.5
39638-32-9	bis(2-Chloroisopropyl)ether		60.7	ug/L	6.45	21.5
100-51-6	Benzyl alcohol		100	ug/L	6.45	21.5
95-48-7	o-Cresol		87.0	ug/L	6.45	21.5
65794-96-9	m,p-Cresols		98.7	ug/L	6.45	21.5
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		92.4	ug/L	6.45	21.5
67-72-1	Hexachloroethane		57.9	ug/L	6.45	21.5
98-95-3	Nitrobenzene		102	ug/L	6.45	21.5
78-59-1	Isophorone		107	ug/L	6.45	21.5
88-75-5	2-Nitrophenol		94.7	ug/L	6.45	21.5
105-67-9	2,4-Dimethylphenol		89.5	ug/L	6.45	21.5
111-91-1	bis(2-Chloroethoxy)methane		91.8	ug/L	6.45	21.5
120-83-2	2,4-Dichlorophenol		101	ug/L	6.45	21.5
65-85-0	Benzoic acid		165	ug/L	12.9	43.0
106-47-8	4-Chloroaniline		100	ug/L	7.10	21.5
87-68-3	Hexachlorobutadiene		71.4	ug/L	6.45	21.5
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		103	ug/L	6.45	21.5
91-57-6	2-Methylnaphthalene		73.7	ug/L	0.645	2.15
91-20-3	Naphthalene		74.1	ug/L	0.645	2.15
90-12-0	1-Methylnaphthalene		77.8	ug/L	0.645	2.15
77-47-4	Hexachlorocyclopentadiene		41.8	ug/L	6.45	21.5
88-06-2	2,4,6-Trichlorophenol		107	ug/L	6.45	21.5
95-95-4	2,4,5-Trichlorophenol		114	ug/L	6.45	21.5
91-58-7	2-Chloronaphthalene		78.3	ug/L	0.645	2.15
88-74-4	2-Nitroaniline *o-Nitroaniline*		83.7	ug/L	6.45	21.5
99-09-2	3-Nitroaniline *m-Nitroaniline*		95.7	ug/L	6.45	21.5
131-11-3	Dimethylphthalate		103	ug/L	6.45	21.5
606-20-2	2,6-Dinitrotoluene		107	ug/L	6.45	21.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202784550**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24278MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 20:23**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**465 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2319.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		112	ug/L	6.45	21.5
208-96-8	Acenaphthylene		87.9	ug/L	0.645	2.15
83-32-9	Acenaphthene		78.9	ug/L	0.645	2.15
51-28-5	2,4-Dinitrophenol		115	ug/L	10.8	43.0
132-64-9	Dibenzofuran		97.4	ug/L	6.45	21.5
58-90-2	2,3,4,6-Tetrachlorophenol		124	ug/L	6.45	21.5
84-66-2	Diethylphthalate		103	ug/L	6.45	21.5
100-02-7	4-Nitrophenol		70.7	ug/L	6.45	21.5
86-73-7	Fluorene		90.4	ug/L	0.645	2.15
7005-72-3	4-Chlorophenylphenylether		90.0	ug/L	6.45	21.5
100-01-6	4-Nitroaniline		101	ug/L	6.45	21.5
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		113	ug/L	6.45	21.5
122-39-4	Diphenylamine		93.1	ug/L	6.45	21.5
122-66-7	Azobenzene		86.6	ug/L	6.45	21.5
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		95.8	ug/L	6.45	21.5
118-74-1	Hexachlorobenzene		97.0	ug/L	6.45	21.5
87-86-5	Pentachlorophenol		119	ug/L	6.45	21.5
88-85-7	Dinoseb	U	21.5	ug/L	6.45	21.5
85-01-8	Phenanthrene		96.6	ug/L	0.645	2.15
120-12-7	Anthracene		96.2	ug/L	0.645	2.15
84-74-2	Di-n-butylphthalate		103	ug/L	6.45	21.5
206-44-0	Fluoranthene		105	ug/L	0.645	2.15
129-00-0	Pyrene		91.8	ug/L	0.645	2.15
85-68-7	Butylbenzylphthalate		95.9	ug/L	6.45	21.5
117-81-7	bis(2-Ethylhexyl)phthalate		99.3	ug/L	6.45	21.5
56-55-3	Benzo(a)anthracene		101	ug/L	0.645	2.15
218-01-9	Chrysene		97.9	ug/L	0.645	2.15
117-84-0	Di-n-octylphthalate		97.1	ug/L	6.45	21.5
205-99-2	Benzo(b)fluoranthene		97.7	ug/L	0.645	2.15
207-08-9	Benzo(k)fluoranthene		94.6	ug/L	0.645	2.15
50-32-8	Benzo(a)pyrene		94.3	ug/L	0.946	2.15
193-39-5	Indeno(1,2,3-cd)pyrene		98.0	ug/L	0.645	2.15
53-70-3	Dibenzo(a,h)anthracene		100	ug/L	0.645	2.15
191-24-2	Benzo(ghi)perylene		99.8	ug/L	0.645	2.15
123-91-1	1,4-Dioxane		77.2	ug/L	6.45	21.5
55-18-5	N-Nitrosodiethylamine	U	21.5	ug/L	6.45	21.5
930-55-2	N-Nitrosopyrrolidine		97.3	ug/L	6.45	21.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202784550**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24278MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 20:23**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**465 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2319.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	21.5	ug/L	6.45	21.5
95-94-3	1,2,4,5-Tetrachlorobenzene		78.2	ug/L	6.45	21.5
608-93-5	Pentachlorobenzene	U	21.5	ug/L	6.45	21.5
1912-24-9	Atrazine		73.6	ug/L	6.45	21.5
92-87-5	Benzidine		38.0	ug/L	6.45	21.5
91-94-1	3,3'-Dichlorobenzidine		88.0	ug/L	6.45	21.5
120-82-1	1,2,4-Trichlorobenzene		71.4	ug/L	6.45	21.5

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	232	215	ug/L	108	(23%-130%)
2-Fluorobiphenyl	85.6	108	ug/L	79.6	(30%-104%)
2-Fluorophenol	143	215	ug/L	66.5	(14%-77%)
Nitrobenzene-d5	92.0	108	ug/L	85.5	(34%-125%)
Phenol-d5	114	215	ug/L	53.0	(10%-78%)
p-Terphenyl-d14	82.1	108	ug/L	76.4	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202784551**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24278MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 20:57**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**465 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2320.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		55.4	ug/L	6.45	21.5
110-86-1	Pyridine		62.8	ug/L	6.45	21.5
62-53-3	Aniline		65.7	ug/L	6.45	21.5
108-95-2	Phenol		41.8	ug/L	6.45	21.5
111-44-4	bis(2-Chloroethyl) ether		52.6	ug/L	6.45	21.5
95-57-8	2-Chlorophenol		61.8	ug/L	6.45	21.5
541-73-1	1,3-Dichlorobenzene		44.3	ug/L	6.45	21.5
106-46-7	1,4-Dichlorobenzene		43.3	ug/L	6.45	21.5
95-50-1	1,2-Dichlorobenzene		45.2	ug/L	6.45	21.5
39638-32-9	bis(2-Chloroisopropyl)ether		45.2	ug/L	6.45	21.5
100-51-6	Benzyl alcohol		70.9	ug/L	6.45	21.5
95-48-7	o-Cresol		63.3	ug/L	6.45	21.5
65794-96-9	m,p-Cresols		70.2	ug/L	6.45	21.5
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		70.1	ug/L	6.45	21.5
67-72-1	Hexachloroethane		39.8	ug/L	6.45	21.5
98-95-3	Nitrobenzene		75.6	ug/L	6.45	21.5
78-59-1	Isophorone		81.4	ug/L	6.45	21.5
88-75-5	2-Nitrophenol		69.9	ug/L	6.45	21.5
105-67-9	2,4-Dimethylphenol		70.1	ug/L	6.45	21.5
111-91-1	bis(2-Chloroethoxy)methane		70.0	ug/L	6.45	21.5
120-83-2	2,4-Dichlorophenol		74.9	ug/L	6.45	21.5
65-85-0	Benzoic acid		130	ug/L	12.9	43.0
106-47-8	4-Chloroaniline		75.0	ug/L	7.10	21.5
87-68-3	Hexachlorobutadiene		51.2	ug/L	6.45	21.5
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		75.3	ug/L	6.45	21.5
91-57-6	2-Methylnaphthalene		55.2	ug/L	0.645	2.15
91-20-3	Naphthalene		55.2	ug/L	0.645	2.15
90-12-0	1-Methylnaphthalene		59.2	ug/L	0.645	2.15
77-47-4	Hexachlorocyclopentadiene		28.6	ug/L	6.45	21.5
88-06-2	2,4,6-Trichlorophenol		76.8	ug/L	6.45	21.5
95-95-4	2,4,5-Trichlorophenol		86.7	ug/L	6.45	21.5
91-58-7	2-Chloronaphthalene		60.8	ug/L	0.645	2.15
88-74-4	2-Nitroaniline *o-Nitroaniline*		61.2	ug/L	6.45	21.5
99-09-2	3-Nitroaniline *m-Nitroaniline*		69.0	ug/L	6.45	21.5
131-11-3	Dimethylphthalate		74.2	ug/L	6.45	21.5
606-20-2	2,6-Dinitrotoluene		80.4	ug/L	6.45	21.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202784551**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24278MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 20:57**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**465 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2320.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		80.7	ug/L	6.45	21.5
208-96-8	Acenaphthylene		66.2	ug/L	0.645	2.15
83-32-9	Acenaphthene		59.5	ug/L	0.645	2.15
51-28-5	2,4-Dinitrophenol		79.7	ug/L	10.8	43.0
132-64-9	Dibenzofuran		73.4	ug/L	6.45	21.5
58-90-2	2,3,4,6-Tetrachlorophenol		88.6	ug/L	6.45	21.5
84-66-2	Diethylphthalate		74.2	ug/L	6.45	21.5
100-02-7	4-Nitrophenol		55.0	ug/L	6.45	21.5
86-73-7	Fluorene		68.7	ug/L	0.645	2.15
7005-72-3	4-Chlorophenylphenylether		68.8	ug/L	6.45	21.5
100-01-6	4-Nitroaniline		74.0	ug/L	6.45	21.5
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		81.6	ug/L	6.45	21.5
122-39-4	Diphenylamine		70.0	ug/L	6.45	21.5
122-66-7	Azobenzene		67.5	ug/L	6.45	21.5
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		71.7	ug/L	6.45	21.5
118-74-1	Hexachlorobenzene		73.8	ug/L	6.45	21.5
87-86-5	Pentachlorophenol		88.7	ug/L	6.45	21.5
88-85-7	Dinoseb	U	21.5	ug/L	6.45	21.5
85-01-8	Phenanthrene		71.8	ug/L	0.645	2.15
120-12-7	Anthracene		71.5	ug/L	0.645	2.15
84-74-2	Di-n-butylphthalate		79.3	ug/L	6.45	21.5
206-44-0	Fluoranthene		75.3	ug/L	0.645	2.15
129-00-0	Pyrene		67.9	ug/L	0.645	2.15
85-68-7	Butylbenzylphthalate		69.8	ug/L	6.45	21.5
117-81-7	bis(2-Ethylhexyl)phthalate		72.8	ug/L	6.45	21.5
56-55-3	Benzo(a)anthracene		76.0	ug/L	0.645	2.15
218-01-9	Chrysene		74.0	ug/L	0.645	2.15
117-84-0	Di-n-octylphthalate		72.5	ug/L	6.45	21.5
205-99-2	Benzo(b)fluoranthene		73.9	ug/L	0.645	2.15
207-08-9	Benzo(k)fluoranthene		71.8	ug/L	0.645	2.15
50-32-8	Benzo(a)pyrene		72.1	ug/L	0.946	2.15
193-39-5	Indeno(1,2,3-cd)pyrene		74.3	ug/L	0.645	2.15
53-70-3	Dibenzo(a,h)anthracene		145	ug/L	0.645	2.15
191-24-2	Benzo(ghi)perylene		74.6	ug/L	0.645	2.15
123-91-1	1,4-Dioxane		58.8	ug/L	6.45	21.5
55-18-5	N-Nitrosodiethylamine	U	21.5	ug/L	6.45	21.5
930-55-2	N-Nitrosopyrrolidine		70.7	ug/L	6.45	21.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**	**Date Collected:**	**11/16/2012 10:11**	**Matrix:**	**W**
Lab Sample ID:	**1202784551**	**Date Received:**	**11/20/2012 09:10**		
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24278MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 20:57**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**465 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2320.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	21.5	ug/L	6.45	21.5
95-94-3	1,2,4,5-Tetrachlorobenzene		61.1	ug/L	6.45	21.5
608-93-5	Pentachlorobenzene	U	21.5	ug/L	6.45	21.5
1912-24-9	Atrazine		56.9	ug/L	6.45	21.5
92-87-5	Benzidine		88.1	ug/L	6.45	21.5
91-94-1	3,3'-Dichlorobenzidine		68.1	ug/L	6.45	21.5
120-82-1	1,2,4-Trichlorobenzene		50.7	ug/L	6.45	21.5

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	159	215	ug/L	73.8	(23%-130%)
2-Fluorobiphenyl	60.6	108	ug/L	56.3	(30%-104%)
2-Fluorophenol	92.2	215	ug/L	42.9	(14%-77%)
Nitrobenzene-d5	61.4	108	ug/L	57.1	(34%-125%)
Phenol-d5	74.3	215	ug/L	34.6	(10%-78%)
p-Terphenyl-d14	57.1	108	ug/L	53.1	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784552**				
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1265252**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 19:15**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2317.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		19.3	ug/L	3.00	10.0
110-86-1	Pyridine		19.5	ug/L	3.00	10.0
62-53-3	Aniline		27.6	ug/L	3.00	10.0
108-95-2	Phenol		12.4	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		26.6	ug/L	3.00	10.0
95-57-8	2-Chlorophenol		30.5	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		24.6	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		25.2	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		25.1	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether		21.1	ug/L	3.00	10.0
100-51-6	Benzyl alcohol		29.6	ug/L	3.00	10.0
95-48-7	o-Cresol		27.2	ug/L	3.00	10.0
65794-96-9	m,p-Cresols		29.2	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		32.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane		22.8	ug/L	3.00	10.0
98-95-3	Nitrobenzene		33.2	ug/L	3.00	10.0
78-59-1	Isophorone		35.1	ug/L	3.00	10.0
88-75-5	2-Nitrophenol		30.6	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		30.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		30.9	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		33.4	ug/L	3.00	10.0
65-85-0	Benzoic acid		34.2	ug/L	6.00	20.0
106-47-8	4-Chloroaniline		32.9	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene		25.7	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		32.5	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		25.2	ug/L	0.300	1.00
91-20-3	Naphthalene		25.7	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene		26.2	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene		15.4	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		37.4	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		40.1	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		28.5	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*		30.7	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		33.5	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		35.9	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		38.7	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784552**				
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1265252**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 19:15**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2317.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		38.6	ug/L	3.00	10.0
208-96-8	Acenaphthylene		31.9	ug/L	0.300	1.00
83-32-9	Acenaphthene		28.5	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol		37.1	ug/L	5.00	20.0
132-64-9	Dibenzofuran		34.9	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol		42.4	ug/L	3.00	10.0
84-66-2	Diethylphthalate		35.6	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		15.4	ug/L	3.00	10.0
86-73-7	Fluorene		32.2	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether		32.2	ug/L	3.00	10.0
100-01-6	4-Nitroaniline *p-Nitroaniline*		34.9	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol		36.5	ug/L	3.00	10.0
122-39-4	Diphenylamine		33.2	ug/L	3.00	10.0
122-66-7	Azobenzene *1,2-Diphenylhydrazine*		31.1	ug/L	3.00	10.0
101-55-3	4-Bromophenylphenylether		33.1	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene		32.9	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		37.6	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene		34.2	ug/L	0.300	1.00
120-12-7	Anthracene		33.2	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		35.2	ug/L	3.00	10.0
206-44-0	Fluoranthene		34.9	ug/L	0.300	1.00
129-00-0	Pyrene		31.4	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate		31.9	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		32.2	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene		34.6	ug/L	0.300	1.00
218-01-9	Chrysene		33.5	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate		32.6	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene		34.0	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		33.0	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		32.7	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene		33.7	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene		46.4	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		34.5	ug/L	0.300	1.00
123-91-1	1,4-Dioxane		21.8	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		32.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-353**			**Matrix:**	**WATER**
Lab Sample ID:	**1202784552**				
Client Sample:	**QC for batch 1265252**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1265252**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1265254**	**Inst:**	**MSD8.I**	**Dilution:**	**1**
Run Date:	**11/23/2012 19:15**	**Analyst:**	**RMB**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/23/2012 06:35**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s112312.B\s8k2317.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene		29.8	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine		27.3	ug/L	3.00	10.0
92-87-5	Benzidine		41.9	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		31.2	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		24.9	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	81.8	100	ug/L	81.8	(23%-130%)
2-Fluorobiphenyl	31.3	50.0	ug/L	62.5	(30%-104%)
2-Fluorophenol	36.7	100	ug/L	36.7	(14%-77%)
Nitrobenzene-d5	29.7	50.0	ug/L	59.4	(34%-125%)
Phenol-d5	22.5	100	ug/L	22.5	(10%-78%)
p-Terphenyl-d14	28.3	50.0	ug/L	56.5	(33%-136%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
26-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 8270C	Liquid	ARSL (ESHL)
Batch ID:	**Sample Numbers:**		
1265254	See Below		

Potentially affected work order(s)(SDG): 315545(2013-353)

Application Issues:

Failed Recovery for MS/PS

Failed RPD for MS/MSD, or PS/PSD

Failed Recovery for LCS/LCSD

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. The LCS(1202784552) recovered Hexachlorocyclopentadiene at 31%. The limits are 38%-79%.	1. The LCS failure represents less than 5% of the total requested spike analyte list. That satisfied the acceptance criteria for the client and the data results have been reported. Please note that Hexachlorocyclopentadiene is known to be a poor responding analyte as stated in the Method. This may account for the low recovery in the LCS and the low but passing recovery in the MS and MSD.
2. The MS(1202784550) recovered Pentachlorophenol at 111%. The limits are 25%-110%.	2. Since Pentachlorophenol was not detected in the associated parent sample, the biased high recovery had no adverse impact on the data and the results have been reported.
3. The MSD(1202784551) recovered Dibenzo(a,h)anthracene at 135%. The limits are 26%-124%.	3. Since Dibenzo(a,h)anthracene was not detected in the associated parent sample, the biased high recovery had no adverse impact on the data and the results have been reported.
4. The MSD(1202784550)/MSD(1202784551) RPD values were outside of the acceptance limits. Please see the QC Summary report for specific failures.	4. Since the failed RPD analytes were individually within the acceptance limits for the MS and MSD, with the exception of Dibenzo(a,h)anthracene, the non-conformance had no adverse impact on the data and the results have been reported. The Dibenzo(a,h)anthracene RPD failure was attributed to the biased high recovery in the MSD when compared to the MS. The data results have been reported.

Originator's Name:

Richard Bomar 26-NOV-12

Data Validator/Group Leader:

Barbara Bailey 27-NOV-12

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-353

Sample Analysis

Sample ID	Client ID
315545002	CAMO-13-24282
315545004	CAMO-13-24272
1202784097	Method Blank (MB) **ICP**
1202784098	Laboratory Control Sample (LCS)
1202784101	315545002(CAMO-13-24282L) Serial Dilution (SD)
1202784099	315545002(CAMO-13-24282D) Sample Duplicate (DUP)
1202784100	315545002(CAMO-13-24282S) Matrix Spike (MS)
1202784088	Method Blank (MB) **ICP-MS**
1202784089	Laboratory Control Sample (LCS)
1202784092	315545002(CAMO-13-24282L) Serial Dilution (SD)
1202784090	315545002(CAMO-13-24282D) Sample Duplicate (DUP)
1202784091	315545002(CAMO-13-24282S) Matrix Spike (MS)
1202791367	Method Blank (MB) **CVAA**
1202791368	Laboratory Control Sample (LCS)
1202791371	315545002(CAMO-13-24282L) Serial Dilution (SD)
1202791369	315545002(CAMO-13-24282D) Sample Duplicate (DUP)
1202791370	315545002(CAMO-13-24282S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1265069, 1265063, 1268112 and 1270221
Prep Batch :	1265068, 1265062 and 1268111
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 8
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B

Prep Method : SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following sample was selected as the quality control (QC) sample for this SDG: 315545002 (CAMO-13-24282)-ICP, ICP-MS and CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 12/17/12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-353 GEL Work Order: 315545

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 12/17/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-353 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 315545002 **BASIS:** As Received **DATE COLLECTED** 16-NOV-12

CLIENT ID: CAMO-13-24282 **LEVEL:** Low **DATE RECEIVED** 20-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	12/06/12 10:39	120612W1-6	1268112

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-353 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 315545002 **BASIS:** As Received **DATE COLLECTED** 16-NOV-12

CLIENT ID: CAMO-13-24282 **LEVEL:** Low **DATE RECEIVED** 20-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-36-0	Antimony	3.48	ug/L		1	3	3	1	MS	RMJ	12/06/12 05:32	121205-3	1265063
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	RMJ	12/06/12 05:32	121205-3	1265063
7440-39-3	Barium	22.8	ug/L		1	5	5	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	RMJ	12/06/12 05:32	121205-3	1265063
7440-70-2	Calcium	10200	ug/L		50	200	200	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-47-3	Chromium	5.41	ug/L	J	2	10	10	1	MS	RMJ	12/06/12 05:32	121205-3	1265063
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	12/10/12 13:45	121012A-2	1265069
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	RMJ	12/06/12 05:32	121205-3	1265063
7439-95-4	Magnesium	3340	ug/L		110	300	300	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7439-98-7	Molybdenum	0.849	ug/L		0.165	0.5	0.5	1	MS	RMJ	12/14/12 04:23	121213-5	1265063
7440-02-0	Nickel	0.804	ug/L	J	0.5	2	2	1	MS	RMJ	12/06/12 05:32	121205-3	1265063
7440-09-7	Potassium	1990	ug/L		50	150	150	1	P	HSC	12/10/12 13:45	121012A-2	1265069
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	RMJ	12/13/12 09:09	121212-4	1265063
7631-86-9	Silica	75800	ug/L		53	213	213	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	RMJ	12/06/12 05:32	121205-3	1265063
7440-23-5	Sodium	10600	ug/L		100	300	300	1	P	HSC	12/10/12 13:45	121012A-2	1265069
7440-24-6	Strontium	47	ug/L		1	5	5	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	RMJ	12/06/12 05:32	121205-3	1265063
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-61-1	Uranium	0.465	ug/L		0.067	0.2	0.2	1	MS	RMJ	12/06/12 05:32	121205-3	1265063
7440-62-2	Vanadium	8.5	ug/L		1	5	5	1	P	HSC	11/27/12 20:14	112712B-1	1265069
7440-66-6	Zinc	6.22	ug/L	J	3.3	10	10	1	P	HSC	11/27/12 20:14	112712B-1	1265069

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-353 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 315545002 **BASIS:** As Received **DATE COLLECTED** 16-NOV-12

CLIENT ID: CAMO-13-24282 **LEVEL:** Low **DATE RECEIVED** 20-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	39.2	mg/L		0.453	1.24	1.24	1		JJ2	12/13/12 08:32		1270221

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1265063	1265062	SW846 3005A	50	mL	50	mL	11/27/12	AXG2
1265069	1265068	SW846 3005A	50	mL	50	mL	11/27/12	AXG2
1268112	1268111	EPA 245.1/245.2 Prep	20	mL	20	mL	12/05/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-353 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 315545004 **BASIS:** As Received **DATE COLLECTED** 16-NOV-12

CLIENT ID: CAMO-13-24272 **LEVEL:** Low **DATE RECEIVED** 20-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	12/06/12 10:44	120612W1-6	1268112

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-353 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 315545004 **BASIS:** As Received **DATE COLLECTED** 16-NOV-12

CLIENT ID: CAMO-13-24272 **LEVEL:** Low **DATE RECEIVED** 20-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-36-0	Antimony	3.35	ug/L		1	3	3	1	MS	RMJ	12/06/12 05:57	121205-3	1265063
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	RMJ	12/06/12 05:57	121205-3	1265063
7440-39-3	Barium	22	ug/L		1	5	5	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	RMJ	12/06/12 05:57	121205-3	1265063
7440-70-2	Calcium	10100	ug/L		50	200	200	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-47-3	Chromium	5.5	ug/L	J	2	10	10	1	MS	RMJ	12/06/12 05:57	121205-3	1265063
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	12/10/12 13:57	121012A-2	1265069
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	RMJ	12/06/12 05:57	121205-3	1265063
7439-95-4	Magnesium	3280	ug/L		110	300	300	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7439-98-7	Molybdenum	0.960	ug/L		0.165	0.5	0.5	1	MS	RMJ	12/14/12 04:14	121213-5	1265063
7440-02-0	Nickel	0.766	ug/L	J	0.5	2	2	1	MS	RMJ	12/06/12 05:57	121205-3	1265063
7440-09-7	Potassium	1960	ug/L		50	150	150	1	P	HSC	12/10/12 13:57	121012A-2	1265069
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	RMJ	12/13/12 09:34	121212-4	1265063
7631-86-9	Silica	74200	ug/L		53	213	213	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	RMJ	12/06/12 05:57	121205-3	1265063
7440-23-5	Sodium	10300	ug/L		100	300	300	1	P	HSC	12/10/12 13:57	121012A-2	1265069
7440-24-6	Strontium	45.9	ug/L		1	5	5	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	RMJ	12/06/12 05:57	121205-3	1265063
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-61-1	Uranium	0.497	ug/L		0.067	0.2	0.2	1	MS	RMJ	12/06/12 05:57	121205-3	1265063
7440-62-2	Vanadium	7.99	ug/L		1	5	5	1	P	HSC	11/27/12 20:26	112712B-1	1265069
7440-66-6	Zinc	15	ug/L		3.3	10	10	1	P	HSC	11/27/12 20:26	112712B-1	1265069

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-353 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 315545004 **BASIS:** As Received **DATE COLLECTED** 16-NOV-12

CLIENT ID: CAMO-13-24272 **LEVEL:** Low **DATE RECEIVED** 20-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	38.8	mg/L		0.453	1.24	1.24	1		JJ2	12/13/12 08:32		1270221

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1265063	1265062	SW846 3005A	50	mL	50	mL	11/27/12	AXG2
1265069	1265068	SW846 3005A	50	mL	50	mL	11/27/12	AXG2
1268112	1268111	EPA 245.1/245.2 Prep	20	mL	20	mL	12/05/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−353

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202784088								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	−0.231	ug/L	+/−0.5	J	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202784097								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	50	ug/L	+/−150	U	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	−163	ug/L	+/−300	J	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202791367								
	Mercury	0.067	ug/L	+/−0.2	U	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−353 **Client ID** CAMO−13−24282S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315545002 **Spike ID:** 1202784091

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	211		3.48		200	104		MS
Arsenic	ug/L	75−125	81.6		1.7	U	80	101		MS
Cadmium	ug/L	75−125	10.9		0.11	U	10	109		MS
Chromium	ug/L	75−125	53		5.41	J	50	95.1		MS
Lead	ug/L	75−125	42.7		0.5	U	40	107		MS
Molybdenum	ug/L	75−125	57.9		0.849		50	114		MS
Nickel	ug/L	75−125	49		0.804	J	50	96.4		MS
Selenium	ug/L	75−125	24.3		1.5	U	20	120		MS
Silver	ug/L	75−125	53.4		0.2	U	50	107		MS
Thallium	ug/L	75−125	94.8		0.45	U	100	94.7		MS
Uranium	ug/L	75−125	56		0.465		50	111		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−353 **Client ID** CAMO−13−24282S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315545002 **Spike ID:** 1202784100

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5240		68	U	5000	105		P
Barium	ug/L	75−125	521		22.8		500	99.6		P
Beryllium	ug/L	75−125	507		1	U	500	101		P
Boron	ug/L	75−125	518		15	U	500	101		P
Calcium	ug/L	75−125	15200		10200		5000	99.3		P
Cobalt	ug/L	75−125	493		1	U	500	98.6		P
Copper	ug/L	75−125	543		3	U	500	108		P
Iron	ug/L	75−125	5000		30	U	5000	99.8		P
Magnesium	ug/L	75−125	8330		3340		5000	99.7		P
Manganese	ug/L	75−125	506		2	U	500	101		P
Potassium	ug/L	75−125	7200		1990		5000	104		P
Silica	ug/L		87800		75800		10700	111	N/A	P
Sodium	ug/L	75−125	16400		10600		5000	116		P
Strontium	ug/L	75−125	577		47		500	106		P
Tin	ug/L	75−125	498		2.5	U	500	99.7		P
Vanadium	ug/L	75−125	523		8.5		500	103		P
Zinc	ug/L	75−125	502		6.22	J	500	99.2		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−353 **Client ID** CAMO−13−24282S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 315545002 **Spike ID:** 1202791370

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.08		0.067	U	2	104		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−353 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24282D

Matrix: LIQUID **Level:** Low

Sample ID: 315545002 **Duplicate ID:** 1202784090 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L	+/−3	3.48		3.44		.954		MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	5.41	J	5.45	J	.792		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	0.849		0.99		15.3		MS
Nickel	ug/L	+/−2	0.804	J	0.788	J	2.01		MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.465		0.494		6.05		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−353 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24282D

Matrix: LIQUID **Level:** Low

Sample ID: 315545002 **Duplicate ID:** 1202784099 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−5	22.8		22.1		2.81		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	15	U			P
Calcium	ug/L	+/−20%	10200		9980		2.2		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L		3	U	3	U			P
Iron	ug/L		30	U	30	U			P
Magnesium	ug/L	+/−20%	3340		3300		1.38		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	1990		2000		.155		P
Silica	ug/L	+/−20%	75800		74400		1.95		P
Sodium	ug/L	+/−20%	10600		10400		1.41		P
Strontium	ug/L	+/−20%	47		46		2.12		P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L	+/−5	8.5		8.68		2.15		P
Zinc	ug/L	+/−10	6.22	J	6.11	J	1.88		P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−353 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24282D

Matrix: LIQUID **Level:** Low

Sample ID: 315545002 **Duplicate ID:** 1202791369 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−353

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202784089								
	Antimony	ug/L	50	52.3		105	80−120	MS
	Arsenic	ug/L	50	52.7		105	80−120	MS
	Cadmium	ug/L	50	54.2		108	80−120	MS
	Chromium	ug/L	50	52.6		105	80−120	MS
	Lead	ug/L	50	53.7		107	80−120	MS
	Molybdenum	ug/L	50	51.3		103	80−120	MS
	Nickel	ug/L	50	55.2		110	80−120	MS
	Selenium	ug/L	50	57.4		115	80−120	MS
	Silver	ug/L	50	54.2		108	80−120	MS
	Thallium	ug/L	50	48.7		97.5	80−120	MS
	Uranium	ug/L	50	56		112	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−353

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202784098								
	Aluminum	ug/L	5000	5480		110	80−120	P
	Barium	ug/L	500	498		99.5	80−120	P
	Beryllium	ug/L	500	499		99.8	80−120	P
	Boron	ug/L	500	498		99.7	80−120	P
	Calcium	ug/L	5000	4980		99.5	80−120	P
	Cobalt	ug/L	500	490		98	80−120	P
	Copper	ug/L	500	519		104	80−120	P
	Iron	ug/L	5000	4940		98.8	80−120	P
	Magnesium	ug/L	5000	5020		100	80−120	P
	Manganese	ug/L	500	508		102	80−120	P
	Potassium	ug/L	5000	5180		104	80−120	P
	Silica	ug/L	10700	10700		99.8	80−120	P
	Sodium	ug/L	5000	5240		105	80−120	P
	Strontium	ug/L	500	532		106	80−120	P
	Tin	ug/L	500	503		101	80−120	P
	Vanadium	ug/L	500	514		103	80−120	P
	Zinc	ug/L	500	494		98.9	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−353

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202791368								
	Mercury	ug/L	2	2.11		105	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−353 **Client ID** CAMO−13−24282L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315545002 **Serial Dilution ID:** 1202784092

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	3.48		5	U	100			MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	5.41	J	10	U	100			MS
Lead	.5	U	2.5	U				MS
Molybdenum	.849		.945	J	11.3			MS
Nickel	.804	J	2.5	U	100			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	5.67	J				MS
Uranium	.465		.525	J	12.9			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−353 **Client ID** CAMO−13−24282L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315545002 **Serial Dilution ID:** 1202784101

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	22.8		22.8	J	.382			P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	10200		9860		3.39		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	3340		3360		.423			P
Manganese	2	U	10	U				P
Potassium	1990		2090		4.7			P
Silica	75800		75100		.955		10	P
Sodium	10600		10100		4.16		10	P
Strontium	47		46.3		1.57			P
Tin	2.5	U	12.5	U				P
Vanadium	8.5		12	J	40.7			P
Zinc	6.22	J	16.5	U	100			P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−353 **Client ID** CAMO−13−24268L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 315545002 **Serial Dilution ID:** 1202791371

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-353

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1265851 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
315545001	CAMO-13-24278
315545003	CAMO-13-24271
1202785852	Method Blank (MB)
1202785853	315351001(CASA-13-24211) Sample Duplicate (DUP)
1202785854	315351001(CASA-13-24211) Post Spike (PS)
1202785855	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315351001 (CASA-13-24211).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1267060	**Method:**	EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
315545002	CAMO-13-24282
315545004	CAMO-13-24272
1202788865	315351002(CASA-13-24219) Sample Duplicate (DUP)
1202788867	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315351002 (CASA-13-24219).

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1265360 **Method:** EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
315545002	CAMO-13-24282
315545004	CAMO-13-24272
1202784743	315351002(CASA-13-24219) Sample Duplicate (DUP)
1202784744	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315351002 (CASA-13-24219).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following samples from this sample group were received by the lab outside of the method specified holding time: 315545002 (CAMO-13-24282) and 315545004 (CAMO-13-24272).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1143472 315545002 (CAMO-13-24282) and 315545004 (CAMO-13-24272).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1264118	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
315545002	CAMO-13-24282
315545004	CAMO-13-24272
1202781990	Method Blank (MB)
1202781991	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202781992	315267002(CASA-13-24218) Post Spike (PS)
1202781993	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202781991 (CASA-13-24218), 1202781992 (CASA-13-24218), 315545002 (CAMO-13-24282) and 315545004 (CAMO-13-24272).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1265956	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1265955	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
315545002	CAMO-13-24282
315545004	CAMO-13-24272
1202786153	Method Blank (MB)
1202786154	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202786155	315267002(CASA-13-24218) Matrix Spike (MS)
1202786156	315267002(CASA-13-24218) Matrix Spike Duplicate (MSD)
1202786157	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The relative percent difference (RPD) between the Spike and Spike Duplicate was outside of the required acceptance limits. However, both the Spike and Spike Duplicate recoveries were within the required acceptance limits; therefore, the data is deemed acceptable. 1202786156 (CASA-13-24218).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

The following DER was generated for this SDG: 1143774 1202786156 (CASA-13-24218).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1265958	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1265957	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
315545001	CAMO-13-24278
315545003	CAMO-13-24271
1202786158	Method Blank (MB)
1202786159	315267001(CASA-13-24210) Sample Duplicate (DUP)
1202786161	315267001(CASA-13-24210) Matrix Spike (MS)
1202786165	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 13.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267001 (CASA-13-24210).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference: 1202786161 (CASA-13-24210).

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202786159 (CASA-13-24210).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1147238 1202786161 (CASA-13-24210).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1265759	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
315545002	CAMO-13-24282
315545004	CAMO-13-24272
1202785633	Method Blank (MB)
1202785634	315450004(CAMO-13-24268) Sample Duplicate (DUP)
1202785635	315545002(CAMO-13-24282) Sample Duplicate (DUP)
1202785636	315450004(CAMO-13-24268) Post Spike (PS)
1202785637	315545002(CAMO-13-24282) Post Spike (PS)
1202785638	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 315450004 (CAMO-13-24268) and 315545002 (CAMO-13-24282).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1202785636 (CAMO-13-24268).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202785634 (CAMO-13-24268) and 1202785636 (CAMO-13-24268).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1143441 1202785636 (CAMO-13-24268).

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1263579	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1263578	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
315545002	CAMO-13-24282
315545004	CAMO-13-24272
1202780723	Method Blank (MB)
1202780727	Laboratory Control Sample (LCS)
1202786124	315267002(CASA-13-24218) Sample Duplicate (DUP)
1202786125	315267002(CASA-13-24218) Matrix Spike (MS)
1202786126	315267002(CASA-13-24218) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315267002 (CASA-13-24218).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following sample was re-analyzed due to instrument failure: 1202780727 (LCS). The following sample was re-analyzed due to its proximity to an overrange sample: 315545002 (CAMO-13-24282).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Solids, Total Dissolved**

Analytical Batch: 1264928 **Method:** EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
315545002	CAMO-13-24282
315545004	CAMO-13-24272
1202783776	Method Blank (MB)
1202783778	Laboratory Control Sample (LCS)
1202784567	315450004(CAMO-13-24268) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315450004 (CAMO-13-24268).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1146449

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Alkalinity**

Analytical Batch: 1266562 **Method:** EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
315545002	CAMO-13-24282
315545004	CAMO-13-24272
1202787691	315450004(CAMO-13-24268) Sample Duplicate (DUP)
1202787695	315450004(CAMO-13-24268) Matrix Spike (MS)
1202787699	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 315450004 (CAMO-13-24268).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____17Dec12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-353 GEL Work Order: 315545

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 14, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-353

Client Sample ID:	CAMO-13-24278	Project:	ESHL00210
Sample ID:	315545001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	16-NOV-12 10:11		
Receive Date:	20-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average		1.56	0.330	1.00	mg/L	1	TSM	11/29/12	1931	1265851	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1	KLP1	12/07/12	1515	1265958	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	12/06/12	1500	1265957

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 14, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-353

Client Sample ID:	CAMO-13-24282	Project:	ESHL00210
Sample ID:	315545002	Client ID:	ARSL001
Matrix:	W		
Collect Date:	16-NOV-12 10:11		
Receive Date:	20-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		121	1.00	1.00	umhos/cm	1	LXA1	11/30/12	1427	1267060	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 13.1C	H	7.78	0.010	0.100	SU	1	LYG1	11/21/12	0900	1265360	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	11/30/12	2123	1264118	3
Chloride		1.77	0.067	0.200	mg/L	1					
Fluoride		0.169	0.033	0.100	mg/L	1					
Sulfate		1.92	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.0897	0.017	0.050	mg/L	1	KLP1	11/27/12	1110	1265956	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.370	0.017	0.050	mg/L	1	AXH3	11/26/12	0926	1265759	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	U	ND	0.017	0.050	mg/L	1	KLP1	11/27/12	1711	1263579	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		110	3.40	14.3	mg/L		LYG1	11/20/12	1417	1264928	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		56.1	0.725	1.00	mg/L		LXA1	11/29/12	1734	1266562	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/26/12	1700	1265955
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/26/12	1700	1263578

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 14, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-353
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24282	Project:	ESHL00210
Sample ID:	315545002	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 14, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-353

Client Sample ID:	CAMO-13-24271	Project:	ESHL00210
Sample ID:	315545003	Client ID:	ARSL001
Matrix:	W		
Collect Date:	16-NOV-12 10:11		
Receive Date:	20-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average		1.57	0.330	1.00	mg/L	1	TSM	11/29/12	2004	1265851	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl		1.01	0.033	0.100	mg/L	1	KLP1	12/07/12	1516	1265958	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	12/06/12	1500	1265957

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 14, 2012

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples

Client SDG: 2013-353

Client Sample ID: CAMO-13-24272
Sample ID: 315545004
Matrix: W
Collect Date: 16-NOV-12 10:11
Receive Date: 20-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		122	1.00	1.00	umhos/cm	1	LXA1	11/30/12	1428	1267060	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 13.9C	H	7.64	0.010	0.100	SU	1	LYG1	11/21/12	0901	1265360	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	11/30/12	2152	1264118	3
Chloride		1.78	0.067	0.200	mg/L	1					
Fluoride		0.175	0.033	0.100	mg/L	1					
Sulfate		1.94	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	J	0.043	0.017	0.050	mg/L	1	KLP1	11/27/12	1111	1265956	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.370	0.017	0.050	mg/L	1	AXH3	11/26/12	0934	1265759	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	U	ND	0.017	0.050	mg/L	1	KLP1	11/27/12	1707	1263579	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		47.1	3.40	14.3	mg/L		LYG1	11/20/12	1417	1264928	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		53.6	0.725	1.00	mg/L		LXA1	11/29/12	1744	1266562	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/26/12	1700	1265955
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/26/12	1700	1263578

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: December 14, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-353
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24272	Project:	ESHL00210
Sample ID:	315545004	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: December 14, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **315545**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis											
Batch 1265851											
QC1202785853 315351001 DUP											
Total Organic Carbon Average		U	ND	J	0.356	mg/L	N/A			TSM	11/29/12 15:56
QC1202785855 LCS											
Total Organic Carbon Average	10.0				10.0	mg/L		100	(85%-115%)		11/29/12 15:14
QC1202785852 MB											
Total Organic Carbon Average				U	ND	mg/L					11/29/12 15:05
QC1202785854 315351001 PS											
Total Organic Carbon Average	10.0	U	ND		10.7	mg/L		104	(65%-120%)		11/29/12 16:16
Conductivity Analysis											
Batch 1267060											
QC1202788865 315351002 DUP											
Conductivity			171		170	umhos/cm	0.294		(0%-10%)	LXA1	11/30/12 14:21
QC1202788867 LCS											
Conductivity	1410				1420	umhos/cm		100	(95%-105%)		11/30/12 14:14
Electrode Analysis											
Batch 1265360											
QC1202784743 315351002 DUP											
pH		H	7.85	H	7.85	SU	0.00		(0%-10%)	LYG1	11/21/12 08:50
QC1202784744 LCS											
pH	7.00				7.04	SU		101	(99%-101%)		11/21/12 08:40
Ion Chromatography											
Batch 1264118											
QC1202781991 315267002 DUP											
Bromide		U	ND	U	ND	mg/L	N/A			MAR1	11/30/12 16:34
Chloride			6.27		6.30	mg/L	0.352		(0%-20%)		
Fluoride			0.332		0.333	mg/L	0.271 ^		(+/-0.100)		
Sulfate			5.52		5.55	mg/L	0.524		(0%-20%)		
QC1202781993 LCS											
Bromide	2.50				2.62	mg/L		105	(90%-110%)		11/30/12 15:36
Chloride	10.0				9.24	mg/L		92.4	(90%-110%)		
Fluoride	5.00				4.89	mg/L		97.9	(90%-110%)		
Sulfate	20.0				19.3	mg/L		96.4	(90%-110%)		
QC1202781990 MB											
Bromide				U	ND	mg/L					11/30/12 15:07
Chloride				U	ND	mg/L					
Fluoride				U	ND	mg/L					
Sulfate				U	ND	mg/L					
QC1202781992 315267002 PS											
Bromide	2.50	U	ND		2.59	mg/L		101	(90%-110%)		11/30/12 17:03
Chloride	10.0		6.27		16.2	mg/L		99.7	(90%-110%)		

QC Summary

Workorder: 315545

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1264118											
Fluoride	5.00		0.332		5.12	mg/L		95.8	(90%-110%)		
Sulfate	20.0		5.52		25.0	mg/L		97.3	(90%-110%)	MAR1	11/30/12 17:03
Nutrient Analysis											
Batch 1263579											
QC1202786124 315267002 DUP											
Phosphorus, Total as P		U	ND	U	ND	mg/L	N/A			KLP1	11/27/12 16:55
QC1202780727 LCS											
Phosphorus, Total as P	1.00				0.924	mg/L		92.4	(76%-120%)		11/27/12 16:50
QC1202780723 MB											
Phosphorus, Total as P				U	ND	mg/L					11/27/12 16:37
QC1202786125 315267002 MS											
Phosphorus, Total as P	1.00	U	ND		0.850	mg/L		85	(62%-139%)		11/27/12 16:56
QC1202786126 315267002 MSD											
Phosphorus, Total as P	1.00	U	ND		0.915	mg/L	7.37	91.5	(0%-20%)		11/27/12 16:57
Batch 1265759											
QC1202785634 315450004 DUP											
Nitrogen, Nitrate/Nitrite			1.58		1.54	mg/L	2.56		(0%-20%)	AXH3	11/26/12 09:23
QC1202785635 315545002 DUP											
Nitrogen, Nitrate/Nitrite			0.370		0.371	mg/L	0.270		(0%-20%)		11/26/12 09:27
QC1202785638 LCS											
Nitrogen, Nitrate/Nitrite	1.00				1.03	mg/L		103	(90%-110%)		11/26/12 09:02
QC1202785633 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					11/26/12 09:01
QC1202785636 315450004 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.316		1.43	mg/L		111*	(90%-110%)		11/26/12 09:24
QC1202785637 315545002 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.370		1.43	mg/L		106	(90%-110%)		11/26/12 09:33
Batch 1265956											
QC1202786154 315267002 DUP											
Nitrogen, Ammonia		J	0.0497	J	0.0418	mg/L	17.3 ^		(+/-0.050)	KLP1	11/27/12 10:59
QC1202786157 LCS											
Nitrogen, Ammonia	1.00				1.05	mg/L		105	(90%-110%)		11/27/12 10:58
QC1202786153 MB											
Nitrogen, Ammonia				U	ND	mg/L					11/27/12 10:57
QC1202786155 315267002 MS											
Nitrogen, Ammonia	1.00	J	0.0497		0.981	mg/L		93.1	(90%-110%)		11/27/12 11:00
QC1202786156 315267002 MSD											
Nitrogen, Ammonia	1.00	J	0.0497		1.15	mg/L	15.9*	110	(0%-15%)		11/27/12 11:01
Batch 1265958											
QC1202786159 315267001 DUP											
Nitrogen, Total Kjeldahl		U	ND	U	ND	mg/L	N/A			KLP1	12/07/12 15:02
QC1202786165 LCS											
Nitrogen, Total Kjeldahl	1.00				0.987	mg/L		98.7	(90%-110%)		12/07/12 15:00
QC1202786158 MB											
Nitrogen, Total Kjeldahl				U	ND	mg/L					12/07/12 14:59
QC1202786161 315267001 MS											
Nitrogen, Total Kjeldahl	1.00	U	ND		0.881	mg/L		88.1*	(90%-110%)		12/07/12 15:03

QC Summary

Workorder: 315545

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Solids Analysis										
Batch 1264928										
QC1202784567 315450004 DUP										
Total Dissolved Solids		203		200	mg/L	1.42		(0%-10%)	LYG1	11/20/12 14:17
QC1202783778 LCS										
Total Dissolved Solids	300			290	mg/L		96.7	(95%-105%)		11/20/12 07:48
QC1202783776 MB										
Total Dissolved Solids			U	ND	mg/L					11/20/12 07:48
Titration Analysis										
Batch 1266562										
QC1202787691 315450004 DUP										
Alkalinity, Total as CaCO3		41.7		41.7	mg/L	0.00		(0%-20%)	LXA1	11/29/12 13:04
Carbonate alkalinity (CaCO3)	U	ND	U	ND	mg/L	N/A				
QC1202787699 LCS										
Alkalinity, Total as CaCO3	50.0			50.5	mg/L		101	(90%-110%)		11/29/12 12:50
QC1202787695 315450004 MS										
Alkalinity, Total as CaCO3	50.0	41.7		92.7	mg/L		102	(80%-120%)		11/29/12 13:09

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure

QC Summary

Workorder: **315545**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
26-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 353.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1265759	See below.		

Potentially affected work order(s)(SDG): 315439,315450(2013-334),315545(2013-353)

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for PS: QC 1202785636PS	1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits.

Originator's Name:

Aubrey Kingsbury 26-NOV-12

Data Validator/Group Leader:

Julia Hamilton 29-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
26-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1265360	See below.		

Potentially affected work order(s)(SDG): 315351(2013-321),315352(2013-322),315353(2013-323),315450(2013-334),315545(2013-353)

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 315351 002 315352 002,006 315353 002 315450 004,007 315545 002,004	1. Samples were received out of holding.

Originator's Name:

Lisa Gregory 26-NOV-12

Data Validator/Group Leader:

Julia Hamilton 13-DEC-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
27-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1	Liquid	ESHL, ORNL
Batch ID:	**Sample Numbers:**		
1265956	See below.		

Potentially affected work order(s)(SDG): **315267(2013-312),315351(2013-321),315352(2013-322),315353(2013-323),315450(2013-334),315545(2013-353),315650**

Application Issues:

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Failed RPD for MS/MSD: QC 1202786156MSD	1. The relative percent difference (RPD) between the Spike and Spike Duplicate was outside of the required acceptance limits. However, both the Spike and Spike Duplicate recoveries were within the required acceptance limits; therefore, the data is deemed acceptable.

Originator's Name:
Kristen Parson 27-NOV-12

Data Validator/Group Leader:
Julia Hamilton 27-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
05-DEC-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
BALANCE	EPA 160.1	Liquid	STOL
Batch ID:	**Sample Numbers:**		
1264928	315499003, 1202783777		

Potentially affected work order(s)(SDG): 315450(2013-334),315499(12114946),315545(2013-353)

Application Issues:

Other

Specification and Requirements Exception Description:	DER Disposition:
1. Consecutive weight check criteria not met. 315499003, 1202783777	1. In order to meet consecutive weight check criteria, weight events must be within 0.0005g of each other. After initial weight checks failed this criteria, the analyst performed two additional weight events for Total Dissolved Solids. After four weight events, the analyst was unable to get the samples to conform to the criteria. The failure to meet weighback criteria is attributed to the matrix of the samples.

Originator's Name:

Lisa Gregory 05-DEC-12

Data Validator/Group Leader:

Thomas Lewis 13-DEC-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
07-DEC-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1265958	See below.		

Potentially affected work order(s)(SDG): **315267(2013-312),315311,315351(2013-321),315352(2013-322),315353(2013-323),315450(2013-334),315545(2013-353),315780**

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS: QC 1202786161MS	1. The spike recovery falls outside of the established acceptance limits due to matrix interference:

Originator's Name:

Kristen Parson 07-DEC-12

Data Validator/Group Leader:

Julia Hamilton 10-DEC-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-353
Work Order 315545

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1264269

Sample ID	Client ID
315545001	CAMO-13-24278
315545003	CAMO-13-24271
1202782355	Method Blank (MB)
1202782356	315545003(CAMO-13-24271) Sample Duplicate (DUP)
1202782357	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202782355 (MB) and 1202782357 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315545003 (CAMO-13-24271). The QC was from ARSL work order 315545.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1264270

Sample ID	Client ID
315545001	CAMO-13-24278
315545003	CAMO-13-24271
1202782358	Method Blank (MB)
1202782359	315545003(CAMO-13-24271) Sample Duplicate (DUP)
1202782360	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202782358 (MB) and 1202782360 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315545003 (CAMO-13-24271). The QC was from ARSL work order 315545.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1264271

Sample ID	Client ID
315545001	CAMO-13-24278
315545003	CAMO-13-24271
1202782361	Method Blank (MB)
1202782362	315545003(CAMO-13-24271) Sample Duplicate (DUP)
1202782363	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202782361 (MB) and 1202782363 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315545003 (CAMO-13-24271). The QC was from ARSL work order 315545.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1265828

Sample ID	Client ID
315545001	CAMO-13-24278
315545003	CAMO-13-24271
1202785777	Method Blank (MB)
1202785778	315545001(CAMO-13-24278) Sample Duplicate (DUP)
1202785779	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in May 2012, June 2012 and August 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 315545001 (CAMO-13-24278). The QC was from ARSL work order 315545.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1266694

Sample ID	Client ID
315545001	CAMO-13-24278
315545003	CAMO-13-24271
1202788012	Method Blank (MB)
1202788013	315545001(CAMO-13-24278) Sample Duplicate (DUP)
1202788014	315545001(CAMO-13-24278) Matrix Spike (MS)
1202788015	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202788012 (MB) and 1202788015 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315545001 (CAMO-13-24278). The QC was from ARSL work order 315545.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Samples 1202788013 (CAMO-13-24278) and 315545001 (CAMO-13-24278) were recounted due to high relative percent difference/relative error ratio. The recounts are reported. Sample 315545003 (CAMO-13-24271) was recounted due to results more negative than the three sigma TPU. The second count is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202788014 (CAMO-13-24278), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1268150

Sample ID	Client ID
315545001	CAMO-13-24278
315545003	CAMO-13-24271
1202791495	Method Blank (MB)
1202791496	315159001(CAMO-13-24249) Sample Duplicate (DUP)
1202791497	315159001(CAMO-13-24249) Matrix Spike (MS)
1202791498	315159001(CAMO-13-24249) Matrix Spike Duplicate (MSD)
1202791499	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in December 2012. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202791495 (MB) and 1202791499 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 315159001 (CAMO-13-24249). The QC was from ARSL work order 315159.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Samples were reprepped due to high relative percent difference/relative error ratio. The re-analysis is being reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike and matrix spike duplicate, 1202791497 (CAMO-13-24249) and 1202791498 (CAMO-13-24249), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-353 GEL Work Order: 315545

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Kate Gellatly**

Date: 12 DEC 2012 **Title: Analyst I**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 12, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24278
Sample ID: 315545001
Matrix: W
Collect Date: 16-NOV-12
Receive Date: 20-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.00233	+/-0.00403	0.0265	+/-0.00403	0.050	pCi/L		HAKB	11/26/12	1259	1264269	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.00	+/-0.00611	0.0294	+/-0.00611	0.050	pCi/L		HAKB	11/23/12	1247	1264270	2
Plutonium-239/240	U	0.00917	+/-0.00683	0.0488	+/-0.00684	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.416	+/-0.0347	0.0627	+/-0.0442	1.00	pCi/L		HAKB	11/23/12	1246	1264271	3
Uranium-235/236	U	0.00334	+/-0.00747	0.0391	+/-0.00747	1.00	pCi/L						
Uranium-238		0.197	+/-0.024	0.0425	+/-0.0272	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-0.0834	+/-1.39	4.88	+/-1.39	8.00	pCi/L		KXG3	11/26/12	1247	1265828	4
Cobalt-60	U	1.25	+/-1.15	4.83	+/-1.15	8.00	pCi/L						
Neptunium-237	U	-2.77	+/-2.53	8.63	+/-2.53	10.0	pCi/L						
Potassium-40	U	-28.6	+/-15.9	60.8	+/-15.9	10.0	pCi/L						
Sodium-22	U	-0.152	+/-0.956	3.69	+/-0.956	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	-0.15	+/-0.132	0.487	+/-0.132	0.500	pCi/L		VXC2	12/09/12	1333	1266694	5
WSP-GrossA/B "As Received"													
Beta		3.28	+/-0.876	2.39	+/-0.919	3.00	pCi/L		DYT1	12/05/12	1618	1268150	6
Alpha	U	0.353	+/-0.554	2.27	+/-0.555	3.00	pCi/L		DYT1	12/06/12	1308	1268150	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1264269	95.8	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1264270	70.2	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1264271	80.4	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1266694	85.1	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 12, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24278
Sample ID: 315545001

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 12, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24271
Sample ID: 315545003
Matrix: W
Collect Date: 16-NOV-12
Receive Date: 20-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.010	+/-0.00793	0.0285	+/-0.00794	0.050	pCi/L		HAKB	11/26/12	1259	1264269	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	-0.0027	+/-0.00468	0.0259	+/-0.00468	0.050	pCi/L		HAKB	11/23/12	1247	1264270	2
Plutonium-239/240	U	0.00	+/-0.0054	0.0431	+/-0.0054	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.311	+/-0.0301	0.0608	+/-0.0365	1.00	pCi/L		HAKB	11/23/12	1246	1264271	3
Uranium-235/236	U	0.00648	+/-0.00916	0.038	+/-0.00917	1.00	pCi/L						
Uranium-238		0.197	+/-0.0233	0.0413	+/-0.0265	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	1.53	+/-1.19	4.83	+/-1.19	8.00	pCi/L		KXG3	11/26/12	1247	1265828	4
Cobalt-60	U	-0.585	+/-0.871	3.18	+/-0.871	8.00	pCi/L						
Neptunium-237	U	0.0659	+/-2.13	7.74	+/-2.13	10.0	pCi/L						
Potassium-40	U	-11.8	+/-16.9	65.1	+/-16.9	10.0	pCi/L						
Sodium-22	U	1.14	+/-1.19	4.91	+/-1.19	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	-0.221	+/-0.131	0.488	+/-0.131	0.500	pCi/L		VXC2	12/09/12	1333	1266694	5
WSP-GrossA/B "As Received"													
Beta	U	2.06	+/-0.802	2.43	+/-0.820	3.00	pCi/L		DYT1	12/05/12	1620	1268150	6
Alpha	U	0.773	+/-0.651	2.32	+/-0.654	3.00	pCi/L		DYT1	12/06/12	1307	1268150	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1264269	88.7	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1264270	80.3	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1264271	90.8	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1266694	82.3	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: December 12, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24271
Sample ID: 315545003

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

QC Summary

Report Date: December 12, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico
Contact: **Keith Greene**

Workorder: **315545**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1264269										
QC1202782356 315545003 DUP										
Americium-241	U	0.010	U	0.00735	pCi/L	0.0927		(0-1)	HAKB	11/26/1212:59
	Uncert:	+/-0.00793		+/-0.00648						
	TPU:	+/-0.00794		+/-0.00649						
**Americium-243 Tracer	2.60	2.31		2.41	pCi/L		92.5	(50%-105%)		
	Uncert:	+/-0.0803		+/-0.0798						
	TPU:	+/-0.137		+/-0.136						
QC1202782357 LCS										
Americium-241	1.41			1.47	pCi/L		104	(80%-120%)	HAKB	11/26/1212:59
	Uncert:			+/-0.053						
	TPU:			+/-0.0813						
**Americium-243 Tracer	2.08			2.09	pCi/L		100	(50%-105%)		
	Uncert:			+/-0.0623						
	TPU:			+/-0.107						
QC1202782355 MB										
Americium-241			U	0.00	pCi/L				HAKB	11/26/1212:59
	Uncert:			+/-0.00454						
	TPU:			+/-0.00454						
**Americium-243 Tracer	2.08			1.95	pCi/L		93.7	(50%-105%)		
	Uncert:			+/-0.0619						
	TPU:			+/-0.107						
Batch 1264270										
QC1202782359 315545003 DUP										
Plutonium-238	U	-0.0027	U	-0.00277	pCi/L	0.0034		(0-1)	HAKB	11/23/1212:47
	Uncert:	+/-0.00468		+/-0.0062						
	TPU:	+/-0.00468		+/-0.0062						
Plutonium-239/240	U	0.00	U	0.00832	pCi/L	0.358		(0-1)		
	Uncert:	+/-0.0054		+/-0.0062						
	TPU:	+/-0.0054		+/-0.00621						
**Plutonium-242 Tracer	2.43	1.95		1.93	pCi/L		79.3	(50%-105%)		
	Uncert:	+/-0.0811		+/-0.0822						
	TPU:	+/-0.134		+/-0.136						
QC1202782360 LCS										
Plutonium-238			U	0.0176	pCi/L			(80%-120%)	HAKB	11/23/1212:47
	Uncert:			+/-0.00647						
	TPU:			+/-0.00652						
Plutonium-239/240	2.03			2.00	pCi/L		98.7	(80%-120%)		
	Uncert:			+/-0.0626						
	TPU:			+/-0.106						
**Plutonium-242 Tracer	1.94			1.78	pCi/L		91.5	(50%-105%)		
	Uncert:			+/-0.0617						
	TPU:			+/-0.104						
QC1202782358 MB										

QC Summary

Workorder: 315545

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1264270										
Plutonium-238			U	0.00	pCi/L				HAKB	11/23/1212:47
	Uncert:			+/-0.00274						
	TPU:			+/-0.00274						
Plutonium-239/240			U	0.00387	pCi/L					
	Uncert:			+/-0.00387						
	TPU:			+/-0.00387						
**Plutonium-242 Tracer	1.94			1.73	pCi/L		89.1	(50%-105%)		
	Uncert:			+/-0.0614						
	TPU:			+/-0.103						
Batch 1264271										
QC1202782362 315545003 DUP										
Uranium-234		0.311		0.370	pCi/L	0.375		(0-1)	HAKB	11/23/1212:46
	Uncert:	+/-0.0301		+/-0.0343						
	TPU:	+/-0.0365		+/-0.0423						
Uranium-235/236	U	0.00648	U	0.0141	pCi/L	0.213		(0-1)		
	Uncert:	+/-0.00916		+/-0.00862						
	TPU:	+/-0.00917		+/-0.00867						
Uranium-238		0.197		0.199	pCi/L	0.0254		(0-1)		
	Uncert:	+/-0.0233		+/-0.0248						
	TPU:	+/-0.0265		+/-0.028						
**Uranium-232 Tracer	2.73	2.48		2.13	pCi/L		77.9	(50%-105%)		
	Uncert:	+/-0.085		+/-0.0891						
	TPU:	+/-0.196		+/-0.199						
QC1202782363 LCS										
Uranium-234				2.63	pCi/L				HAKB	11/23/1212:46
	Uncert:			+/-0.0837						
	TPU:			+/-0.194						
Uranium-235/236				0.148	pCi/L					
	Uncert:			+/-0.0228						
	TPU:			+/-0.0248						
Uranium-238	2.70			2.59	pCi/L		95.8	(80%-120%)		
	Uncert:			+/-0.0828						
	TPU:			+/-0.191						
**Uranium-232 Tracer	2.19			1.41	pCi/L		64.5	(50%-105%)		
	Uncert:			+/-0.0765						
	TPU:			+/-0.164						
QC1202782361 MB										
Uranium-234			U	0.00481	pCi/L				HAKB	11/23/1212:46
	Uncert:			+/-0.0101						
	TPU:			+/-0.0101						
Uranium-235/236			U	0.00572	pCi/L					
	Uncert:			+/-0.007						
	TPU:			+/-0.00701						
Uranium-238			U	0.00462	pCi/L					
	Uncert:			+/-0.00731						
	TPU:			+/-0.00732						
**Uranium-232 Tracer	2.19			1.67	pCi/L		76.3	(50%-105%)		
	Uncert:			+/-0.0715						

QC Summary

Workorder: 315545

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1264271										
	TPU:			+/-0.159						
Rad Gamma Spec										
Batch 1265828										
QC1202785778 315545001 DUP										
Cesium-137	U	-0.0834	U	-1.43	pCi/L	0.244		(0-1)	KXG3	11/27/1208:06
	Uncert:	+/-1.39		+/-1.37						
	TPU:	+/-1.39		+/-1.37						
Cobalt-60	U	1.25	U	0.334	pCi/L	0.178		(0-1)		
	Uncert:	+/-1.15		+/-1.41						
	TPU:	+/-1.15		+/-1.41						
Neptunium-237	U	-2.77	U	-0.613	pCi/L	0.207		(0-1)		
	Uncert:	+/-2.53		+/-2.69						
	TPU:	+/-2.53		+/-2.69						
Potassium-40	U	-28.6	U	-29.1	pCi/L	0.00734		(0-1)		
	Uncert:	+/-15.9		+/-16.1						
	TPU:	+/-15.9		+/-16.1						
Sodium-22	U	-0.152	U	-0.463	pCi/L	0.0705		(0-1)		
	Uncert:	+/-0.956		+/-1.25						
	TPU:	+/-0.956		+/-1.25						
QC1202785779 LCS										
Americium-241	2780			2550	pCi/L		91.5	(80%-120%)	KXG3	11/27/1208:09
	Uncert:			+/-165						
	TPU:			+/-165						
Cesium-137	6090			6290	pCi/L		103	(80%-120%)		
	Uncert:			+/-261						
	TPU:			+/-261						
Cobalt-60	5620			5680	pCi/L		101	(80%-120%)		
	Uncert:			+/-236						
	TPU:			+/-236						
Neptunium-237			U	-22.1	pCi/L					
	Uncert:			+/-20.6						
	TPU:			+/-20.6						
Potassium-40			U	-10.9	pCi/L					
	Uncert:			+/-46.4						
	TPU:			+/-46.4						
Sodium-22			U	-6.34	pCi/L					
	Uncert:			+/-7.07						
	TPU:			+/-7.07						
QC1202785777 MB										
Cesium-137			U	-0.72	pCi/L				KXG3	11/26/1212:48
	Uncert:			+/-1.29						
	TPU:			+/-1.29						
Cobalt-60			U	0.631	pCi/L					
	Uncert:			+/-1.36						
	TPU:			+/-1.36						
Neptunium-237			U	1.30	pCi/L					
	Uncert:			+/-2.62						
	TPU:			+/-2.62						

QC Summary

Workorder: 315545

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1265828										
Potassium-40			U	-9.35	pCi/L					
	Uncert:			+/-16.0						
	TPU:			+/-16.0						
Sodium-22			U	1.24	pCi/L					
	Uncert:			+/-1.50						
	TPU:			+/-1.50						
Rad Gas Flow										
Batch 1266694										
QC1202788013 315545001 DUP										
Strontium-90	U	-0.15	U	0.0757	pCi/L	0.411		(0-1)	VXC2	12/09/1213:32
	Uncert:	+/-0.132		+/-0.142						
	TPU:	+/-0.132		+/-0.142						
**Strontium Carrier	7.17	6.10		5.70	mg		79.6	(50%-105%)		
QC1202788015 LCS										
Strontium-90	24.8			24.6	pCi/L		99.3	(80%-120%)	VXC2	12/07/1216:43
	Uncert:			+/-0.666						
	TPU:			+/-2.09						
**Strontium Carrier	7.17			6.40	mg		89.3	(50%-105%)		
QC1202788012 MB										
Strontium-90			U	-0.139	pCi/L				VXC2	12/07/1216:42
	Uncert:			+/-0.111						
	TPU:			+/-0.111						
**Strontium Carrier	7.17			6.70	mg		93.5	(50%-105%)		
QC1202788014 315545001 MS										
Strontium-90	124 U	-0.15		130	pCi/L		105	(75%-125%)	VXC2	12/07/1216:43
	Uncert:	+/-0.132		+/-3.56						
	TPU:	+/-0.132		+/-12.1						
**Strontium Carrier	7.17	6.10		6.00	mg		83.7	(50%-105%)		
Batch 1268150										
QC1202791496 315159001 DUP										
Alpha	U	0.830	U	0.155	pCi/L	0.312		(0-1)	DYT1	12/06/1213:08
	Uncert:	+/-0.612		+/-0.463						
	TPU:	+/-0.616		+/-0.464						
Beta	U	1.67	U	1.12	pCi/L	0.184		(0-1)		12/05/1216:21
	Uncert:	+/-0.821		+/-0.671						
	TPU:	+/-0.833		+/-0.677						
QC1202791499 LCS										
Alpha	12.0			11.7	pCi/L		97.3	(80%-120%)	DYT1	12/06/1213:02
	Uncert:			+/-0.616						
	TPU:			+/-1.20						
Beta	49.6			51.8	pCi/L		104	(80%-120%)		12/05/1216:18
	Uncert:			+/-0.934						
	TPU:			+/-4.41						
QC1202791495 MB										
Alpha			U	-0.0368	pCi/L				DYT1	12/06/1213:07
	Uncert:			+/-0.0451						
	TPU:			+/-0.0452						
Beta			U	-0.135	pCi/L					12/05/1216:20

QC Summary

Workorder: **315545**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1268150										
	Uncert:			+/-0.106						
	TPU:			+/-0.106						
QC1202791497 315159001 MS										
Alpha	481	0.830	U	473	pCi/L		98.2	(75%-125%)	DYT1	12/06/1213:01
	Uncert:	+/-0.612		+/-24.9						
	TPU:	+/-0.616		+/-47.7						
Beta	1980	1.67	U	2190	pCi/L		110	(75%-125%)		12/05/1216:18
	Uncert:	+/-0.821		+/-39.0						
	TPU:	+/-0.833		+/-185						
QC1202791498 315159001 MSD										
Alpha	481	0.830	U	472	pCi/L	0.000951	98.1	(0-1)	DYT1	12/06/1213:01
	Uncert:	+/-0.612		+/-25.1						
	TPU:	+/-0.616		+/-48.5						
Beta	1980	1.67	U	2150	pCi/L	0.0534	108	(0-1)		12/05/1216:18
	Uncert:	+/-0.821		+/-38.8						
	TPU:	+/-0.833		+/-191						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.

QC Summary

Workorder: **315545**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-292

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

- 24 Hour - ☐ Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3	Special Instructions:
CAMO-13-24276	Nov 5 2012	10:09	W	1	

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
		11/8/12 3:00		
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4031 **EVENT NAME:** Mortandad/Sandia (MDA C and GS Monitoring) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24276 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/05/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1009	MEDIA:	UA	
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-14 S1		FIELD PREP:	UF	ok
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	N/A
	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE		
	WSP-GrossA/B	1 LITER POLY	1	NONE		
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:
N/A

LOCATION COMMENTS:
N/A

FIELD PARAMETERS:

Dissolved Oxygen 5.64 mg/L Oxidation-Reduction Potential 184.3 MV pH 8.26 SU

Specific Conductance 134 uS/cm Temperature 22.09 deg C Turbidity 0.51 NTU

COLLECTED BY (PRINT) D. Fellenz

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
Andrew Stocker	11/5/12 1115		11/5/12 1115
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-292

1. Distribution Of Samples In EDD.

	Analytical	Regular	Field	Trip	Field	Equipment
SDG	Method	Samples	Duplicates	Blanks	Blanks	Blanks
ARS1-12-02263	Generic:Low_Level_Tritium	1				

	Analytical	Analysis	Prep	Regular	Field	Trip	Field	Equipment	Method	Matrix	Matrix
SDG	Method	Lot ID	Lot ID	Samples	Duplicates	Blanks	Blanks	Blanks	Blanks	Spikes	Spike Dups
ARS1-12-02263	Generic:Low_Level_Tritium	ARS1-B12-02721	ARS1-B12-02721	1					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
Generic:Low_Level_Tritium	RAD							
LCS	ARS1-B12-02721-01	LCS	0	0	1	0		
Generic:Low_Level_Tritium	RAD	CAMO-13-24276	ARS1-B12-02721-10	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	LCSD	ARS1-B12-02721-02	LCSD	0	0	1	0
Generic:Low_Level_Tritium	RAD	MB	ARS1-B12-02721-03	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

No.

Any samples affected by the presence of contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

No.

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

Data Validation Report for: Chain Of Custody No. 2013-292

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1	1						

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-14 S1	2013-292	CAMO-13-24276	REG	INIT	RAD	Generic:Low_Level_Tritium	Tritium	U	U	R5	N

Reason Code	Description
R5	Analyte is not detected because the amount reported is less than the MDC.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24276	R-14 S1	REG	Generic:Low_Level_Tritium	0	1

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
-0.376	pCi/L	-0.376	pCi/L	2.738	0.797	W	11/5/2012		ARS1-B12-02721	VAL	Y

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Request Number: 2013-292

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-292

Original COC

American Radiation Services - Primary

1726 Wooddale Court
Baton Rouge LA 70806

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-292

Client Contact:

Lab Agreement # : 63641-001-10

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-LL-H-3	Special Instructions:
CAMO-13-24276	Nov 5 2012	10:09	W	1	

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
Melissa Montoya		11/8/12 3:00		11/9/12 1030
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-292

Case Narrative

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

December 7, 2012

LANL
Keith Greene
PO Box 1663 MS M992
Los Alamos, NM 87545

Request Number: **2013-292**
LANL Sample ID: **CAMO-13-24276**

Dear Mr. Greene;

On November 9, 2012, ARS International received one (1) water sample to be analyzed for Low Level Tritium.

The sample underwent enrichment and was counted using the appropriate counting equipment and QA/QC for this type of analysis. Results of the analysis and QA/QC are attached in the data package.

The client and QA/QC samples were counted with a count time sufficient to meet quality control parameters for counting equipment and were within acceptance criteria and statistical sound detection limits.

If you have any questions please do not hesitate to call at 225.381.2991 or email LANL@amrad.com.

Sincerely,

Laboratory Management
ARS International

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

COVER PAGE

PROJECT SAMPLE IDENTIFICATION
CROSS-REFERENCE
TO ARS SAMPLE LABORATORY IDs
Subcontract (LANL Agreement Number) 63641-001-10

Request Number	LANL PROJECT SAMPLE ID NUMBER	American Radiation Services SAMPLE ID NUMBER(S)
2013-292	CAMO-13-24276	ARS1-12-02263-001

ANALYTICAL METHODS
Tritium analyses were performed using **ARS-040 Tritium Assay in Water Samples Using Electrolytic Enrichment.**

ANALYTICAL RESULTS
The result data that are flagged with "U" indicate that the activity is below the MDC.

American Radiation Services Project Manager/Laboratory Director's Comments:
"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

"I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the LANL specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."

Signature	Title	Date
James D. [illegible]	Laboratory Management, ARS International	12-10-12

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02263	**Request or PO Number:**	2013-292
Client Sample ID:	CAMO-13-24276	**ARS Sample ID:**	ARS1-12-02263-001
Sample Collection Date:	11/05/12	**Date Received:**	11/09/12
Sample Matrix:	Aqueous	**Report Date:**	12/10/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	-0.376	0.797	2.738	1.322	U	pCi/L	ARS-040	12/07/12 11:42	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

QC Results Report

Sample Delivery Group: ARS1-12-02263
Date Received: 11/9/2012

Laboratory Control Sample Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Percent Recovery (%)	LCS Acceptance Range
ARS1-B12-02721	LCS	H3	25.875	4.032	2.269	25.703		pCi/L	ARS-040	12/4/12 18:56	RJU	101	80%-120%

Blank Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician
ARS1-B12-02721	MBL	H3	-0.085	0.625	2.135	NA	U	pCi/L	ARS-040	12/4/12 18:56	RJU

Sample RER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	RER	RER AcceptanceRange
ARS1-B12-02721	LCSD	H3	25.875	4.032	24.604	3.836		pCi/L	ARS-040	12/4/12 18:56	RJU	0.16	< 1

Sample DER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	DER	DER AcceptanceRange
ARS1-B12-02721	LCSD	H3	25.875	4.032	24.604	3.836		pCi/L	ARS-040	12/4/12 18:56	RJU	0.46	< 3

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of ARS International.

LELAP Certificate# 01949 NELAP Certificate # E87558

QC Evaluation

EPA Method: ARS-040
Batch ID: ARS1-B12-02721
SDG's: ARS1-12-02261;2262;2263;2264;2305;2306;2307;2309

LCS	25.8750	**CSU (2s)**	7.9020
LCSD	24.6040	**CSU-D (2s)**	7.5190

DER = abs(LSC-LSCD) / sqr((2s CSU/2)^2)+((2s CSU-D/2)^2) *at 1 sigma* = **< 3**

DER 1.271 / 5.453828 = 0.233047 **< 3**

% RPD= ABS(LCS - LSCD) / (LCS+LCSD)/2 * 100 = **< 25%**

%RPD 1.271 / 25.2395 *100 = 5.035757 **< 25%**

The *RPD* shall be less than 25% or other client-applied criteria

RER= abs((LCS-LCSD)) / (CSU)+(CSD) *at 2 sigma* = **<1** ***<--LANL Requirement***

RER = 1.271 / 15.4210 0.082420077 **<1**

Blank Information

	Act	CSU(2s)	MDA	Act>MDA
AM-241				
U-234				
U-235				
U-238				
Pu-238				
Pu-239/240				
Th-228				
Th-230				
Th-232				
H3	-0.085	1.225	2.135	
Ra-226				
Ra-228				
Total U				
Pb-210				
Po-209				
Sr-90				
TC-99				
NI-63				

*MDA should be below RDL
*Blank activity must be below MDA
*Blank activity must be < 1.65*CSU (DOE only)

ACT = -0.085
CSU = 1.225
Is ACT<1.65*CSU? **YES**

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

ARS INTERNATIONAL 12-0984

Analysis Batch ID **ARS1-B12-02721**

Method	ARS-040	Analysis	LSC-A-022	Matrix	AQ
Description	Low Level Tritium by Electrolytic Enrichment				

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02721-01	LCS	B-14793								
ARS1-B12-02721-02	LCSD	B-14794								
ARS1-B12-02721-03	MBL									
ARS1-B12-02721-04	TRG				**ARS1-12-02261**	001	1	CAMO-13-24279	STD	11/29/12
ARS1-B12-02721-05	TRG				**ARS1-12-02262**	001	1	CAMO-13-24241	STD	12/06/12
ARS1-B12-02721-06	TRG				**ARS1-12-02262**	002	1	CAMO-13-24242	STD	12/06/12
ARS1-B12-02721-07	TRG				**ARS1-12-02262**	003	1	CAMO-13-24225	STD	12/06/12
ARS1-B12-02721-08	TRG				**ARS1-12-02262**	004	1	CAMO-13-24247	STD	12/06/12
ARS1-B12-02721-09	TRG				**ARS1-12-02262**	005	1	CAMO-13-24248	STD	12/06/12
ARS1-B12-02721-10	TRG				**ARS1-12-02263**	001	1	CAMO-13-24276	STD	12/06/12
ARS1-B12-02721-11	TRG				**ARS1-12-02264**	001	1	CASA-13-24209	STD	12/06/12
ARS1-B12-02721-12	TRG				**ARS1-12-02264**	002	1	CASA-13-24213	STD	12/06/12
ARS1-B12-02721-13	TRG				**ARS1-12-02264**	003	1	CASA-13-24214	STD	12/06/12
ARS1-B12-02721-14	TRG				**ARS1-12-02305**	001	1	CASA-13-24210	STD	12/12/12
ARS1-B12-02721-15	TRG				**ARS1-12-02306**	001	1	CAMO-13-24245	STD	12/12/12
ARS1-B12-02721-16	TRG				**ARS1-12-02306**	002	1	CAMO-13-24246	STD	12/12/12
ARS1-B12-02721-17	TRG				**ARS1-12-02306**	003	1	CAMO-13-24249	STD	12/12/12
ARS1-B12-02721-18	TRG				**ARS1-12-02306**	004	1	CAMO-13-24250	STD	12/12/12
ARS1-B12-02721-19	TRG				**ARS1-12-02307**	001	1	CAMO-13-24253	STD	12/12/12
ARS1-B12-02721-20	TRG				**ARS1-12-02307**	002	1	CAMO-13-24228	STD	12/12/12
ARS1-B12-02721-21	TRG				**ARS1-12-02309**	001	1	CASA-13-24211	STD	12/12/12

127700
12-02261-001-1
WRAD

127702
12-02262-001-1
WRAD

127704
12-02262-002-1
WRAD

127706
12-02262-003-1
WRAD

127708
12-02262-004-1
WRAD

127710
12-02262-005-1
WRAD

127712
12-02263-001-1
WRAD

127714
12-02264-001-1
WRAD

127716
12-02264-002-1
WRAD

127718
12-02264-003-1
WRAD

127720
12-02305-001-1
WRAD

127722
12-02306-001-1
WRAD

127724
12-02306-002-1
WRAD

127726
12-02306-003-1
WRAD

127728
12-02306-004-1
WRAD

127730
12-02307-001-1
WRAD

127732
12-02307-002-1
WRAD

127734
12-02309-001-1
WRAD

American Radiation Services
Baton Rouge Laboratory

LCS Report
Analytical Batch: ARS1-B12-02721

BlindID	ABatch	ABatchSampleID	BlindGroup	StdID	Isotope	ExpectedAddition	ExpectedValue	EmptyWt	GrossWt	NetWt	UserID	ModDate	ExpectedValue_CT	MidPointCountDate	KnownValue
B-14793	ARS1-B12-02721	ARS1-B12-02721-01	B-H3	S-0279	H-3	5	2.552560129	13.098	18.151	5.053	AMRAD\BSTEFFENS	11/13/2012			
B-14794	ARS1-B12-02721	ARS1-B12-02721-02	B-H3	S-0279	H-3	5	2.552560129	13.14	18.192	5.052	AMRAD\BSTEFFENS	11/13/2012			

ID_31001_040	ABatch	AnalysisCode	ABatchSampleID	ClientID	IC_ID	S01_1_EnrichCellNo	S01_2_TareCell	S01_3_TareResv	S02_GrossWtResv	S03_1_WtNa2O2	C_GrossSampleAdded
444	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-01			4	327.7	200.9	701.14	2.07	500.24
445	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-02			33	336.25	215.3	718.8	2.08	503.5
446	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-03			74	328.56	197.95	701.97	2.06	504.02
447	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-04	CAMO-13-24279		61	335.51	213.55	714.87	2	501.32
448	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-05	CAMO-13-24241		64	331.04	209.03	714.77	2.01	505.74
449	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-06	CAMO-13-24242		68	334.63	204.08	706.25	2.02	502.17
450	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-07	CAMO-13-24225		29	335.72	206.2	707.31	2.06	501.11
451	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-08	CAMO-13-24247		55	331.14	208.66	711.99	2.02	503.33
452	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-09	CAMO-13-24248		84	336.66	197.55	700.94	2.05	503.39
453	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-10	CAMO-13-24276		89	340.12	203.22	707.98	2.08	504.76
454	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-11	CASA-13-24209		97	332.94	202.132	708.3	2	506.168
455	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-12	CASA-13-24213		3	332.17	214.84	717.62	2.03	502.78
456	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-13	CASA-13-24214		16	329.44	217.7	718.25	2.09	500.55
457	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-14	CASA-13-24210		26	337.76	213.12	716.43	2	503.31
458	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-15	CAMO-13-24245		44	331.35	214.173	718.93	2.08	504.757
459	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-16	CAMO-13-24246		50	329.91	216.33	717.493	2.07	501.163
460	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-17	CAMO-13-24249		31	334.66	204.09	709.85	2.08	505.76
461	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-18	CAMO-13-24250		8	332.1	204.54	705.56	2	501.02
462	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-19	CAMO-13-24253		87	334.14	207.46	710.88	2.01	503.42
463	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-20	CAMO-13-24228		94	337.21	197.78	700.71	2.05	502.93
464	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-21	CASA-13-24211		99	336.65	206.9	709.24	2.06	502.34

12-4-12

S04_1_ElectrolSD	S04_2_StartAmp	S04_3_StartBathC	S05_1_ElectrolED	S05_2_EndBathC	S05_3_EndCellWt	C_GrossSmplRec	C_EnrichmentF	S06_TareWt	S07_GrossWt	C_RecoveredWa
11/16/2012 15:00:00	5	1.8	11/30/2012 14:58:00	2	545.34	16.74	29.88291517	117.45	130.16	12.71
11/16/2012 15:00:00	5	1.8	11/30/2012 15:00:00	2	567.84	16.29	30.90853284	117.71	129.56	11.85
11/16/2012 15:00:00	5	1.8	11/29/2012 07:51:00	1.8	543.45	16.94	29.75324675	101.5	114.12	12.62
11/16/2012 15:00:00	5	1.8	11/29/2012 07:53:00	1.8	565.75	16.69	30.03714799	108.55	121.28	12.73
11/16/2012 15:00:00	5	1.8	11/30/2012 15:01:00	2	555.66	15.59	32.44002566	104.53	115.28	10.75
11/16/2012 15:00:00	5	1.8	12/03/2012 12:24:00	1.9	553.86	15.15	33.14653465	102.66	112.87	10.21
11/16/2012 15:00:00	5	1.8	11/29/2012 13:10:00	2	558.94	17.02	29.44242068	116.99	128.81	11.82
11/16/2012 15:00:00	5	1.8	11/30/2012 15:03:00	2	555.09	15.29	32.91890124	110.03	121.82	11.79
11/16/2012 15:00:00	5	1.8	11/30/2012 15:05:00	2	549.5	15.29	32.92282538	109.95	120.14	10.19
11/16/2012 15:00:00	5	1.8	11/30/2012 15:06:00	2	560.19	16.85	29.95608309	96.23	110.02	13.79
11/16/2012 15:00:00	5	1.8	11/30/2012 15:07:00	2	552.49	17.418	29.06005282	107.55	120.29	12.74
11/16/2012 15:00:00	5	1.8	11/29/2012 13:08:00	2	563.52	16.51	30.45305875	117.92	129.06	11.14
11/16/2012 15:00:00	5	1.8	12/04/2012 07:37:00	2.1	564.03	16.89	29.63587922	105.46	120.29	14.83
11/16/2012 15:00:00	5	1.8	12/04/2012 07:39:00	2.1	565.2	14.32	35.14734637	101.94	114.75	12.81
11/16/2012 15:00:00	5	1.8	12/04/2012 07:42:00	2.1	563.27	17.747	28.44182115	116.81	128.38	11.57
11/16/2012 15:00:00	5	1.8	12/04/2012 07:45:00	2.1	563.14	16.9	29.65461538	109.51	121.45	11.94
11/16/2012 15:00:00	5	1.8	12/04/2012 11:41:00	2.1	555.31	16.56	30.5410628	111.9	124.2	12.3
11/16/2012 15:00:00	5	1.8	11/29/2012 07:56:00	1.8	553.44	16.8	29.82261905	105.48	117.84	12.36
11/16/2012 15:00:00	5	1.8	11/29/2012 07:58:00	1.8	558.66	17.06	29.5087925	112	125.02	13.02
11/16/2012 15:00:00	5	1.8	11/29/2012 13:05:00	1.9	551.09	16.1	31.2378882	115.1	127.71	12.61
11/16/2012 15:00:00	5	1.8	11/29/2012 13:03:00	1.9	560.98	17.43	28.82042456	104.78	117.5	12.72

12-4-12

S08_TearWtLSCVial	S09_VialPlusSmpl	C_NetSample	S10_1_WtVislSmplDrWatFill	C_NetDeadWaterAdded	C_TareWtBFCocktail	S10_2_GrossWtVSC	C_NetWtCocktailAdded	UserID	ModDate
6.44	16.44	10	0	0	16.44	27.34	10.9	AMRAD\RUSEY	12/03/2012 12:16:52
6.44	16.45	10.01	0	0	16.45	27.43	10.98	AMRAD\RUSEY	12/03/2012 12:18:50
6.51	16.53	10.02	0	0	16.53	27.02	10.49	AMRAD\RUSEY	11/29/2012 14:42:42
6.53	16.54	10.01	0	0	16.54	26.83	10.29	AMRAD\RUSEY	11/29/2012 14:44:17
6.45	16.5	10.05	0	0	16.5	26.92	10.42	AMRAD\RUSEY	12/03/2012 12:20:31
6.53	16.54	10.01	0	0	16.54	26.86	10.32	AMRAD\RUSEY	12/03/2012 14:37:15
6.38	16.42	10.04	0	0	16.42	27.17	10.75	AMRAD\RUSEY	11/29/2012 15:39:24
6.59	16.64	10.05	0	0	16.64	26.96	10.32	AMRAD\RUSEY	12/03/2012 12:23:43
6.47	16.53	10.06	0	0	16.53	26.85	10.32	AMRAD\RUSEY	12/03/2012 14:39:07
6.54	16.54	10	0	0	16.54	26.89	10.35	AMRAD\RUSEY	12/03/2012 14:41:26
6.68	16.69	10.01	0	0	16.69	26.99	10.3	AMRAD\RUSEY	12/03/2012 14:43:02
6.52	16.56	10.04	0	0	16.56	26.84	10.28	AMRAD\RUSEY	11/29/2012 15:42:09
6.64	16.69	10.05	0	0	16.69	26.89	10.2	AMRAD\RUSEY	12/04/2012 10:57:08
6.38	16.39	10.01	0	0	16.39	26.6	10.21	AMRAD\RUSEY	12/04/2012 10:59:05
6.61	16.64	10.03	0	0	16.64	26.99	10.35	AMRAD\RUSEY	12/04/2012 11:01:07
6.49	16.54	10.05	0	0	16.54	26.84	10.3	AMRAD\RUSEY	12/04/2012 11:02:49
6.46	16.53	10.07	0	0	16.53	26.79	10.26	AMRAD\RUSEY	12/04/2012 13:55:27
6.5	16.58	10.08	0	0	16.58	26.89	10.31	AMRAD\RUSEY	11/29/2012 14:45:59
6.56	16.58	10.02	0	0	16.58	26.94	10.36	AMRAD\RUSEY	11/29/2012 14:47:45
6.46	16.49	10.03	0	0	16.49	26.79	10.3	AMRAD\RUSEY	11/29/2012 15:43:57
6.57	16.59	10.02	0	0	16.59	26.89	10.3	AMRAD\RUSEY	11/29/2012 15:45:48

12-4-12

AMRAD
AMERICAN RADIATION SERVICES, LLC

LSC Instrument Data Transfer Report

\\Packard3170\Results\H3 Low Level\Low Level H3_3\

Batch Sample ID	Non-BKG Samples Transferred	Samples Eligible To Save	
ARS1-B12-02721	21	21	LSC 1

LIMS Batch Sample ID	LSC P#	LSC PID	LSC S#	LSC SMPL_ID	LSC Count Date	LSC CPMA	LSC tSIE	LSC EFF	LSC Count Dur	Analysis Batch	LIMS SDG	LIMS Run
BKG	10		1	BACKGROUND	12/04/12 14:45	1.11	395.29	25.3300	240.00	ARS1-B12-02721		
ARS1-B12-02721-01	10		2	B12-02721-01	12/04/12 18:56	4.84	378.07	24.5900	240.00	ARS1-B12-02721		
ARS1-B12-02721-02	10		3	B12-02721-02	12/04/12 23:07	4.79	377.91	24.5800	240.00	ARS1-B12-02721		
ARS1-B12-02721-03	10		4	B12-02721-03	12/05/12 03:18	1.09	407.72	25.9200	240.00	ARS1-B12-02721		
ARS1-B12-02721-04	10		5	B12-02721-04	12/05/12 07:29	1.08	378.13	24.5900	240.00	ARS1-B12-02721	ARS1-12-02261	1
ARS1-B12-02721-05	10		6	B12-02721-05	12/05/12 11:40	1.28	395.32	25.3300	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-06	2		1	B12-02721-06	12/06/12 16:58	3.80	401.27	25.6100	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-07	2		2	B12-02721-07	12/06/12 21:09	1.32	410.59	26.0600	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-08	2		3	B12-02721-08	12/07/12 01:20	1.47	395.87	25.3500	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-09	2		4	B12-02721-09	12/07/12 05:31	1.35	351.17	23.5500	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-10	2		5	B12-02721-10	12/07/12 09:42	1.06	286.28	20.1600	240.00	ARS1-B12-02721	ARS1-12-02263	1
ARS1-B12-02721-11	2		6	B12-02721-11	12/07/12 13:53	1.82	354.31	23.6700	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-12	10		13	B12-02721-12	12/05/12 15:52	1.03	220.99	15.6400	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-13	10		14	B12-02721-13	12/05/12 20:03	1.28	402.67	25.6800	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-14	10		15	B12-02721-14	12/06/12 00:14	1.00	286.72	20.1900	240.00	ARS1-B12-02721	ARS1-12-02305	1
ARS1-B12-02721-15	10		16	B12-02721-15	12/06/12 04:24	1.16	290.87	20.4700	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-16	10		17	B12-02721-16	12/06/12 08:35	1.17	258.02	18.2400	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-17	10		18	B12-02721-17	12/06/12 12:46	3.55	251.93	17.8300	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-18	10		1	B12-02721-18	12/07/12 18:04	1.08	258.29	18.2500	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-19	10		2	B12-02721-19	12/07/12 22:15	1.85	308.77	21.6900	240.00	ARS1-B12-02721	ARS1-12-02307	1
ARS1-B12-02721-20	10		3	B12-02721-20	12/08/12 02:26	1.39	304.39	21.3900	240.00	ARS1-B12-02721	ARS1-12-02307	1
ARS1-B12-02721-21	10		4	B12-02721-21	12/08/12 06:37	1.07	280.53	19.7700	240.00	ARS1-B12-02721	ARS1-12-02309	1

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Total_Bkg_Count_Duration_min	DF	Sample_Activity_Conc	Standard_Counting_Uncertainty	CU_1	CSU_1	CU_1_96	CSU_1_96	MDC	DLC	ActivityReportUnits
LSC-A-022	ARS1-B12-02721-01	240.000	0.98654	25.875	1.091	1.091	4.032	2.139	7.902	2.269	1.095	pCi
LSC-A-022	ARS1-B12-02721-02	240.000	0.98638	24.604	1.047	1.047	3.836	2.052	7.519	2.186	1.055	pCi
LSC-A-022	ARS1-B12-02721-03	240.000	0.99908	-0.085	0.625	0.625	0.625	1.225	1.225	2.135	1.031	pCi
LSC-A-022	ARS1-B12-02721-04	240.000	0.99478	-0.213	0.655	0.655	0.655	1.283	1.285	2.247	1.085	pCi
LSC-A-022	ARS1-B12-02721-05	240.000	0.99462	1.037	0.608	0.608	0.628	1.192	1.230	1.997	0.964	pCi
LSC-A-022	ARS1-B12-02721-06	240.000	0.99447	15.912	0.845	0.845	2.532	1.656	4.963	1.933	0.933	pCi
LSC-A-022	ARS1-B12-02721-07	240.000	0.99432	1.394	0.661	0.661	0.694	1.296	1.359	2.153	1.039	pCi
LSC-A-022	ARS1-B12-02721-08	240.000	0.99524	2.149	0.620	0.620	0.699	1.215	1.369	1.959	0.946	pCi
LSC-A-022	ARS1-B12-02721-09	240.000	0.99524	1.567	0.650	0.650	0.691	1.274	1.355	2.102	1.015	pCi
LSC-A-022	ARS1-B12-02721-10	240.000	0.99508	-0.376	0.795	0.795	0.797	1.559	1.563	2.738	1.322	pCi
LSC-A-022	ARS1-B12-02721-11	240.000	0.99508	5.262	0.817	0.817	1.136	1.601	2.227	2.422	1.169	pCi
LSC-A-022	ARS1-B12-02721-12	240.000	0.99570	-0.793	0.998	0.998	1.005	1.956	1.970	3.460	1.670	pCi
LSC-A-022	ARS1-B12-02721-13	240.000	0.99554	1.108	0.657	0.657	0.678	1.288	1.329	2.159	1.042	pCi
LSC-A-022	ARS1-B12-02721-14	240.000	0.99646	-0.723	0.658	0.658	0.667	1.290	1.307	2.296	1.109	pCi
LSC-A-022	ARS1-B12-02721-15	240.000	0.99631	0.469	0.844	0.844	0.847	1.655	1.661	2.843	1.372	pCi
LSC-A-022	ARS1-B12-02721-16	240.000	0.99631	0.613	0.905	0.905	0.910	1.775	1.784	3.040	1.468	pCi
LSC-A-022	ARS1-B12-02721-17	240.000	0.99585	22.455	1.280	1.280	3.603	2.510	7.063	3.008	1.452	pCi
LSC-A-022	ARS1-B12-02721-18	240.000	0.99570	-0.287	0.882	0.882	0.883	1.729	1.731	3.027	1.461	pCi
LSC-A-022	ARS1-B12-02721-19	240.000	0.99539	5.878	0.879	0.879	1.245	1.723	2.440	2.593	1.252	pCi
LSC-A-022	ARS1-B12-02721-20	240.000	0.99539	2.120	0.766	0.766	0.830	1.502	1.626	2.460	1.188	pCi
LSC-A-022	ARS1-B12-02721-21	240.000	0.99631	-0.311	0.846	0.846	0.847	1.658	1.661	2.906	1.403	pCi

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Initial_Mass_sample_g	Mass_Na2O2_added_g	Final_mass_electrolyzed_sample_NaOH_g	Mass_equivalent_NaOH_g	Final_Mass_Electrolyzed_sample_g	VolumeFactor_X	Enrichment_Factor_Y
LSC-A-022	ARS1-B12-02721-01	500.240	2.070	16.740	2.124	14.616	0.029	26.782
LSC-A-022	ARS1-B12-02721-02	503.500	2.080	16.290	2.134	14.156	0.028	27.791
LSC-A-022	ARS1-B12-02721-03	504.020	2.060	16.940	2.114	14.826	0.029	26.608
LSC-A-022	ARS1-B12-02721-04	501.320	2.000	16.690	2.052	14.638	0.029	26.799
LSC-A-022	ARS1-B12-02721-05	505.740	2.010	15.590	2.062	13.528	0.027	29.154
LSC-A-022	ARS1-B12-02721-06	502.170	2.020	15.150	2.073	13.077	0.026	29.914
LSC-A-022	ARS1-B12-02721-07	501.110	2.060	17.020	2.114	14.906	0.030	26.324
LSC-A-022	ARS1-B12-02721-08	503.330	2.020	15.290	2.073	13.217	0.026	29.675
LSC-A-022	ARS1-B12-02721-09	503.390	2.050	15.290	2.103	13.187	0.026	29.745
LSC-A-022	ARS1-B12-02721-10	504.760	2.080	16.850	2.134	14.716	0.029	26.838
LSC-A-022	ARS1-B12-02721-11	506.168	2.000	17.418	2.052	15.366	0.030	25.815
LSC-A-022	ARS1-B12-02721-12	502.780	2.030	16.510	2.083	14.427	0.029	27.251
LSC-A-022	ARS1-B12-02721-13	500.550	2.090	16.890	2.144	14.746	0.029	26.571
LSC-A-022	ARS1-B12-02721-14	503.310	2.000	14.320	2.052	12.268	0.024	31.878
LSC-A-022	ARS1-B12-02721-15	504.757	2.080	17.747	2.134	15.613	0.031	25.354
LSC-A-022	ARS1-B12-02721-16	501.163	2.070	16.900	2.124	14.776	0.029	26.550
LSC-A-022	ARS1-B12-02721-17	505.760	2.080	16.560	2.134	14.426	0.029	27.409
LSC-A-022	ARS1-B12-02721-18	501.020	2.000	16.800	2.052	14.748	0.029	26.591
LSC-A-022	ARS1-B12-02721-19	503.420	2.010	17.060	2.062	14.998	0.030	26.286
LSC-A-022	ARS1-B12-02721-20	502.930	2.050	16.100	2.103	13.997	0.028	28.064
LSC-A-022	ARS1-B12-02721-21	502.340	2.060	17.430	2.114	15.316	0.030	25.707

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Average_Sample_CPM	Bkg_CPM	tSIE	Detector_Eff_decimal	Aliquot	AliqUnits	Activity_reference_date	Start_Date_of_Count	Sample_Count_Duration_min
LSC-A-022	ARS1-B12-02721-01	4.839	1.107	378.070	0.246	0.01000	L	9/7/2012	12/4/2012	240.000
LSC-A-022	ARS1-B12-02721-02	4.791	1.107	377.910	0.246	0.01001	L	9/7/2012	12/4/2012	240.000
LSC-A-022	ARS1-B12-02721-03	1.094	1.107	407.720	0.259	0.01002	L	11/29/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-04	1.076	1.107	378.130	0.246	0.01001	L	11/1/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-05	1.277	1.107	395.320	0.253	0.01005	L	10/31/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-06	3.801	1.107	401.270	0.256	0.01001	L	10/31/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-07	1.319	1.107	410.590	0.261	0.01004	L	10/31/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-08	1.466	1.107	395.870	0.254	0.01005	L	11/6/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-09	1.351	1.107	351.170	0.236	0.01006	L	11/6/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-10	1.062	1.107	286.280	0.202	0.01000	L	11/5/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-11	1.818	1.107	354.310	0.237	0.01001	L	11/5/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-12	1.032	1.107	220.990	0.156	0.01004	L	11/7/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-13	1.275	1.107	402.670	0.257	0.01005	L	11/7/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-14	1.004	1.107	286.720	0.202	0.01001	L	11/13/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-15	1.161	1.107	290.870	0.205	0.01003	L	11/12/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-16	1.173	1.107	258.020	0.182	0.01005	L	11/12/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-17	3.550	1.107	251.930	0.178	0.01007	L	11/9/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-18	1.076	1.107	258.290	0.183	0.01008	L	11/9/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-19	1.849	1.107	308.770	0.217	0.01002	L	11/8/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-20	1.389	1.107	304.390	0.214	0.01003	L	11/8/2012	12/8/2012	240.000
LSC-A-022	ARS1-B12-02721-21	1.072	1.107	280.530	0.198	0.01002	L	11/14/2012	12/8/2012	240.000

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	AliquotReportUnits	UserID	ModDate
LSC-A-022	ARS1-B12-02721-01	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-02	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-03	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-04	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-05	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-06	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-07	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-08	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-09	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-10	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-11	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-12	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-13	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-14	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-15	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-16	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-17	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-18	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-19	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-20	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-21	L	AMRAD\RUSEY	12/10/2012

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\20121204_1437.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

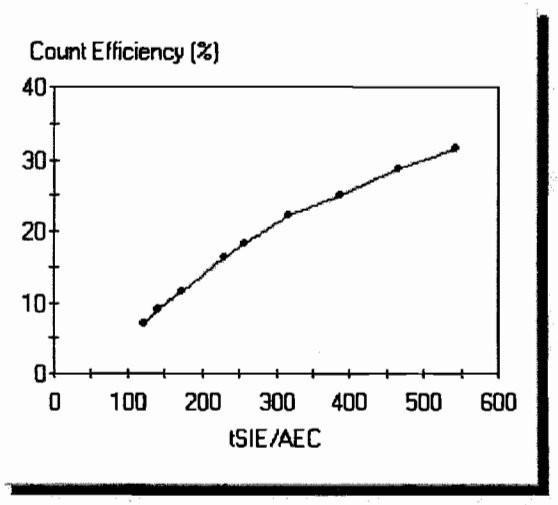
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

Pl#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
10	1	BACKGROUND	1.107	4.37	395.29	25.33	240.00	12/4/2012	2:45:58 PM	
10	2	B12-02721-01	4.839	19.68	378.07	24.59	240.00	12/4/2012	6:56:59 PM	
10	3	B12-02721-02	4.791	19.49	377.91	24.58	240.00	12/4/2012	11:07:59 PM	
10	4	B12-02721-03	1.094	4.22	407.72	25.92	240.00	12/5/2012	3:18:59 AM	
10	5	B12-02721-04	1.076	4.37	378.13	24.59	240.00	12/5/2012	7:29:54 AM	
10	6	B12-02721-05	1.277	5.04	395.32	25.33	240.00	12/5/2012	11:40:51 AM	
Missing vial 7.										
Missing vial 8.										
Missing vial 9.										
Missing vial 10.										
Missing vial 11.										
Missing vial 12.										
10	13	B12-02721-12	1.032	6.60	220.99	15.64	240.00	12/5/2012	3:52:07 PM	
10	14	B12-02721-13	1.275	4.96	402.67	25.68	240.00	12/5/2012	8:03:04 PM	
10	15	B12-02721-14	1.004	4.97	286.72	20.19	240.00	12/6/2012	12:14:02 AM	
10	16	B12-02721-15	1.161	5.67	290.87	20.47	240.00	12/6/2012	4:24:59 AM	
10	17	B12-02721-16	1.173	6.43	258.02	18.24	240.00	12/6/2012	8:35:55 AM	
10	18	B12-02721-17	3.550	19.91	251.93	17.83	240.00	12/6/2012	12:46:52 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\20121206_1649.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

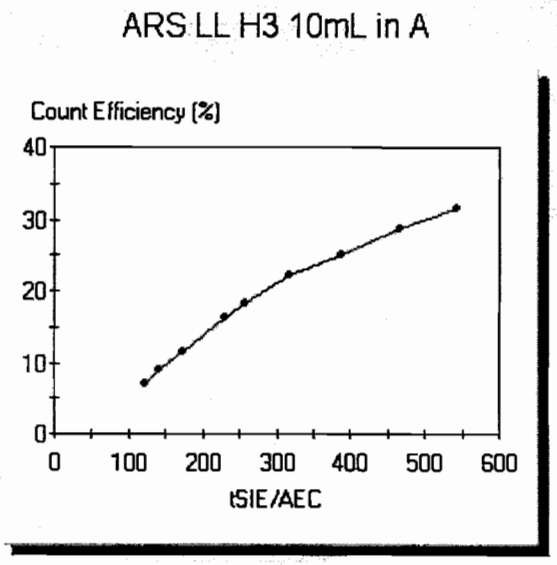
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	B12-02721-06	3.801	14.84	401.27	25.61	240.00	12/6/2012	4:58:25 PM	
2	2	B12-02721-07	1.319	5.06	410.59	26.06	240.00	12/6/2012	9:09:28 PM	
2	3	B12-02721-08	1.466	5.78	395.87	25.35	240.00	12/7/2012	1:20:23 AM	
2	4	B12-02721-09	1.351	5.73	351.17	23.55	240.00	12/7/2012	5:31:20 AM	
2	5	B12-02721-10	1.062	5.27	286.28	20.16	240.00	12/7/2012	9:42:17 AM	
2	6	B12-02721-11	1.818	7.68	354.31	23.67	240.00	12/7/2012	1:53:14 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\20121207_1755.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

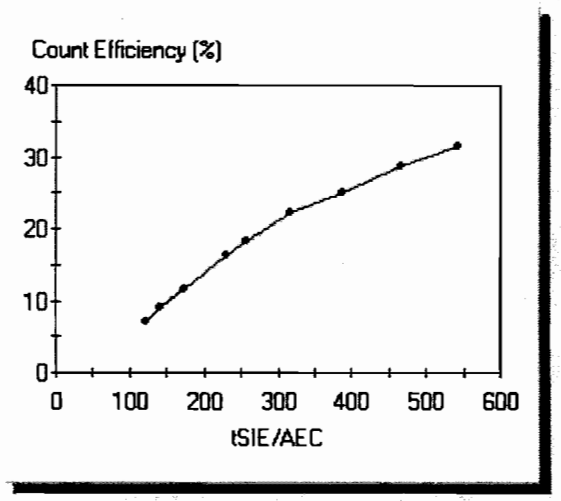
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
10	1	B12-02721-18	1.076	5.89	258.29	18.25	240.00	12/7/2012	6:04:50 PM	
10	2	B12-02721-19	1.849	8.53	308.77	21.69	240.00	12/7/2012	10:15:50 PM	
10	3	B12-02721-20	1.389	6.50	304.39	21.39	240.00	12/8/2012	2:26:47 AM	
10	4	B12-02721-21	1.072	5.42	280.53	19.77	240.00	12/8/2012	6:37:44 AM	

ARS Batch Number: ARS1-B12 - 02721

Enter these Values for LCS			Report Name	Field Name on the Report
	Current ACT	5.6490	Standards Report	ACT at Date Above (dpm/g)
	NetWt	5.0530	LCS Report	NetWt
	Aliquot	0.5002	Tritium Enrichment Data	Gross Sample Added/1000

Enter these Values for LCSD			Report Name	Field Name on the Report
	Current ACT	5.6490	Standards Report	ACT at Date Above (dpm/g)
	NetWt	5.0520	LCS Report	NetWt
	Aliquot	0.5035	Tritium Enrichment Data	Gross Sample Added/1000

Expected Value Calculations

ARS Batch Number: ARS1-B11 - 02721

LCS	**CALCULATED EXPECTED VALUE**	=	25.703			
			Range	20.563	-	30.844
LCSD	**CALCULATED EXPECTED VALUE**	=	25.532			
			Range	20.425	-	30.638

32 of 6

Exit

AMRAD AMERICAN RADIATION SERVICES, LLC

Standards Activity as of: 12/03/12 12:16

Active	Std ID	Isotope	PSCLT	Verification Date	Exp Date	Status	Ref Date	Ref ACT (dpm)	ACT at Date Above (dpm/g)	Halflife (days)	Parent ID	Expended Date	Comments
A	**S-0279**	H-3	**SL**	09/10/12	09/10/13	OK	09/07/12	5.7255E+00	**5.6493**	4.500E+03	**S-0237**		H3 LCS standard. Dilution performed as stated above by B Steffens. -B

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
11-21-12	0702	SNC-16	QA	QA	[illegible]
11-21-12	1136	Background	B12-02616	1417	[illegible]
↓	↓	B12-02616-01	↓	↓	[illegible]
↓	↓	B12-02616-02	↓	↓	[illegible]
↓	↓	B12-02616-03	↓	↓	[illegible]
↓	↓	B12-02616-04	↓	↓	[illegible]
↓	↓	B12-02616-05	↓	↓	[illegible]
↓	↓	B12-02616-06	↓	↓	[illegible]
↓	↓	B12-02616-07	↓	↓	[illegible]
↓	↓	B12-02616-08	↓	↓	[illegible]
↓	↓	B12-02616-09	↓	↓	[illegible]
↓	↓	B12-02616-10	↓	↓	[illegible]
11-21-12	1200	SNC-16	QA	QA	[illegible]
12-4-12	0732	SNC-16	QA	QA	[illegible]
12-4-12	1434	Background	B12-02721	1437	[illegible]
↓	↓	B12-02721-01	↓	↓	[illegible]
↓	↓	B12-02721-02	↓	↓	[illegible]
↓	↓	B12-02721-03	↓	↓	[illegible]
↓	↓	B12-02721-04	↓	↓	[illegible]
↓	↓	B12-02721-05	↓	↓	[illegible]

Reviewed By: [illegible] Date: 12-10-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-4-12	1434	B12-02721-06	B12-02721	1437	[illegible]
↓	↓	B12-02721-07	↓	↓	[illegible]
↓	↓	B12-02721-08	↓	↓	[illegible]
↓	↓	B12-02721-09	↓	↓	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
↓	↓	B12-02721-12	↓	↓	[illegible]
↓	↓	B12-02721-13	↓	↓	[illegible]
↓	↓	B12-02721-14	↓	↓	[illegible]
↓	↓	B12-02721-15	↓	↓	[illegible]
↓	↓	B12-02721-16	↓	↓	[illegible]
↓	↓	B12-02721-17	↓	↓	[illegible]
↓	↓	B12-02721-18	↓	↓	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]
12-4-12	1437	SNC-16	QA	QA	[illegible]
* 12-5-12	1604	B12-02721-06	B12-02721	1649	[illegible]
↓	↓	B12-02721-07	↓	↓	[illegible]
↓	↓	B12-02721-08	↓	↓	[illegible]

* Will count before SNC 12-5-12

Reviewed By: SDh Date: 12-10-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-5-12	1604	B12-02721-09	B12-02721	1649	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
12-7-12	1026	B12-02721-18	B12-02721	1755	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]

12-10-12

Reviewed By: SDR Date: 12-10-12
Initials

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

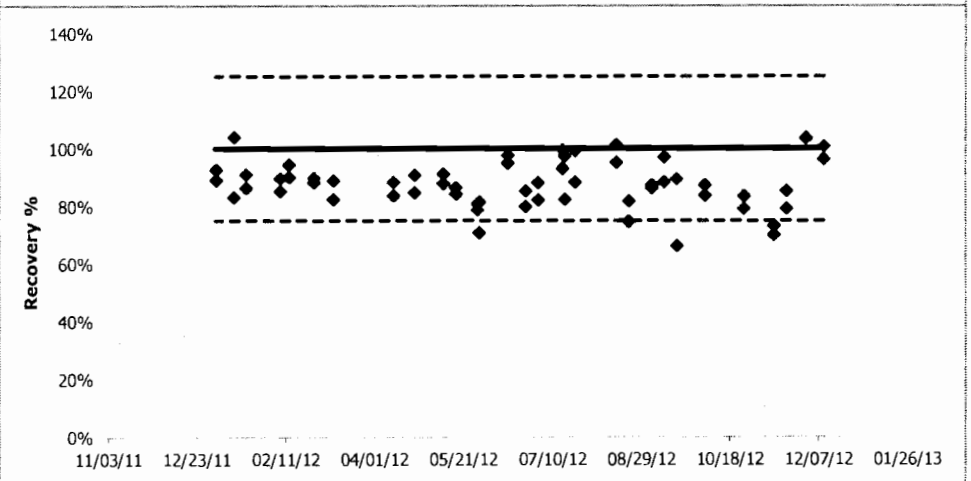
Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Control Charts

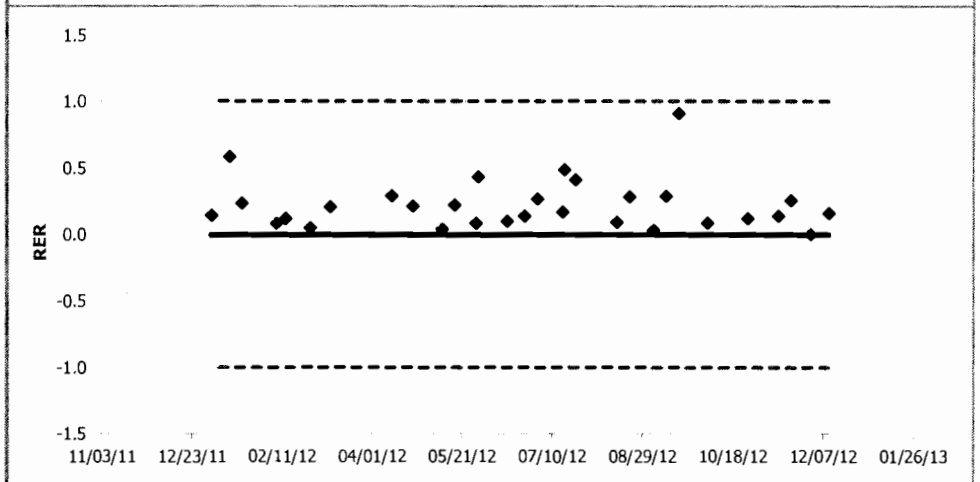
QC Chart

LLH-3 LCS



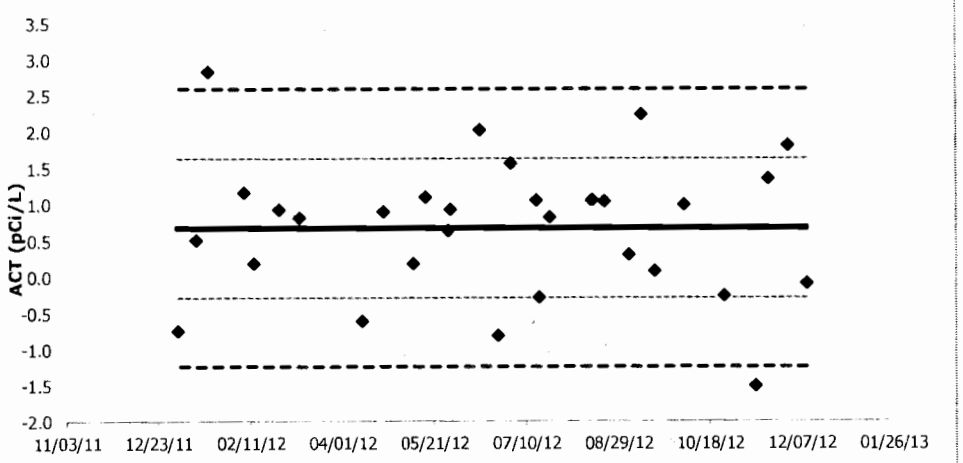
Average	STDEV	n	UCL	LCL
0.8778	0.0828	30	1.2500	0.7500

LLH-3 RER



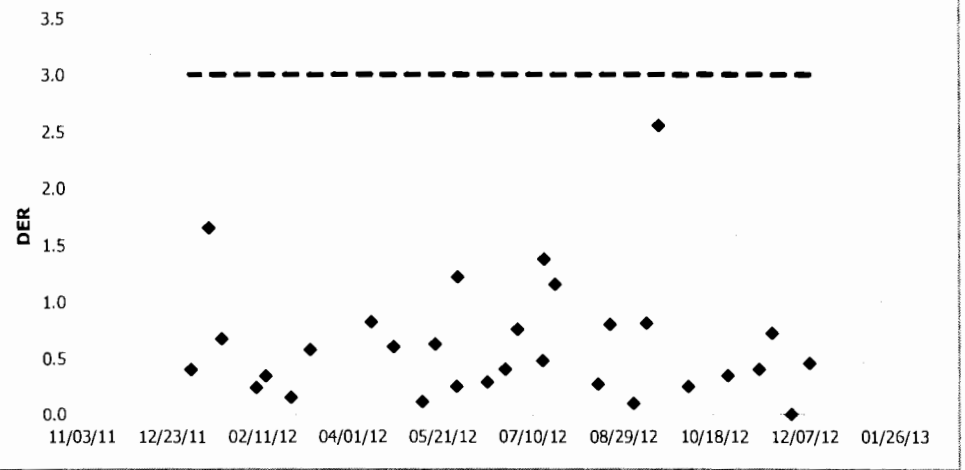
		n	UCL	LCL
		30	1.0000	-1.0000

LLH-3 Blank



Average	STDEV	n	UCL	LCL
0.6761	0.9576	30	2.5912	-1.2390

LLH-3 DER



		n	UCL	
		30	3.0000	

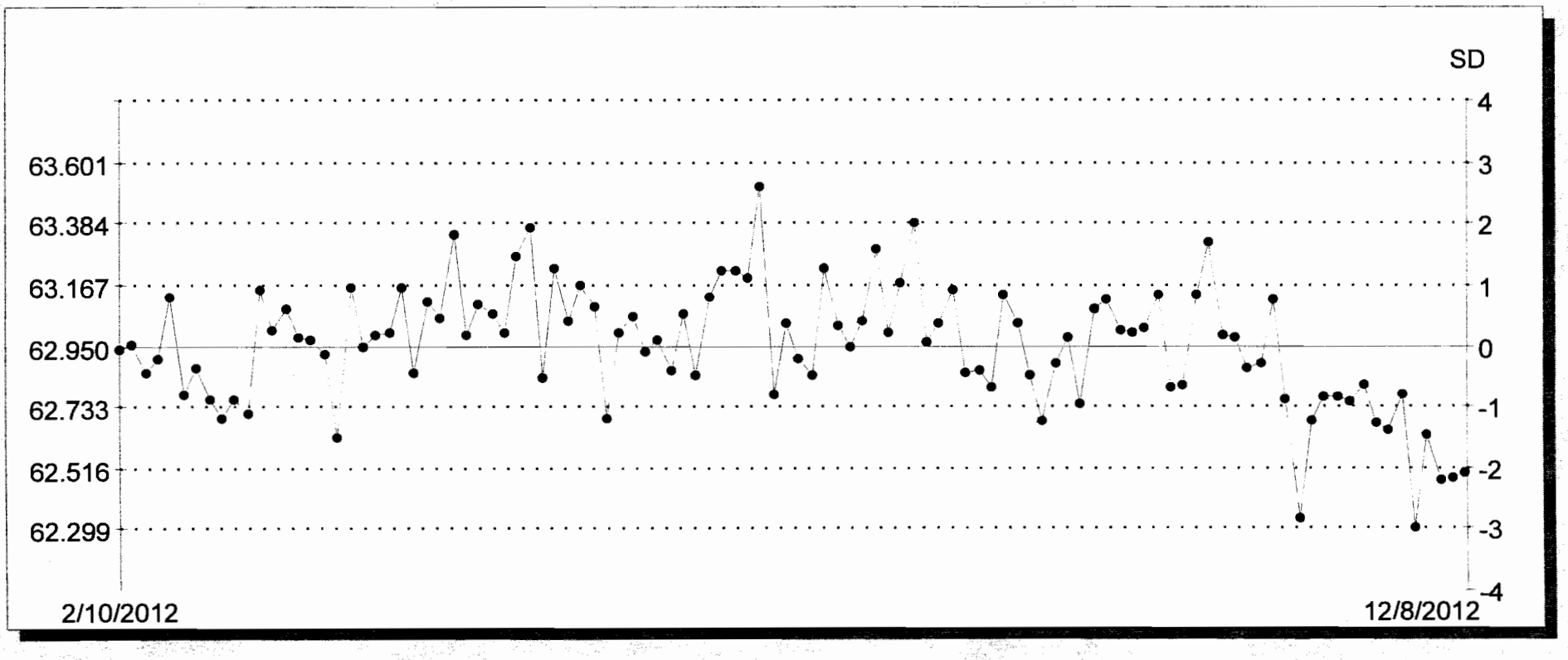
3H Efficiency
Total # pts : 5553
Valid # pts : 106
Mean : 62.95
SD : 0.22

Date	Value	Valid Pt
Feb 10, 2012	62.94	X
Feb 15, 2012	62.96	X
Feb 16, 2012	62.86	X
Feb 17, 2012	62.90	X
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X

Jun 30, 2012	62.97	X
Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X
Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 22, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X

Nov 13, 2012	62.76	X
Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X
Nov 18, 2012	62.68	X
Nov 19, 2012	62.65	X
Nov 13, 2012	62.78	X
Nov 20, 2012	62.30	X
Nov 21, 2012	62.63	X
Nov 23, 2012	62.47	X
Dec 04, 2012	62.48	X
Dec 08, 2012	62.49	X

3H Efficiency
Total # pts : 5553
Valid # pts : 106
Mean : 62.95
SD : 0.22



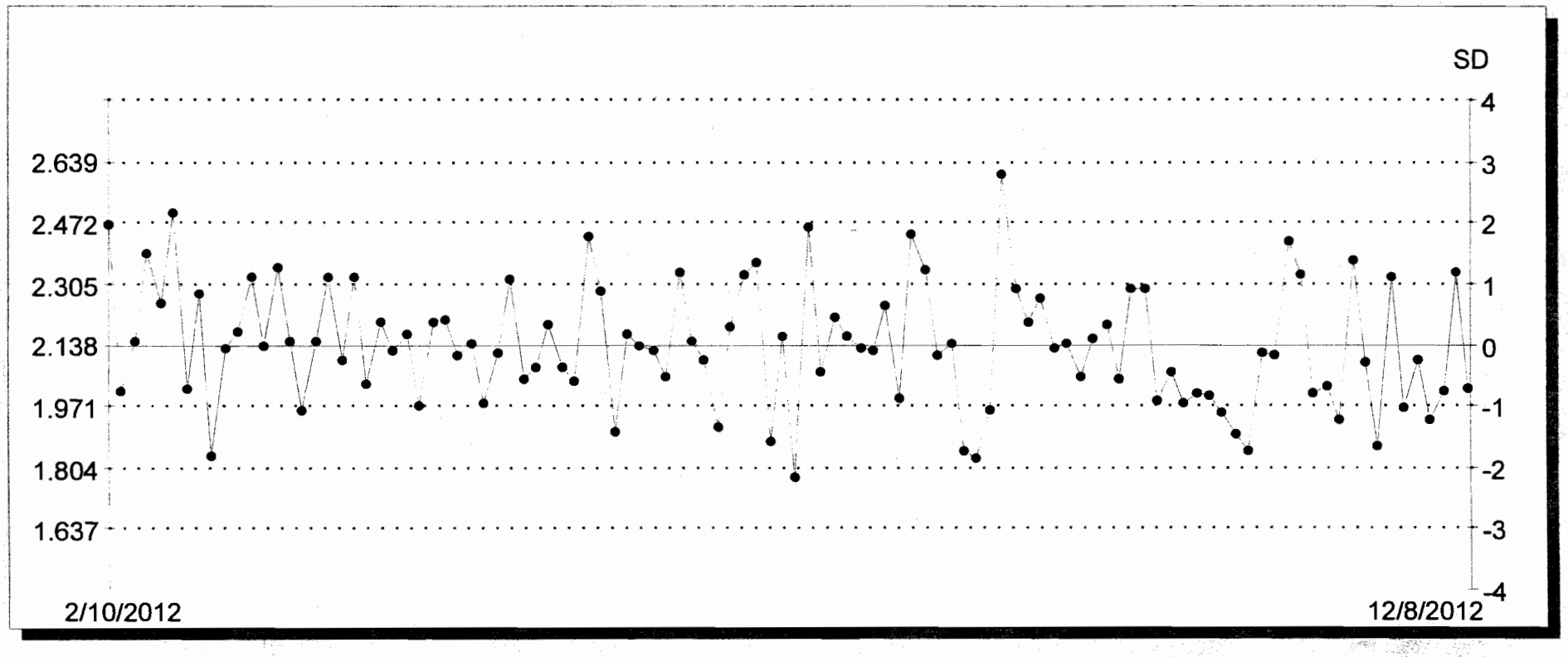
3H Background
Total # pts : 5479
Valid # pts : 106
Mean : 2.14
SD : 0.17

Date	Value	Valid Pt
Feb 10, 2012	2.47	X
Feb 15, 2012	2.01	X
Feb 16, 2012	2.15	X
Feb 17, 2012	2.39	X
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X

Jun 30, 2012	2.12	X
Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X
Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 22, 2012	2.19	X
Jul 23, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 09, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X

Nov 13, 2012	1.93	X
Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X
Nov 18, 2012	1.86	X
Nov 19, 2012	2.32	X
Nov 1[illegible], 2012	1.96	X
Nov 2[illegible], 2012	2.09	X
Nov 2[illegible], 2012	1.93	X
Nov 23, 2012	2.01	X
Dec 04, 2012	2.34	X
Dec 08, 2012	2.02	X

3H Background
Total # pts : 5479
Valid # pts : 106
Mean : 2.14
SD : 0.17



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium- Screening by Low Level Liquid Scintillation Counting

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Samples

Procedures: **ARS-060** **ARS-040** *Section 14.1 Tritium Screen in Clean Water without Distillation*

ARS File ID Numbers: ARS1-12-02261; 2262; 2263; 2264
ARS Batch ID: ARS1-B12-02676

	Sample ID:	COUNT TIME	CPMA	Background CPMA	Eff Nucl In A	Aliquot (grams)	ACTIVITY	units	MDA	Sample Must be analyzed as LSC-A-001
1	B12-02676-04	120	1.295	1.161	26.74	10.00	22.573	pCi/L	98.37195	NO
2	B12-02676-05	120	1.175	1.161	26.28	10.00	2.400	pCi/L	100.0938	NO
3	B12-02676-06	120	1.362	1.237	27.42	10.00	20.535	pCi/L	98.90302	NO
4	B12-02676-07	120	1.543	1.161	26.41	10.00	65.154	pCi/L	99.60114	NO
5	B12-02676-08	120	1.396	1.161	26.38	10.00	40.127	pCi/L	99.71441	NO
6	B12-02676-09	120	1.678	1.237	27.9	10.00	71.200	pCi/L	97.20146	NO
7	B12-02676-10	120	1.596	1.237	27.66	10.00	58.464	pCi/L	98.04486	NO
8	B12-02676-11	120	1.250	1.237	27.44	10.00	2.134	pCi/L	98.83093	NO
9	B12-02676-12	120	1.420	1.237	27.33	10.00	30.162	pCi/L	99.22872	NO
10	B12-02676-13	120	1.206	1.237	27.82	10.00	-5.019	pCi/L	97.48098	NO
11							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
12							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
13							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
14							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
15							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
16							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
17							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
18							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
19							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
20							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
21							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
22							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
23							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

ARS INTERNATIONAL

Analysis Batch ID **ARS1-B12-02676**

Method **ARS-054** **Analysis** **LSC-A-021** **Matrix** **AQ**

Description **Low Level Tritium Screening**

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02676-01	LCS									
ARS1-B12-02676-02	LCSD									
ARS1-B12-02676-03	MBL									
ARS1-B12-02676-04	TRG				**ARS1-12-02261**	001	1	CAMO-13-24279	STD	11/29/12
ARS1-B12-02676-05	TRG				**ARS1-12-02262**	001	1	CAMO-13-24241	STD	12/06/12
ARS1-B12-02676-06	TRG				**ARS1-12-02262**	002	1	CAMO-13-24242	STD	12/06/12
ARS1-B12-02676-07	TRG				**ARS1-12-02262**	003	1	CAMO-13-24225	STD	12/06/12
ARS1-B12-02676-08	TRG				**ARS1-12-02262**	004	1	CAMO-13-24247	STD	12/06/12
ARS1-B12-02676-09	TRG				**ARS1-12-02262**	005	1	CAMO-13-24248	STD	12/06/12
ARS1-B12-02676-10	TRG				**ARS1-12-02263**	001	1	CAMO-13-24276	STD	12/06/12
ARS1-B12-02676-11	TRG				**ARS1-12-02264**	001	1	CASA-13-24209	STD	12/06/12
ARS1-B12-02676-12	TRG				**ARS1-12-02264**	002	1	CASA-13-24213	STD	12/06/12
ARS1-B12-02676-13	TRG				**ARS1-12-02264**	003	1	CASA-13-24214	STD	12/06/12

126503
12-02261-001-1
WRAD

126506
12-02262-001-1
WRAD

126507
12-02262-002-1
WRAD

126508
12-02262-003-1
WRAD

126509
12-02262-004-1
WRAD

126510
12-02262-005-1
WRAD

126511
12-02263-001-1
WRAD

126512
12-02264-001-1
WRAD

126513
12-02264-002-1
WRAD

126514
12-02264-003-1
WRAD

ID_011001_054	ABatch	ABatchSampleID	ClientID	Aliquot1	AliquotUnits1	IC_ID1	Aliquot2	AliquotUnits2	IC_ID2	UserID	ModDate
11960	ARS1-B12-02676	ARS1-B12-02676-01		1	g					AMRAD\RUSEY	11/12/2012 14:02:14
11961	ARS1-B12-02676	ARS1-B12-02676-02		1	g					AMRAD\RUSEY	11/12/2012 14:02:14
11962	ARS1-B12-02676	ARS1-B12-02676-03		1	g					AMRAD\RUSEY	11/12/2012 14:02:14
11963	ARS1-B12-02676	ARS1-B12-02676-04	CAMO-13-24279	10	g	126503				AMRAD\RUSEY	11/12/2012 14:02:14
11964	ARS1-B12-02676	ARS1-B12-02676-05	CAMO-13-24241	10	g	126506				AMRAD\RUSEY	11/12/2012 14:02:14
11965	ARS1-B12-02676	ARS1-B12-02676-06	CAMO-13-24242	10	g	126507				AMRAD\RUSEY	11/12/2012 14:02:14
11966	ARS1-B12-02676	ARS1-B12-02676-07	CAMO-13-24225	10	g	126508				AMRAD\RUSEY	11/12/2012 14:02:14
11967	ARS1-B12-02676	ARS1-B12-02676-08	CAMO-13-24247	10	g	126509				AMRAD\RUSEY	11/12/2012 14:02:15
11968	ARS1-B12-02676	ARS1-B12-02676-09	CAMO-13-24248	10	g	126510				AMRAD\RUSEY	11/12/2012 14:02:15
11969	ARS1-B12-02676	ARS1-B12-02676-10	CAMO-13-24276	10	g	126511				AMRAD\RUSEY	11/12/2012 14:02:15
11970	ARS1-B12-02676	ARS1-B12-02676-11	CASA-13-24209	10	g	126512				AMRAD\RUSEY	11/12/2012 14:02:15
11971	ARS1-B12-02676	ARS1-B12-02676-12	CASA-13-24213	10	g	126513				AMRAD\RUSEY	11/12/2012 14:02:15
11972	ARS1-B12-02676	ARS1-B12-02676-13	CASA-13-24214	10	g	126514				AMRAD\RUSEY	11/12/2012 14:02:16

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121113_1339
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121113_1339\20121113_1339.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121113_1339\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121113_1339\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

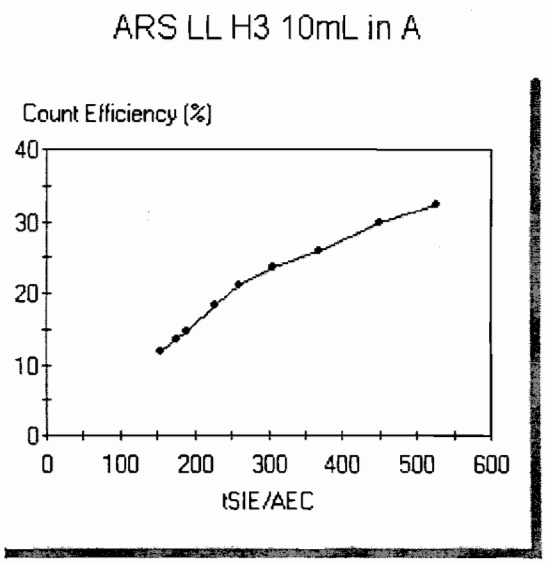
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/18/2011
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
526.29	32.47
450.16	29.90
370.15	25.92
306.68	23.60
260.68	20.99
228.69	18.21
189.46	14.53
177.14	13.64
155.73	11.73

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	BACKGROUND	1.161	4.63	346.75	25.07	120.00	11/13/2012	1:48:10 PM	
2	2	B12-02676-04	1.295	4.84	386.58	26.74	120.00	11/13/2012	3:58:07 PM	
2	3	B12-02676-05	1.175	4.47	377.35	26.28	120.00	11/13/2012	6:08:00 PM	
2	4	B12-02676-06	2.297	8.70	379.47	26.39	120.00	11/13/2012	8:17:56 PM	
2	5	B12-02676-07	1.543	5.84	379.91	26.41	120.00	11/13/2012	10:27:52 PM	
2	6	B12-02676-08	1.396	5.29	379.25	26.38	120.00	11/14/2012	12:37:45 AM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121114_0812
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121114_0812\20121114_0812.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121114_0812\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121114_0812\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

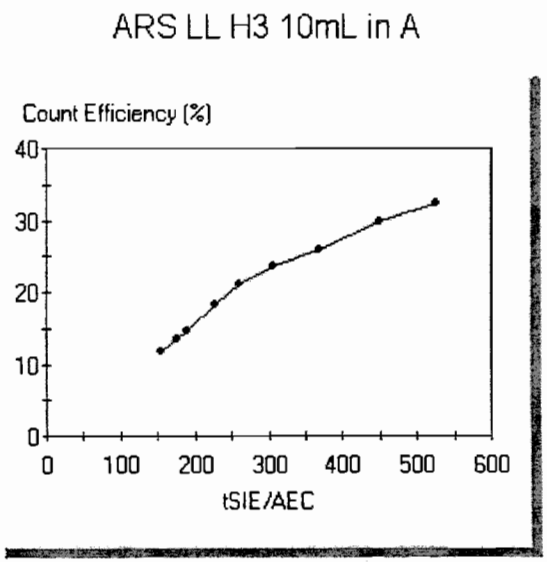
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/18/2011
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
526.29	32.47
450.16	29.90
370.15	25.92
306.68	23.60
260.68	20.99
228.69	18.21
189.46	14.53
177.14	13.64
155.73	11.73

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	BACKGROUND	1.237	4.79	366.64	25.80	120.00	11/14/2012	8:21:32 AM	
2	2	B12-02676-06	1.362	4.97	400.26	27.42	120.00	11/14/2012	10:31:28 AM	
2	3	B12-02676-09	1.678	6.01	409.90	27.90	120.00	11/14/2012	12:41:23 PM	
2	4	B12-02676-10	1.596	5.77	405.21	27.66	120.00	11/14/2012	2:51:17 PM	
2	5	B12-02676-11	1.250	4.56	400.64	27.44	120.00	11/14/2012	5:01:10 PM	
2	6	B12-02676-12	1.420	5.19	398.45	27.33	120.00	11/14/2012	7:11:07 PM	
2	7	B12-02676-13	1.206	4.34	408.26	27.82	120.00	11/14/2012	9:21:01 PM	

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Control Charts

3H Efficiency

Total # pts : 5545
Valid # pts : 97
Mean : 62.98
SD : 0.19

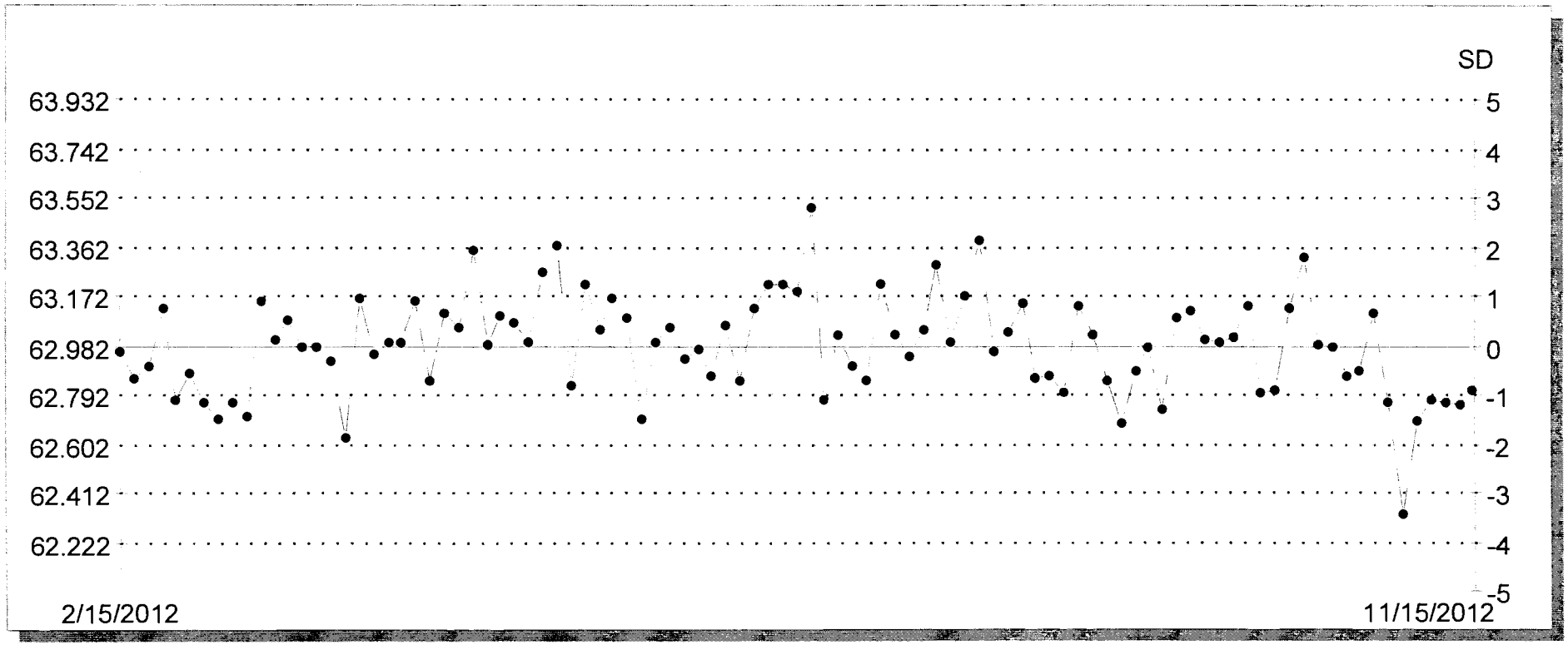
Date	Value	Valid Pt
Feb 15, 2012	62.96	X
Feb 16, 2012	62.86	X
Feb 17, 2012	62.90	X
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X
Jun 30, 2012	62.97	X

Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X
Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 23, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X
Nov 12, 2012	62.77	X

Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X

3H Efficiency

Total # pts	: 5545
Valid # pts	: 97
Mean	: 62.98
SD	: 0.19



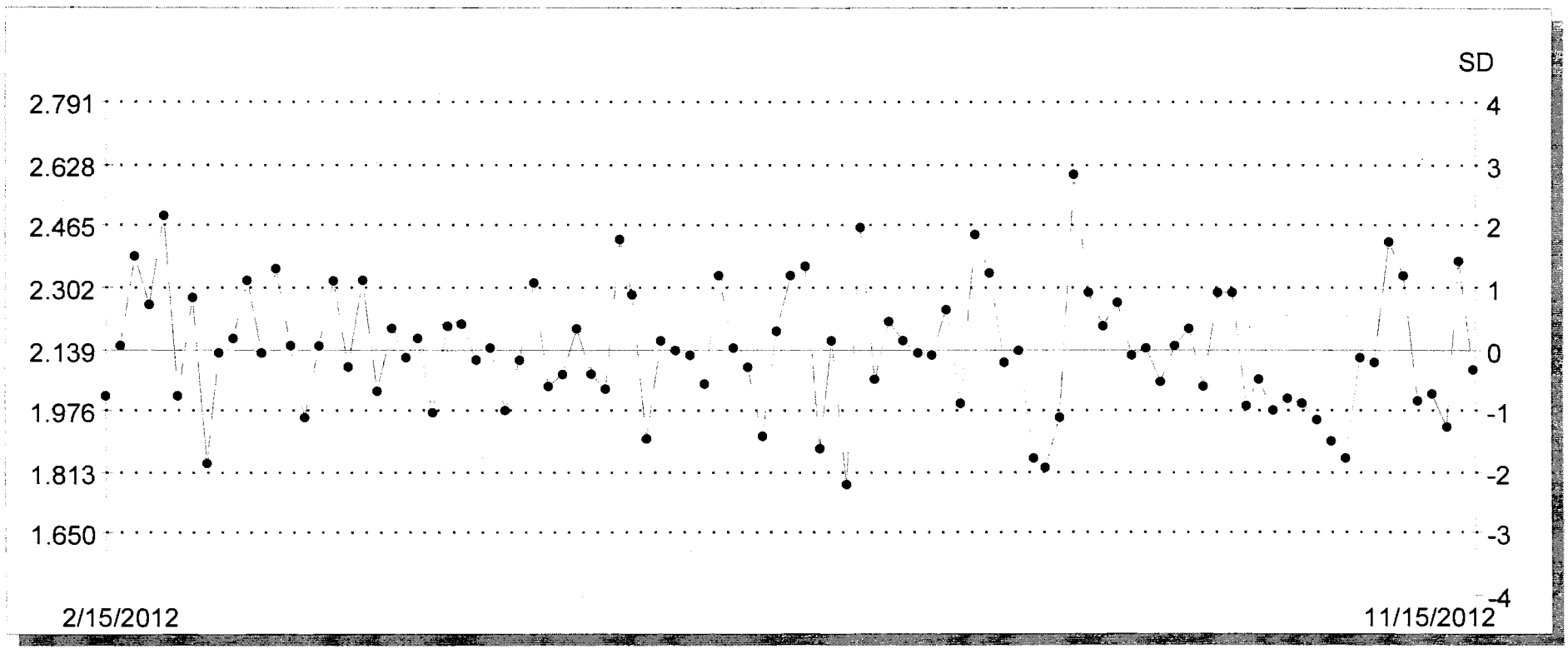
3H Background
Total # pts : 5471
Valid # pts : 97
Mean : 2.14
SD : 0.16

Date	Value	Valid Pt
Feb 15, 2012	2.01	X
Feb 16, 2012	2.15	X
Feb 17, 2012	2.39	X
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X
Jun 30, 2012	2.12	X

Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X
Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 22, 2012	2.19	X
Jul 26, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 09, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X
Nov 12, 2012	2.02	X

Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X

3H Background
Total # pts : 5471
Valid # pts : 97
Mean : 2.14
SD : 0.16



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Liquid Scintillation Counting

Calibration Information

ARS INTERNATIONAL

QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS

ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE 9/10/2012 20:16 *date counted*
STANDARD REFERENCE # S-0279

Principal Radionuclide		Half Life, Years		Half Life, Days
H-3	*ENTER -->*		*OR -->*	4.4998E+03
		1.232E+01		4.4998E+03

Radionuclide H-3 Dilution Reference Date 9/7/2012 10:40

Dilution Activity	2.58	pCi per gram ===> dpm/g	5.73
Verif. Date Decay Corrected	2.58	pCi per gram ===> dpm/g	5.72

Minimum of 3 Required

Trial ID	Sample Counts	Count Time (min)	Detector	Efficiency	Bkg. (cpm)	Net Weight	Decay Corrected Activity Result (dpm/g)	Decay Corrected Activity Result (pCi/g)
S-0279-V1	15.91	1	LSC	0.3302	6.49	5.019	5.68	2.56
S-0279-V2	16.21	1	LSC	0.3291	6.49	5.018	5.89	2.65
S-0279-V3	15.76	1	LSC	0.3290	6.49	5.018	5.62	2.53
S-0279-V4	15.62	1	LSC	0.3293	6.49	5.008	5.54	2.49
S-0279-V5	15.76	1	LSC	0.3280	6.49	5.018	5.63	2.54

	Average	5.67	2.55
	Two Sigma Uncertainty	0.26	0.12
10% Max *PASS*	Standard Deviation percent of known concentration	2.30%	2.30%
	Target Activity	5.72	2.58
5% Max *PASS*	% Diff	-0.91%	-0.91%

Verification Expiration Date: ##############

Prepared & Counted By [signature] Date: 9/10/2012 20:16

Verified & Approved By [signature] Date: 9-11-12 0817

QC Approval [signature] Date: 9-11-12 0817

S-0279		
H-3	Verified	*9/10/12*
SL	**Expires**	**9/10/13**
Manufactuer	**NIST SRM 4927F**	
Sol Matrix	H2O	
Ref No	NIST SRM 4927F	
Tech	Unknown	
Parent ID	S-0237	

ARS INTERNATIONAL

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

H-3 Standard Verification

Verifier's Name: Brian Steffens **Date:** 9/7/2012

Pipettor ID: FJ40469
Pipettor ID: Auto-pipettor
Pipettor ID: na
Standard ID: S-0279
Standard ID: N/A

Standards brought up to ~5g with distilled dead water.
Standards made in glass vials.

15mL of Ultima Gold added to standard

	Weight of Standard
S-0279-V1	5.019 **g**
S-0279-V2	5.018 **g**
S-0279-V3	5.018 **g**
S-0279-V4	5.008 **g**
S-0279-V5	5.018 **g**

Balance ID: H1331122173560P

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931
Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\20120910_0931.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\H-3 Normal 3.lsa

Count Conditions-

Nuclide: H-3 Normal
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: UG STD H-3
Count Time (min): 120.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

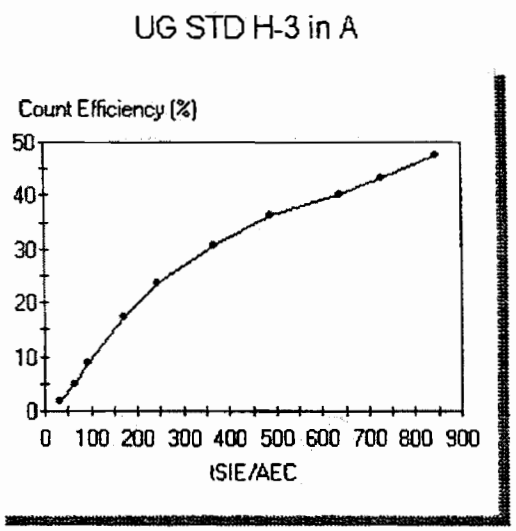
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life

Half Life Correction: Off
Regions Half Life Units Reference Date Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 06/27/2012
Date Modified:
UG STD H-3 in A

tSIE/AEC	Count Efficiency (%)
846.90	47.58
730.85	43.21
639.47	40.08
487.78	36.36
365.41	30.73
244.81	23.69
169.28	17.31
95.01	8.79
64.60	4.97
34.32	.64

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
54	1	BACKGROUND	6.49	19.81	409.74	32.77	120.00	9/10/2012	9:36:46 AM	
54	2	S-0279-V1	15.91	48.18	415.20	33.02	120.00	9/10/2012	11:44:40 AM	
54	3	S-0279-V2	16.21	49.25	412.72	32.91	120.00	9/10/2012	1:52:36 PM	
54	4	S-0279-V3	15.76	47.89	412.56	32.90	120.00	9/10/2012	4:00:32 PM	
54	5	S-0279-V4	15.62	47.44	413.22	32.93	120.00	9/10/2012	6:08:27 PM	
54	6	S-0279-V5	15.76	48.04	410.40	32.80	120.00	9/10/2012	8:16:20 PM	

STD ID: S-0279

ARS INTERNATIONAL

Add/Edit *Secondary Stds*

Planning

Planning Comments	Create a H3 LCS standard.
Target dpm/g (on dil. date)	5.5
Target Final volume mL	2000
Appx mass g of Parent Sol'n	3.606433954
Appx vol ml of Parent Sol'n	3.612937241
Expected Addition for Analysis g	5

Standards Preparation / Dilution

Secondary Solution #	S-0279
Dilution Date (New Ref Date)	09/07/2012 10:40
Ampoule, Empty (g)	
Ampoule /Solution Gross (g)	
Net Wt Removed (g)	
Transfer Container, empty (g)	13.144
Container Plus Solution (g)	16.89
Net Wt Transferred (g)	3.746
DPM Xferred on 09/07/2012 10:40	11425.69101
Diluent/matrix	DI H2O
Diluent Density Cont, empty (g)	
Test Mass of 5 ml of Diluent (g)	
Diluent Density Test - (g/mL)	
Dilution Empty Container Mass (g)	473.93
Dilution Full Cont g (If measured)	2469.52
Dilution Final Volume ml (If measured)	2000
Final Dilution Density (g/mL)	0.997795
Final Dilution Measured Mass g	1995.59

Comments: H3 LCS standard. Dilution performed as stated above by B Steffens. -BJS 9/7/12

Final Dilution dpm/g	5.725470166
Final Dil New Ref Date/Time	09/07/2012 10:40

Parent Standard Data

Parent Solution Reference #	NIST SRM 4927F			
Parent Solution #	S-0237			
Parent Principal Radionuclide	H-3	Half Life (Days)	4499.8000000	
Parent Reference Date	03/22/2010 10:10			
Parent Certified Act	3503.682716	Certl Act/Vol Units	dpm	g
Parent Cert Act Uncert 1 Sigma	0.0036			
Parent Sp. Gravity G/Ml	0.9982			
Parent Supplier	NIST SRM 4927F			
Parent Date Recvd	01/02/00			
Parent Received By	Unknown			
Parent Cert Exp Date				
Parent Matrix	H2O			
Certified dpm/g At Ref Date	3503.682716			
Certified dpm/g on 09/07/2012 10:40	3050.10438			
Parent Comments	Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Steffens. -BJS 3/22/10			
Parent Tech	Unknown			
Is_Primary	FALSE			
Is_LCS	TRUE			
Is_Tracer	FALSE			
Is_Calib	FALSE			

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Folder Duplicate

ARS INTERNATIONAL

Report Compilation Checklist

ARS SDG: 12-02263 **Client Name:** LANL **Sample Matrix:** AQ

LEVEL 1 COMPONENTS	1st Reviewer	
1) Cover Page Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
2) Technical Review Checklist(s) Complete and Accurate?	~~Yes~~ No N/A	
3) Case Narrative Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
4) Form 1s Present for all Samples and Tests?	~~Yes~~ No N/A	
5) Client Specific Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 2 COMPONENTS	1st Reviewer	
6) Batch Quality Control Report is Present and Accurate?	~~Yes~~ No N/A	
7) DQO Report is Present and Accurate?	~~Yes~~ No N/A	
8) Client Specific Batch QC Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 3 COMPONENTS	1st Reviewer	
9) Efficiencies are Present?	~~Yes~~ No N/A	
10) Calibrations are Present?	~~Yes~~ No N/A	
11) Backgrounds are Present?	~~Yes~~ No N/A	
12) Spectrum Analysis is Present?	~~Yes~~ No N/A	
13) Spectral Plots are Present?	~~Yes~~ No N/A	
14) Plateaus are Present?	~~Yes~~ No N/A	
15) Control Charts are Present?	~~Yes~~ No N/A	
16) Other:	Yes No ~~N/A~~	

LEVEL 4 COMPONENTS	1st Reviewer	
17) Preparation Raw Data Present, Signed and Complete?	~~Yes~~ No N/A	
18) Instrument Raw Data Present and Complete?	~~Yes~~ No N/A	
19) Calibration Certificates Present?	~~Yes~~ No N/A	
20) Copies of Log Book Pages Present?	~~Yes~~ No N/A	
21) Sample Receiving Documentation Present?	~~Yes~~ No N/A	
22) LIMS Reports Present?	~~Yes~~ No N/A	
23) Applicable Correspondence Present?	~~Yes~~ No N/A	
24) Other:	Yes No ~~N/A~~	

SDh 12-10-12
Report Generator Signature **Date**

James D. [illegible] 12-10-12
Management Review Signature **Date**

LSC
Technical Review Checklist

ARS SDG ARS1-12-02263

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s):	**Batch A:** ARS1-B12-02676	**Batch B:** N/A	**Batch C:** N/A
Test Method(s):	LSC-A-021	N/A	N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) Sample Prep Anomaly? ☑ **No** ☐ **Yes** (See Tech Notes) **NCR #** (If initiated): _____

11-13-12 **Chemist Signature** **Date**

11-13-12 **Verifier Review Signature** **Date**

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

12-10-12 **QA Officer Signature** **Date**

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) Analysis Anomaly? ☑ **No** ☐ **Yes** (See Comments) **NCR #** (If initiated): _____

11-15-12

11-15-12 **Analyst Signature** **Date**

N/A **Technicial Reviewer Signature** **Date**

Batch A: ARS1-B12-02676

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes No ~~N/A~~	Yes No (N/A)
2) RDL Criteria are Met?	Yes No ~~N/A~~	Yes No (N/A)
3) Method Blank Criterion Met?	Yes No ~~N/A~~	Yes No (N/A)
4) LCS/LCD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
SDL	12-10-12	James D Lee	12-10-12

GENERAL COMMENTS

LSC
Technical Review Checklist

ARS SDG ARS1-12-02263

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-B12-02721 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-022 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review			Verifier Review		
1) 100% of Manual Transcriptions Verified?	Yes	No	N/A	Yes	No	N/A
2) 100% of Manual Calculations Verified?	Yes	No	N/A	Yes	No	N/A
3) Blank Composition/Configuration Matches Calibration?	Yes	No	N/A	Yes	No	N/A
4) Deviations from procedure are documented and verified?	Yes	No	N/A	Yes	No	N/A
5) Appropriate Cocktail Selected?	Yes	No	N/A	Yes	No	N/A

6) Sample Prep Anomaly? ☑ **No** ☐ **Yes** (See Tech Notes) **NCR #** (If initiated): _____

Chemist Signature 12-4-12 Date Verifier Review Signature 12-4-12 Date

B. ANALYSIS REVIEW

	Analyst Review			QA Officer Review		
1) Calibrations Valid and Current?	Yes	No	N/A	Yes	No	N/A
2) Backgrounds Valid and Current?	Yes	No	N/A	Yes	No	N/A
3) Source Checks Completed and Acceptable?	Yes	No	N/A	Yes	No	N/A

QA Officer Signature 12-10-12 Date

	Analyst Review			Technicial Review		
4) Background Checks Complete and Acceptable?	Yes	No	N/A	Yes	No	N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes	No	N/A	Yes	No	N/A
6) Appropriate QC samples initiated at required frequency?	Yes	No	N/A	Yes	No	N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)						
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes	No	N/A	Yes	No	N/A
b) Spectra show no Evidence of Interferences?	Yes	No	N/A	Yes	No	N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes	No	N/A	Yes	No	N/A

7) Analysis Anomaly? ☑ **No** ☐ **Yes** (See Comments) **NCR #** (If initiated): _____

Analyst Signature 12-10-12 Date Technicial Reviewer Signature 12-10-12 Date

Batch A: ARS1-B12-02721

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes ~~No~~ N/A	Yes (No) N/A
2) RDL Criteria are Met?	~~Yes~~ No N/A	(Yes) No N/A
3) Method Blank Criterion Met?	~~Yes~~ No N/A	(Yes) No N/A
4) LCS/LCD Criteria Met?	~~Yes~~ No N/A	(Yes) No N/A
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	~~Yes~~ No N/A	(Yes) No N/A
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
[signature]	12-10-12		

GENERAL COMMENTS

DQO Report for SDG

ARS1-12-02263

Analysis Code	Group	Isotope	Activity Units	Aliquot Units	ProcedureNo	RDL	LCS_LL	LCS_UL	MS_LL	MS_UL	RadY_LL	RadY_UL	GravY_LL	GravY_UL	RER	RPD	DiltionReq	RoughPrepReq	BlankCorrectionMDA	BlankCorrectionAll	CountTimeReq	AliquotRequired
LSC-A-021	STD	H-3	pCi	L	ARS-054	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		
LSC-A-022	STD	Enriched H-3	pCi	L	ARS-040	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		

SDG Report - Samples and Containers

8

SDG Specific Data

SDG	ARS1-12-02263	TAT Days	28	Project Type	Environmental
Sample Count	1 Rpt Level 4	Date Received	11/9/2012	COC Number	2013-292
Client	Los Alamos National Laboratory	Client Deadline	12/9/2012	PO Number	63641-001-10
Client Code	114	Internal Deadline	12/8/2012	Job Number	
Profile Number	PN-00094	Lab Deadline	12/6/2012	Job Location	
Comments					

Samples and Containers (→) Checked In Thus Far

FR	ClientID	Matrix	SampleStartDate	SampleEndDate	Disp	Hold	Arch	Storage	X	Units	Y	Units	Z	Units	Comments
001	CAMO-13-24276	AQ	11/05/12 10:09 AM	11/05/12 10:09 AM	H	90	5	O1							
→	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126369	1	1000.00				80	24		N	N/A				

SDG Report - Analysis Assignments

Temp SDG	ARS1-12-02263	Sample Count	1
Client	Los Alamos National Laboratory	Analysis Count	2-2

Samples Count Totals per Analysis

Analysis Code	Analysis Description	Samples Count
LSC-A-021	Low Level Tritium Screen in (Aqueous)	1
LSC-A-022	Low Level Tritium by Enrichment Process in (Aqueous [AQ])	1

Analyses Assigned Per Fraction

Fraction	Analysis Code	X = Assigned
001	LSC-A-021	X
001	LSC-A-022	X

ARS FILE TRACKING SHEET

SDG: ARS1-12-02263

Task	Date / Time	Initials
Date & Time Samples Received	11/9/12 10:30	cad
ICOC Initiated / Storage Location: O1	11/9/12 12:32	cad
Technical Checks Performed	See Batch	
Report Written / EDD Generated: 12-10-12/1427 (Date/Time) SDL (Initials)	12-10-12/1430	SDL
Quality Assurance Checks Performed on Report	12-10-12 1510	
Management Check Performed on Report		JDT
Preliminary Report Sent		
Report E-mailed		
Report Faxed		
Report Reviewed		
Report Mailed		
Invoice Completed Invoice #:		
Report Imaged		

SPECIAL REQUIREMENTS

Requirement	Yes	No
3 Hour Rush		✓
24 Hour Rush		✓
48 Hour Rush		✓
3 Day TAT		✓
5 Day TAT		✓

NOTES:

COMPANY NAME: LANL

SDG: ARSI-12-02263

SHIPPING CONTAINER

Good Condition	☑ Yes	☐ No
Radioactive	☐ Yes	☑ No
UN2910	☐ Yes	☑ No
Sec. Seals	☑ Yes	☐ No
Seals Intact	☑ Yes ☐ No	☑ N/A
Air Bill	☐ Yes	☑ No

COC PRESENT WITH SAMPLES

COC	☑ Yes	☐ No

SAMPLE CONTAINER(S)

Good Condition	☑ Yes	☐ No
Sec. Seals	☑ Yes	☐ No
Seal Intact	☑ Yes ☐ No	☑ N/A
Marked Radioactive	☐ Yes	☑ No

Samples Rcv 10

Matrix [AF , AQ , BI , FE , LT , SI , SO , UR , VG]

External and Internal Surveys

Exposure Rate Meter: M3 242861 Serial No.: PR 264264 Calibration Due Date: 4-18-13

Count Rate Meter: M2 154859 Serial No.: PR 184559 Calibration Due Date: 4-18-13

Background Exposure Rate (µR/hr): 24 Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd): 28 µR/hr

Background Count Rate (cpm): 80 Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd): 80 cpm

Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd): 80 cpm

Sample Label/Comments/Notes	pH Orig (pH ≤ 2 is Acceptable)	pH Final	Mark if Preserve	Acid Lot #	Weight(g) / Volume(mL)	µR/hr (Acceptance Limits <500 µR/hr)	cpm (Acceptance Limits <100 cpm/cm²)
CAMO-13-24279			☐		1000mL	24	80
			☐				
CAMO-13-24241			☐		1000mL	24	80
-24242			☐			24	80
-24225			☐			24	80
-24247			☐			24	80
-24248			☐			24	80
			☐				
* CAMO-13-24276			☐		1000mL	24	80
			☐				
CASA-13-24209			☐		1000mL	24	80
-24213			☐			24	80
-24214			☐			24	80
			☐				
			☐				
			☐				
			☐				
			☐				
			☐				

Surveyors' Name: [signature]

Date/Time Surveyed: HO 11/9/12 1045

* This sample only in this SDG.

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-271

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

- 24 Hour - ☐ Other - ☐
- 7 Day - ☐
- 14 Day - ☐
- 21 Day - ☐
- 28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Received

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CAMO-13-24276	Nov 5 2012	10:09	W	2	3		1			1	1	
CAMO-13-24280	Nov 5 2012	10:09	W			1		1	1			
CAMO-13-24275	Nov 5 2012	10:09	W	2								

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
Sherwood	S. Sherwood	11/6/12 3pm		
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4031

EVENT NAME: Mortandad/Sandia (MDA C and GS Monitoring) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24276

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/05/2012	**FIELD MATRIX:**	WG	ok
TIME COLLECTED (HH:MM):		1009	**MEDIA:**	UA	
PRS ID:		ok	**SAMPLE TECH CODE:**	UA	GSP
LOCATION ID:	R-14 S1		**FIELD PREP:**	UF	ok
LOCATION TYPE:	MON		**FIELD QC TYPE:**	REG	
PORT:	SINGLE COMPLETION		**SAMPLE USAGE:**	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	N/A
	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE		
	WSP-GrossA/B	1 LITER POLY	1	NONE		
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

N/A

LOCATION COMMENTS:

N/A

FIELD PARAMETERS:

Dissolved Oxygen 5.64 mg/L Oxidation-Reduction Potential 184.3 MV pH 8.26 SU

Specific Conductance 134 uS/cm Temperature 22.09 deg C Turbidity 0.51 NTU

COLLECTED BY (PRINT) D. Fellenz

RELINQUISHED BY (Printed Name) (Signature) Andrew Stocker	**Date/Time** 11/5/12 1115	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time** 11/5/12 1115
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4031

EVENT NAME: Mortandad/Sandia (MDA C and GS Monitoring) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24275

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/5/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		~~ok~~ 1009	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	DC
LOCATION ID:	R-14 S1	↓	FIELD PREP:	UF	ok
LOCATION TYPE:		↓	FIELD QC TYPE:	FTB	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL 11/5/12	Y	NA

SAMPLE COMMENTS:

LOCATION COMMENTS: Refer to CAMO-13-24276

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) D. Fellenz

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
Andrew Stoske	11/5/12 1115	M. Martz	11/05/12 1115
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4031 **EVENT NAME:** Mortandad/Sandia (MDA C and GS Monitoring) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24280 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/15/2012	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1009	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-14 S1	↓	FIELD PREP:	F	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-GENINORG	1 LITER POLY	1	ICE	Y	N/A
↓	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: refer to CAMO-13-24276

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

COLLECTED BY (PRINT) D. Fellenz

RELINQUISHED BY (Printed Name) (Signature) Andrea Stoker	**Date/Time** 11/15/12 1115	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time** 11/15
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-271

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
314637	EPA:120.1	1				
314637	EPA:150.1	1				
314637	EPA:160.1	1				
314637	EPA:245.2	1				
314637	EPA:300.0	1				
314637	EPA:310.1	1				
314637	EPA:350.1	1				
314637	EPA:351.2	1				
314637	EPA:353.2	1				
314637	EPA:365.4	1				
314637	EPA:900	1				
314637	EPA:901.1	1				
314637	EPA:905.0	1				
314637	HASL-300:AM-241	1				
314637	HASL-300:ISOPU	1				
314637	HASL-300:ISOU	1				
314637	SM:A2340B	1				
314637	SW-846:6010B	1				
314637	SW-846:6020	1				
314637	SW-846:8260B	1		1		
314637	SW-846:8270C	1				
314637	SW-846:9060	1				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
314637	EPA:120.1	1265843	1265843	1							
314637	EPA:150.1	1261553	1261553	1							
314637	EPA:160.1	1261522	1261522	1					1		
314637	EPA:245.2	1264600	1264596	1					1	2	
314637	EPA:300.0	1261315	1261315	1					1		
314637	EPA:310.1	1263936	1263936	1					2	1	
314637	EPA:350.1	1261640	1261639	1					1	1	1
314637	EPA:351.2	1261638	1261637	1					1	1	1
314637	EPA:353.2	1261528	1261528	1					1		
314637	EPA:365.4	1261643	1261641	1					1	1	1
314637	EPA:900	1263054	1263054	1					1	1	1
314637	EPA:901.1	1261091	1261091	1					1		
314637	EPA:905.0	1263026	1263026	1					1	1	
314637	HASL-300:AM-241	1261192	1261192	1					1		
314637	HASL-300:ISOPU	1261194	1261194	1					1		
314637	HASL-300:ISOU	1261195	1261195	1					1		
314637	SM:A2340B	1267632	1267632	1							
314637	SW-846:6010B	1261333	1261332	1					1	1	
314637	SW-846:6020	1261331	1261330	1					1	1	
314637	SW-846:8260B	1263542	1263542	1		1			1		
314637	SW-846:8270C	1262245	1262244	1					1	1	1
314637	SW-846:9060	1260735	1260735	1					1		

Data Validation Report for:

Chain Of Custody No. 2013-271

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				2			
		1				1			
		1				1			
		1				2			
		1				1			
		2				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		2							
		1							
		1				1			

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24264	1202785832	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24280	1202785831	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202785833	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24217	1202775968	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202775970	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24280	1202775862	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202775864	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202775861	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783063	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783067	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783064	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783068	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202783069	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202783062	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24256	1202775359	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202775361	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202775358	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24280	1202781593	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24280	1202781606	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202781586	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202782634	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202781585	MB	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202782633	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776123	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776124	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776125	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202776126	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202776122	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776118	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776119	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776120	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24276	314637001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202776121	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202776117	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24256	1202775881	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202775885	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202775880	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776128	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776130	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776132	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202776134	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202776127	MB	1	0	0	0
EPA:900	RAD	CAMO-13-24276	314637001	REG	2	0	0	0
EPA:900	RAD	CASA-13-24214	1202779587	DUP	2	0	0	0

Data Validation Report for:

Chain Of Custody No. 2013-271

EPA:900	RAD	CASA-13-24214	1202779588	MS	0	0	2	0
EPA:900	RAD	CASA-13-24214	1202779589	MSD	0	0	2	0
EPA:900	RAD	LCS	1202779590	LCS	0	0	2	0
EPA:900	RAD	MB	1202779586	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24276	1202774852	DUP	6	0	0	0
EPA:901.1	RAD	CAMO-13-24276	314637001	REG	5	0	0	0
EPA:901.1	RAD	LCS	1202774853	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202774851	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24253	1202779528	DUP	1	0	0	0
EPA:905.0	RAD	CAMO-13-24253	1202779529	MS	0	0	1	0
EPA:905.0	RAD	CAMO-13-24276	314637001	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202779530	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202779527	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24276	314637001	REG	1	0	0	0
HASL-300:AM-241	RAD	CASA-13-24209	1202775076	DUP	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202775077	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202775075	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24276	314637001	REG	2	0	0	0
HASL-300:ISOPU	RAD	CASA-13-24209	1202775079	DUP	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202775080	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202775078	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24276	314637001	REG	3	0	0	0
HASL-300:ISOU	RAD	CASA-13-24209	1202775082	DUP	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202775083	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202775081	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24280	314637002	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24280	1202775410	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24280	1202775411	MS	0	0	17	0
SW-846:6010B	INORGANIC	CAMO-13-24280	314637002	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202775409	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202775408	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24280	1202775405	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24280	1202775406	MS	0	0	11	0
SW-846:6020	INORGANIC	CAMO-13-24280	314637002	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202775404	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202775403	MB	11	0	0	0
SW-846:8260B	VOC	CAMO-13-24275	314637003	FTB	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24276	314637001	REG	80	3	0	0
SW-846:8260B	VOC	LCS	1202780641	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202780642	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1202780640	MB	80	3	0	0
SW-846:8270C	SVOC	CAMO-13-24276	1202777625	MS	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24276	1202777626	MSD	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24276	314637001	REG	80	6	0	0
SW-846:8270C	SVOC	LCS	1202777624	LCS	0	6	76	0
SW-846:8270C	SVOC	MB	1202777623	MB	80	6	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24241	1202773872	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24276	314637001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202773876	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202773871	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202773871	METHOD BLANK	SW-846:9060	W	Total Organic Carbon	0.488	J	mg/L	1
MB	1202775408	METHOD BLANK	SW-846:6010B	W	Potassium	81.8	J	ug/L	150

Any samples affected by the presence of contaminants in blanks?

Field Sample ID	Blank Field Sample ID	Blank Lab Sample ID	Blank Type	Analytical Method	Parameter Name	Units	Blank Result	Sample Result	Lab Qualifier	Detect Limit	Detected
CAMO-13-24276	MB	1202773871	METHOD BLANK	SW-846:9060	Total Organic Carbon	mg/L	0.488	0.398	J	1	Y

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CAMO-13-24256	1202776124	1202776125	EPA:350.1	Ammonia as Nitrogen	1261639	11/13/2012	W	114	95.1	110	90
CAMO-13-24239	1202776119	1202776120	EPA:351.2	Total Kjeldahl Nitrogen	1261637	11/14/2012	W	89.7	90.7	110	90
CASA-13-24214	1202779588	1202779589	EPA:900	Gross alpha	1263054	11/27/2012	W	86.3	103	125	75
CAMO-13-24280	1202775411		SW-846:6010B	Silicon Dioxide	1261332	11/17/2012	W	178		125	75
CAMO-13-24280	1202775411		SW-846:6010B	Silicon Dioxide	1261332	11/17/2012	W	178		125	75
CAMO-13-24280	1202775411		SW-846:6010B	Sodium	1261332	11/17/2012	W	132		125	75
CAMO-13-24280	1202775411		SW-846:6010B	Sodium	1261332	11/17/2012	W	132		125	75
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Benzidine	1262244	11/13/2012	W	0	94	125	10
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Benzoic Acid	1262244	11/13/2012	W	80	53	108	12
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Bis(2-chloroethoxy)methane	1262244	11/13/2012	W	97	66	112	35
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Dichlorophenol[2,4-]	1262244	11/13/2012	W	106	75	110	36
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Dimethylphenol[2,4-]	1262244	11/13/2012	W	96	60	106	31
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Hexachlorocyclopentadiene	1262244	11/13/2012	W	16	15	75	25
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Nitrophenol[2-]	1262244	11/13/2012	W	112	70	115	33
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Pyridine	1262244	11/13/2012	W	13	78	93	21

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

LCS Sample ID	LCSD Sample ID	Analytical Method	Parameter Name	Lab Lot ID	Analysis Date	Sample Matrix	LCS Recovery	LCSD Recovery	Upper Limit	Lower Limit	Lower Reject Limit
1202777624		SW-846:8270C	Aniline	1262244	11/13/2012	W	127		105	38	10
1202777624		SW-846:8270C	Hexachlorocyclopentadiene	1262244	11/13/2012	W	22		79	38	10

9. Any Field Duplicate RPDs outside the desired limits?

Data Validation Report for:

Chain Of Custody No. 2013-271

Correction Factor (ND)	Correction Factor (J)	Use Factors
5		Y

Rejection Limit	RPD	RPD Limit
10	17.2	15
10	0.939	20
10	17.6	11.5
10		
10		
10		
10		
10	200	30
10	40	30
10	38	30
10	34	30
10	47	30
10	4	30
10	45	30
10	142	30

Upper Reject Limit	RPD	RPD Limit

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	UJ	SV12a	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	J	U	I4	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24280	REG	INIT	INORGANIC	SW-846:6010B	Silicon Dioxide		J+	I6b	Y
R-14 S1	2013-271	CAMO-13-24280	REG	INIT	INORGANIC	SW-846:6010B	Sodium	N	J+	I6b	Y

Reason Code	Description
I4	the sample result is =<Sx the concentration of related analyte in the method blank.
I6b	The associated matrix spike recovery was above the Upper Acceptance Limit (UAL). Follow the external laboratory limits located within the associated data package.
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
RS	Analyte is not detected because the amount reported is less than the MDC.
SV12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24275	R-14 S1	FTB	SW-846:8260B	0	80

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
0.00559	pCi/L	0.00559	pCi/L	0.0318	0.00559	W	11/5/2012		1261192	VAL	Y
-2.29	pCi/L	-2.29	pCi/L	4.65	1.46	W	11/5/2012		1261091	VAL	Y
-1.01	pCi/L	-1.01	pCi/L	5.01	1.43	W	11/5/2012		1261091	VAL	Y
0.88	pCi/L	0.88	pCi/L	2.84	0.814	W	11/5/2012		1263054	VAL	Y
1.5	pCi/L	1.5	pCi/L	2.49	0.776	W	11/5/2012		1263054	VAL	Y
3	ug/L	3	ug/L			W	11/5/2012		1262245	VAL	Y
-2.08	pCi/L	-2.08	pCi/L	10.1	2.92	W	11/5/2012		1261091	VAL	Y
-0.0208	pCi/L	-0.0208	pCi/L	0.0222	0.00834	W	11/5/2012		1261194	VAL	Y
0.00694	pCi/L	0.00694	pCi/L	0.0369	0.00834	W	11/5/2012		1261194	VAL	Y
-17.6	pCi/L	-17.6	pCi/L	52.1	15.8	W	11/5/2012		1261091	VAL	Y
-0.457	pCi/L	-0.457	pCi/L	3.82	1.03	W	11/5/2012		1261091	VAL	Y
0.0232	pCi/L	0.0232	pCi/L	0.44	0.119	W	11/5/2012		1263026	VAL	Y
0.398	mg/L	0.398	mg/L			W	11/5/2012		1260735	VAL	Y
0.00659	pCi/L	0.00659	pCi/L	0.0386	0.00659	W	11/5/2012		1261195	VAL	Y
86300	ug/L	86.3	mg/L			W	11/5/2012		1261333	VAL	Y
11300	ug/L	11.3	mg/L			W	11/5/2012		1261333	VAL	Y

CAMO-13-24276	R-14 S1	REG	EPA:351.2	0	1
CAMO-13-24276	R-14 S1	REG	EPA:900	0	2
CAMO-13-24276	R-14 S1	REG	EPA:901.1	0	5
CAMO-13-24276	R-14 S1	REG	EPA:905.0	0	1
CAMO-13-24276	R-14 S1	REG	HASL-300:AM-241	0	1
CAMO-13-24276	R-14 S1	REG	HASL-300:ISOPU	0	2
CAMO-13-24276	R-14 S1	REG	HASL-300:ISOU	0	3
CAMO-13-24276	R-14 S1	REG	SW-846:8260B	0	80
CAMO-13-24276	R-14 S1	REG	SW-846:8270C	0	80
CAMO-13-24276	R-14 S1	REG	SW-846:9060	0	1
CAMO-13-24280	R-14 S1	REG	EPA:120.1	0	1
CAMO-13-24280	R-14 S1	REG	EPA:150.1	0	1
CAMO-13-24280	R-14 S1	REG	EPA:160.1	0	1
CAMO-13-24280	R-14 S1	REG	EPA:245.2	0	1
CAMO-13-24280	R-14 S1	REG	EPA:300.0	0	4
CAMO-13-24280	R-14 S1	REG	EPA:310.1	0	2
CAMO-13-24280	R-14 S1	REG	EPA:350.1	0	1
CAMO-13-24280	R-14 S1	REG	EPA:353.2	0	1
CAMO-13-24280	R-14 S1	REG	EPA:365.4	0	1
CAMO-13-24280	R-14 S1	REG	SM:A2340B	0	1
CAMO-13-24280	R-14 S1	REG	SW-846:6010B	0	17
CAMO-13-24280	R-14 S1	REG	SW-846:6020	0	11

Data Validation Report

Chain Of Custody No. 2013-271

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
314637	EPA:120.1	1				
314637	EPA:150.1	1				
314637	EPA:160.1	1				
314637	EPA:245.2	1				
314637	EPA:300.0	1				
314637	EPA:310.1	1				
314637	EPA:350.1	1				
314637	EPA:351.2	1				
314637	EPA:353.2	1				
314637	EPA:365.4	1				
314637	EPA:900	1				
314637	EPA:901.1	1				
314637	EPA:905.0	1				
314637	HASL-300:AM-241	1				
314637	HASL-300:ISOPU	1				
314637	HASL-300:ISOU	1				
314637	SM:A2340B	1				
314637	SW-846:6010B	1				
314637	SW-846:6020	1				
314637	SW-846:8260B	1		1		
314637	SW-846:8270C	1				
314637	SW-846:9060	1				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
314637	EPA:120.1	1265843	1265843	1							
314637	EPA:150.1	1261553	1261553	1							
314637	EPA:160.1	1261522	1261522	1					1		
314637	EPA:245.2	1264600	1264596	1					1	2	
314637	EPA:300.0	1261315	1261315	1					1		
314637	EPA:310.1	1263936	1263936	1					2	1	
314637	EPA:350.1	1261640	1261639	1					1	1	1
314637	EPA:351.2	1261638	1261637	1					1	1	1
314637	EPA:353.2	1261528	1261528	1					1		
314637	EPA:365.4	1261643	1261641	1					1	1	1
314637	EPA:900	1263054	1263054	1					1	1	1
314637	EPA:901.1	1261091	1261091	1					1		
314637	EPA:905.0	1263026	1263026	1					1	1	
314637	HASL-300:AM-241	1261192	1261192	1					1		
314637	HASL-300:ISOPU	1261194	1261194	1					1		
314637	HASL-300:ISOU	1261195	1261195	1					1		
314637	SM:A2340B	1267632	1267632	1							
314637	SW-846:6010B	1261333	1261332	1					1	1	
314637	SW-846:6020	1261331	1261330	1					1	1	
314637	SW-846:8260B	1263542	1263542	1		1			1		
314637	SW-846:8270C	1262245	1262244	1					1	1	1
314637	SW-846:9060	1260735	1260735	1					1		

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1				2			
		1				1			
		1				1			
		1				2			
		1				1			
		2				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		1				1			
		2							
		1							
		1				1			

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24264	1202785832	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24280	1202785831	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202785833	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CASA-13-24217	1202775968	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202775970	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24280	1202775862	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202775864	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202775861	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783063	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783067	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783064	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783068	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202783069	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202783062	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24256	1202775359	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202775361	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202775358	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24280	1202781593	DUP	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24280	1202781606	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202781586	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202782634	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202781585	MB	3	0	0	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202782633	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776123	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776124	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24256	1202776125	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202776126	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202776122	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776118	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776119	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24239	1202776120	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24276	314637001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202776121	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202776117	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24256	1202775881	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202775885	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202775880	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776128	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776130	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24256	1202776132	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24280	314637002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202776134	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202776127	MB	1	0	0	0
EPA:900	RAD	CAMO-13-24276	314637001	REG	2	0	0	0
EPA:900	RAD	CASA-13-24214	1202779587	DUP	2	0	0	0

EPA:900	RAD	CASA-13-24214	1202779588	MS	0	0	2	0
EPA:900	RAD	CASA-13-24214	1202779589	MSD	0	0	2	0
EPA:900	RAD	LCS	1202779590	LCS	0	0	2	0
EPA:900	RAD	MB	1202779586	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24276	1202774852	DUP	6	0	0	0
EPA:901.1	RAD	CAMO-13-24276	314637001	REG	5	0	0	0
EPA:901.1	RAD	LCS	1202774853	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202774851	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24253	1202779528	DUP	1	0	0	0
EPA:905.0	RAD	CAMO-13-24253	1202779529	MS	0	0	1	0
EPA:905.0	RAD	CAMO-13-24276	314637001	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202779530	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202779527	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24276	314637001	REG	1	0	0	0
HASL-300:AM-241	RAD	CASA-13-24209	1202775076	DUP	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202775077	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202775075	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24276	314637001	REG	2	0	0	0
HASL-300:ISOPU	RAD	CASA-13-24209	1202775079	DUP	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202775080	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202775078	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24276	314637001	REG	3	0	0	0
HASL-300:ISOU	RAD	CASA-13-24209	1202775082	DUP	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202775083	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202775081	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24280	314637002	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24280	1202775410	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24280	1202775411	MS	0	0	17	0
SW-846:6010B	INORGANIC	CAMO-13-24280	314637002	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202775409	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202775408	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24280	1202775405	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24280	1202775406	MS	0	0	11	0
SW-846:6020	INORGANIC	CAMO-13-24280	314637002	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202775404	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202775403	MB	11	0	0	0
SW-846:8260B	VOC	CAMO-13-24275	314637003	FTB	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24276	314637001	REG	80	3	0	0
SW-846:8260B	VOC	LCS	1202780641	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202780642	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1202780640	MB	80	3	0	0
SW-846:8270C	SVOC	CAMO-13-24276	1202777625	MS	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24276	1202777626	MSD	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24276	314637001	REG	80	6	0	0
SW-846:8270C	SVOC	LCS	1202777624	LCS	0	6	76	0
SW-846:8270C	SVOC	MB	1202777623	MB	80	6	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24241	1202773872	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24276	314637001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202773876	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202773871	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202773871	METHOD BLANK	SW-846:9060	W	Total Organic Carbon	0.488	J	mg/L	1
MB	1202775408	METHOD BLANK	SW-846:6010B	W	Potassium	81.8	J	ug/L	150

Any samples affected by the presence of contaminants in blanks?

Field Sample ID	Blank Field Sample ID	Blank Lab Sample ID	Blank Type	Analytical Method	Parameter Name	Units	Blank Result	Sample Result	Lab Qualifier	Detect Limit	Detected
CAMO-13-24276	MB	1202773871	METHOD BLANK	SW-846:9060	Total Organic Carbon	mg/L	0.488	0.398	J	1	Y

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CAMO-13-24256	1202776124	1202776125	EPA:350.1	Ammonia as Nitrogen	1261639	11/13/2012	W	114	95.1	110	90
CAMO-13-24239	1202776119	1202776120	EPA:351.2	Total Kjeldahl Nitrogen	1261637	11/14/2012	W	89.7	90.7	110	90
CASA-13-24214	1202779588	1202779589	EPA:900	Gross alpha	1263054	11/27/2012	W	86.3	103	125	75
CAMO-13-24280	1202775411		SW-846:6010B	Silicon Dioxide	1261332	11/17/2012	W	178		125	75
CAMO-13-24280	1202775411		SW-846:6010B	Silicon Dioxide	1261332	11/17/2012	W	178		125	75
CAMO-13-24280	1202775411		SW-846:6010B	Sodium	1261332	11/17/2012	W	132		125	75
CAMO-13-24280	1202775411		SW-846:6010B	Sodium	1261332	11/17/2012	W	132		125	75
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Benzidine	1262244	11/13/2012	W	0	94	125	10
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Benzoic Acid	1262244	11/13/2012	W	80	53	108	12
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Bis(2-chloroethoxy)methane	1262244	11/13/2012	W	97	66	112	35
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Dichlorophenol[2,4-]	1262244	11/13/2012	W	106	75	110	36
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Dimethylphenol[2,4-]	1262244	11/13/2012	W	96	60	106	31
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Hexachlorocyclopentadiene	1262244	11/13/2012	W	16	15	75	25
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Nitrophenol[2-]	1262244	11/13/2012	W	112	70	115	33
CAMO-13-24276	1202777625	1202777626	SW-846:8270C	Pyridine	1262244	11/13/2012	W	13	78	93	21

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

LCS Sample ID	LCSD Sample ID	Analytical Method	Parameter Name	Lab Lot ID	Analysis Date	Sample Matrix	LCS Recovery	LCSD Recovery	Upper Limit	Lower Limit	Lower Reject Limit
1202777624		SW-846:8270C	Aniline	1262244	11/13/2012	W	127		105	38	10
1202777624		SW-846:8270C	Hexachlorocyclopentadiene	1262244	11/13/2012	W	22		79	38	10

9. Any Field Duplicate RPDs outside the desired limits?

Data Validation Report for: Chain Of Custody No. 2013-271

Correction Factor (ND)	Correction Factor (J)	Use Factors
5		Y

Rejection Limit	RPD	RPD Limit
10	17.2	15
10	0.939	20
10	17.6	11.5
10		
10		
10		
10		
10	200	30
10	40	30
10	38	30
10	34	30
10	47	30
10	4	30
10	45	30
10	142	30

Upper Reject Limit	RPD	RPD Limit

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:900	Gross alpha	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:900	Gross beta	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	SVOC	SW-846:8270C	Hexachlorocyclopentadiene	U	UJ	SV12a	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	GENERAL CHEMISTRY	SW-846:9060	Total Organic Carbon	J	U	I4	N
R-14 S1	2013-271	CAMO-13-24276	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-14 S1	2013-271	CAMO-13-24280	REG	INIT	INORGANIC	SW-846:6010B	Silicon Dioxide		J+	I6b	Y
R-14 S1	2013-271	CAMO-13-24280	REG	INIT	INORGANIC	SW-846:6010B	Sodium	N	J+	I6b	Y

Reason Code	Description
I4	the sample result is =<5x the concentration of related analyte in the method blank.
I6b	The associated matrix spike recovery was above the Upper Acceptance Limit (UAL). Follow the external laboratory limits located within the associated data package.
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.
SV12a	The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24275	R-14 S1	FTB	SW-846:8260B	0	80

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
0.00559	pCi/L	0.00559	pCi/L	0.0318	0.00559	W	11/5/2012		1261192	VAL	Y
-2.29	pCi/L	-2.29	pCi/L	4.65	1.46	W	11/5/2012		1261091	VAL	Y
-1.01	pCi/L	-1.01	pCi/L	5.01	1.43	W	11/5/2012		1261091	VAL	Y
0.88	pCi/L	0.88	pCi/L	2.84	0.814	W	11/5/2012		1263054	VAL	Y
1.5	pCi/L	1.5	pCi/L	2.49	0.776	W	11/5/2012		1263054	VAL	Y
3	ug/L	3	ug/L			W	11/5/2012		1262245	VAL	Y
-2.08	pCi/L	-2.08	pCi/L	10.1	2.92	W	11/5/2012		1261091	VAL	Y
-0.0208	pCi/L	-0.0208	pCi/L	0.0222	0.00834	W	11/5/2012		1261194	VAL	Y
0.00694	pCi/L	0.00694	pCi/L	0.0369	0.00834	W	11/5/2012		1261194	VAL	Y
-17.6	pCi/L	-17.6	pCi/L	52.1	15.8	W	11/5/2012		1261091	VAL	Y
-0.457	pCi/L	-0.457	pCi/L	3.82	1.03	W	11/5/2012		1261091	VAL	Y
0.0232	pCi/L	0.0232	pCi/L	0.44	0.119	W	11/5/2012		1263026	VAL	Y
0.398	mg/L	0.398	mg/L			W	11/5/2012		1260735	VAL	Y
0.00659	pCi/L	0.00659	pCi/L	0.0386	0.00659	W	11/5/2012		1261195	VAL	Y
86300	ug/L	86.3	mg/L			W	11/5/2012		1261333	VAL	Y
11300	ug/L	11.3	mg/L			W	11/5/2012		1261333	VAL	Y

CAMO-13-24276	R-14 S1	REG	EPA:351.2	0	1
CAMO-13-24276	R-14 S1	REG	EPA:900	0	2
CAMO-13-24276	R-14 S1	REG	EPA:901.1	0	5
CAMO-13-24276	R-14 S1	REG	EPA:905.0	0	1
CAMO-13-24276	R-14 S1	REG	HASL-300:AM-241	0	1
CAMO-13-24276	R-14 S1	REG	HASL-300:ISOPU	0	2
CAMO-13-24276	R-14 S1	REG	HASL-300:ISOU	0	3
CAMO-13-24276	R-14 S1	REG	SW-846:8260B	0	80
CAMO-13-24276	R-14 S1	REG	SW-846:8270C	0	80
CAMO-13-24276	R-14 S1	REG	SW-846:9060	0	1
CAMO-13-24280	R-14 S1	REG	EPA:120.1	0	1
CAMO-13-24280	R-14 S1	REG	EPA:150.1	0	1
CAMO-13-24280	R-14 S1	REG	EPA:160.1	0	1
CAMO-13-24280	R-14 S1	REG	EPA:245.2	0	1
CAMO-13-24280	R-14 S1	REG	EPA:300.0	0	4
CAMO-13-24280	R-14 S1	REG	EPA:310.1	0	2
CAMO-13-24280	R-14 S1	REG	EPA:350.1	0	1
CAMO-13-24280	R-14 S1	REG	EPA:353.2	0	1
CAMO-13-24280	R-14 S1	REG	EPA:365.4	0	1
CAMO-13-24280	R-14 S1	REG	SM:A2340B	0	1
CAMO-13-24280	R-14 S1	REG	SW-846:6010B	0	17
CAMO-13-24280	R-14 S1	REG	SW-846:6020	0	11

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

November 29, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 314637
SDG: 2013-271

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 07, 2012, and analyzed for GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-271
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 314637
SDG: 2013-271

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....9

Volatile Analysis.....11

Case Narrative.....12

Sample Data Summary.....17

Quality Control Summary.....24

Quality Control Data.....40

Semi-Volatile Analysis.....56

Case Narrative.....57

Sample Data Summary.....63

Quality Control Summary.....67

Quality Control Data.....82

Miscellaneous.....95

Metals Analysis.....97

Case Narrative.....98

Sample Data Summary.....104

Quality Control Summary.....108

Miscellaneous.....122

General Chem Analysis.....124

Case Narrative.....125

Sample Data Summary.....153

Quality Control Summary.....158

Miscellaneous.....163

Radiological Analysis.....167

Sample Data Summary.....179

Quality Control Data.....182

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 314637
SDG # : 2013-271

November 29, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 07, 2012 for analysis. Please see attached email for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. The containers for Gross A/B were preserved prior to analysis. Shipping container temperature was within specification (0 - 6C). The containers for radiochemistry analysis were received at a temperature of 19C. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
314637001	CAMO-13-24276
314637002	CAMO-13-24280
314637003	CAMO-13-24275

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

Hope Taylor for
Valerie Davis
Project Manager

List of current GEL Certifications as of 29 November 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd
Charleston SC 29407

Chain of Custody/Analysis Request

314639

COC/Lab Request #: 2013-271

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Received

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-GENINORG	WSP-GrossA/B	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAMO-13-24276	Nov 5 2012	10:09	W	2	3		1			1	1
CAMO-13-24280	Nov 5 2012	10:09	W			1		1	1		
CAMO-13-24275	Nov 5 2012	10:09	W	2							

Special Instructions:

Special Instructions:

Relinquished by: Shen Sherwood	S. Sherwood	Date/Time: 11/6/12 3pm	Received by: P. Nlent	11-7-12 09:00
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/AR/COC/Work Order: 2013-271**
Received By: Patricia Dent	**Date Received:November 7, 2012**

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		X	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): **0CPM**
Classified Radioactive II or III by RSO?		X	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		X	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		X	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		X	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		X	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius **2-4,19**
2a	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?			X	Sample ID's, containers affected and observed pH: **CAMO-13-24276, for Gross A/B** 34209,If Preservation added, Lot# **L03022**
6	VOA vials free of headspace (defined as < 6mm bubble)?	X			Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11	Number of containers received match number indicated on COC?			X	Sample ID's affected: **CAMO-13-24275 the lab received 1 8260B container COC indicates 2.**
12	Are sample containers identifiable as GEL provided?			X	**CLIENTS**
13	COC form is properly signed in relinquished/received sections?	X			
14	Carrier and tracking number.	X			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other **5462 9832 5013 2C 5462 9832 5002 4C 5462 9832 5024 19C**

Comments (Use Continuation Form if needed):

PM (PMA) review Initials P.D. Date 11-7-12 Page 1 of 1

Subject: Sample Issues from today 11/07/12
From: Pat Dent <Pat.Dent@gel.com>
Date: 11/7/2012 4:54 PM
To: "Keith R. Greene" <kgreene@lanl.gov>
CC: "team.davis" <team.davis@gel.com>, LANL@amrad.com

Good Afternoon all listed below are today's Issues

Containers received for Gross A/B was preserved prior to analysis
RN#2013-270
Sample Id CASA-13-24216 the lab received 2 8082-PCB containers, COC indicates 3.

RN#2013-271
Sample Id CAMO-13-24275 the lab received 1 8260b container, coc indicates 2.

Thanks!

--
Patricia Dent
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Rd.
Charleston, S.C. 29407
Main: 843-556-8171 Ext 4264
Fax: 843-766-1178
Email: pad@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 06NOV12
ACTWGT: 48.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MP5R13AAV000

2c

58DC1/6713/18BC

FedEx Express

J111311066068125

2 of 3
MPS# 0263 5462 9832 5013
Mstr# 5462 9832 5002 0201

WED - 07 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 06NOV12
ACTWGT: 55.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MP5R13AAV000

4c

FedEx Express

1 of 3
TRK# 0201 5462 9832 5002
MASTER

WED - 07 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 06NOV12
ACTWGT: 41.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MP5R13AAV000

19c

FedEx Express

J111311066068125

3 of 3
MPS# 0263 5462 9832 5024
Mstr# 5462 9832 5002 0201

WED - 07 NOV A1
PRIORITY OVERNIGHT

XX CHSA

29407
SC-US CHS

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Volatile Analysis

Case Narrative

ChemStation Case Narrative
ARS International (ARSL)
SDG 2013-271

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 8260B DOE-AL
Analytical Batch Number:	1263542

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

Sample ID	Client ID
314637001	CAMO-13-24276
314637003	CAMO-13-24275
1202780640	Method Blank (MB)
1202780641	Laboratory Control Sample (LCS)
1202780642	Laboratory Control Sample (LCS)
1202780643	314637001(CAMO-13-24276) Post Spike (PS)
1202780644	314637001(CAMO-13-24276) Post Spike Duplicate (PSD)

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 18.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 19.1.2. False positive analytes are designated on the quantitation report with a ’d’ qualifier.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package.

The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were

added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement
The blank analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
Surrogate recoveries in all client and quality control samples were within the acceptance limits.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

QC Sample Designation
Sample 314637001 (CAMO-13-24276) was designated for spike analysis.

Matrix Spike (PS) Recovery Statement
The spike recoveries were within the required acceptance limits.

Matrix Spike Duplicate (PSD) Recovery Statement
The spike duplicate recoveries were within the required acceptance limits.

Relative Percent Difference (RPD) Statement
The RPDs between the matrix spike pair met the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-analyses were not required for samples in this SDG.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) may be requested for this sample delivery group/work order. Please note that non-requested target analytes that are reported on the quantitation reports will be present on the Form I. These detected analytes are included in the calibrated method and as a result will be reported on the Sample Data Summary (Form I) or Certificate of Analysis (C of A). TIC data, if requested, are included on the Sample Data Summary (Form I) and are also included with the sample raw data.

Additional Comments
Additional comments were not required for this SDG.

Residual Chlorine
Residual Chlorine was not detected in any of the samples in this SDG.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOA1.I	Agilent 6890/5973 GC/MS w/ OI 4560/Archon Autosampler	HP6890/HP5973	RTX-624	Restek, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-271 GEL Work Order: 314637

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Erin Haubert **Name:** **Erin Haubert**

Date: **04 DEC 2012** **Title:** **Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**314637001**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24276**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 16:05**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 16:05**				
Data File:	**111412V1\1M311.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**314637001**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24276**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 16:05**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 16:05**				
Data File:	**111412V1\1M311.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**314637001**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24276**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 16:05**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 16:05**				
Data File:	**111412V1\1M311.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	53.4	50.0	ug/L	107	(78%-124%)
Bromofluorobenzene	50.1	50.0	ug/L	100	(80%-120%)
Toluene-d8	50.9	50.0	ug/L	102	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**314637003**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24275**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 16:35**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 16:35**				
Data File:	**111412V1\1M312.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**314637003**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24275**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 16:35**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 16:35**				
Data File:	**111412V1\1M312.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**314637003**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24275**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 16:35**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 16:35**				
Data File:	**111412V1\1M312.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	54.2	50.0	ug/L	108	(78%-124%)
Bromofluorobenzene	48.5	50.0	ug/L	96.9	(80%-120%)
Toluene-d8	50.8	50.0	ug/L	102	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2013-271

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1202780641	LCS for batch 1263542	105	102	95
1202780642	LCS for batch 1263542	104	101	98
1202780640	MB for batch 1263542	109	103	98
314637001	CAMO-13-24276	107	102	100
314637003	CAMO-13-24275	108	102	97
1202780643	CAMO-13-24276PS	102	102	95
1202780644	CAMO-13-24276PSD	102	101	95

Surrogate			Acceptance Limits
DCED4	=	1,2-Dichloroethane-d4	(78%-124%)
TOL	=	Toluene-d8	(80%-120%)
BFB	=	Bromofluorobenzene	(80%-120%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **LCS for batch 1263542**
Lab Sample ID: **1202780641**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/14/2012 12:01**
Prep Batch ID: **1263542**
Batch ID: **1263542**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	54.6	109	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	53.2	106	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	47.9	96	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	51.8	104	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	53.4	107	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	59.9	120	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	47.1	94	74-120
67-64-1	LCS	Acetone	250	0.0	338	135	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	1220	98	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	56.5	113	76-127
74-88-4	LCS	Iodomethane	250	0.0	279	111	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	49.1	98	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	279	112	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	51.7	103	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	52.5	105	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	258	103	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	50.0	100	79-120
78-93-3	LCS	2-Butanone	250	0.0	369	148	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	50.8	102	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	60.6	121	76-145
67-66-3	LCS	Chloroform	50.0	0.0	49.8	100	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	49.4	99	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **LCS for batch 1263542**
Lab Sample ID: **1202780641**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/14/2012 12:01**
Prep Batch ID: **1263542**
Batch ID: **1263542**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	58.1	116	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	54.6	109	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	6390	128	66-138
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	59.6	119	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	48.5	97	75-121
71-43-2	LCS	Benzene	50.0	0.0	48.0	96	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	51.6	103	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	46.5	93	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	49.3	99	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	49.2	98	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	306	123	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	51.8	104	80-127
108-88-3	LCS	Toluene	50.0	0.0	48.8	98	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	52.1	104	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	46.8	94	79-120
591-78-6	LCS	2-Hexanone	250	0.0	382	153	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	47.3	95	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	51.6	103	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	51.4	103	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	50.0	100	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	48.0	96	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	51.1	102	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **LCS for batch 1263542**
Lab Sample ID: **1202780641**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/14/2012 12:01**
Prep Batch ID: **1263542**
Batch ID: **1263542**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	104	104	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	53.3	107	80-120
100-42-5	LCS	Styrene	50.0	0.0	53.7	107	80-121
75-25-2	LCS	Bromoform	50.0	0.0	51.1	102	72-125
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	47.3	95	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	50.6	101	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	47.3	95	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	51.7	103	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	50.0	100	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	54.6	109	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	53.4	107	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	49.3	99	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	54.1	108	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	52.7	105	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	54.2	108	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	55.4	111	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	48.3	97	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	47.4	95	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	53.4	107	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	47.2	94	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	49.8	100	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	48.0	96	71-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **LCS for batch 1263542**
Lab Sample ID: **1202780641**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/14/2012 12:01**
Prep Batch ID: **1263542**
Batch ID: **1263542**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	48.6	97	73-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	51.7	103	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	49.5	99	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	47.7	95	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **LCS for batch 1263542**
Lab Sample ID: **1202780642**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/14/2012 13:32**
Prep Batch ID: **1263542**
Batch ID: **1263542**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS	Acrolein	250	0.0	273	109	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	335	134	65-157
107-05-1	LCS	Allyl chloride	250	0.0	285	114	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	263	105	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	62.2	124	45-159
107-12-0	LCS	Propionitrile	250	0.0	269	108	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	265	106	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2770	111	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	279	112	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	286	114	66-132

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **CAMO-13-24276PS**
Lab Sample ID: **1202780643**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/14/2012 21:40**
Prep Batch ID: **1263542**
Batch ID: **1263542**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	PS	Dichlorodifluoromethane	50.0	0.00	U	54.2	108	36-123
74-87-3	PS	Chloromethane	50.0	0.00	U	51.2	102	47-134
75-01-4	PS	Vinyl chloride	50.0	0.00	U	48.4	97	49-129
74-83-9	PS	Bromomethane	50.0	0.00	U	50.3	101	56-127
75-00-3	PS	Chloroethane	50.0	0.00	U	51.5	103	67-122
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	U	58.3	117	60-123
60-29-7	PS	Ethyl ether	50.0	0.00	U	47.0	94	69-121
67-64-1	PS	Acetone	250	0.00	U	106	42	30-143
75-05-8	PS	Acetonitrile	1250	0.00	U	1050	84	60-133
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	U	54.2	108	67-132
74-88-4	PS	Iodomethane	250	0.00	U	269	108	69-147
75-09-2	PS	Methylene chloride	50.0	0.00	U	49.5	99	56-135
75-15-0	PS	Carbon disulfide	250	0.00	U	268	107	65-153
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	U	50.2	100	73-126
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	U	51.6	103	69-128
108-05-4	PS	Vinyl acetate	250	0.00	U	225	90	50-143
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	U	49.2	98	75-124
78-93-3	PS	2-Butanone	250	0.00	U	155	62	30-140
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	U	50.1	100	52-147
594-20-7	PS	2,2-Dichloropropane	50.0	0.00	U	57.0	114	67-143
67-66-3	PS	Chloroform	50.0	0.00	U	49.2	98	75-125
74-97-5	PS	Bromochloromethane	50.0	0.00	U	48.8	98	80-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **CAMO-13-24276PS**
Lab Sample ID: **1202780643**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/14/2012 21:40**
Prep Batch ID: **1263542**
Batch ID: **1263542**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	PS	1,1,1-Trichloroethane	50.0	0.00	U	56.0	112	69-140
563-58-6	PS	1,1-Dichloropropene	50.0	0.00	U	53.0	106	71-130
71-36-3	PS	n-Butyl alcohol	5000	0.00	U	5180	104	53-150
56-23-5	PS	Carbon tetrachloride	50.0	0.00	U	57.0	114	69-142
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	U	47.3	95	72-126
71-43-2	PS	Benzene	50.0	0.00	U	46.6	93	73-119
79-01-6	PS	Trichloroethylene	50.0	0.00	U	49.5	99	54-147
78-87-5	PS	1,2-Dichloropropane	50.0	0.00	U	46.2	92	78-123
75-27-4	PS	Bromodichloromethane	50.0	0.00	U	48.3	97	76-131
74-95-3	PS	Dibromomethane	50.0	0.00	U	46.8	94	79-120
108-10-1	PS	4-Methyl-2-pentanone	250	0.00	U	233	93	68-136
10061-01-5	PS	cis-1,3-Dichloropropylene	50.0	0.00	U	48.8	98	72-134
108-88-3	PS	Toluene	50.0	0.00	U	47.1	94	62-126
10061-02-6	PS	trans-1,3-Dichloropropylene	50.0	0.00	U	49.7	99	72-133
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	U	44.6	89	74-120
591-78-6	PS	2-Hexanone	250	0.00	U	183	73	31-132
142-28-9	PS	1,3-Dichloropropane	50.0	0.00	U	45.8	92	73-121
127-18-4	PS	Tetrachloroethylene	50.0	0.00	U	51.0	102	54-139
124-48-1	PS	Dibromochloromethane	50.0	0.00	U	49.6	99	74-128
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	U	47.6	95	80-120
108-90-7	PS	Chlorobenzene	50.0	0.00	U	46.7	93	73-119
100-41-4	PS	Ethylbenzene	50.0	0.00	U	49.5	99	66-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **CAMO-13-24276PS**
Lab Sample ID: **1202780643**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/14/2012 21:40**
Prep Batch ID: **1263542**
Batch ID: **1263542**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	PS	m,p-Xylenes	100	0.00	U	101	101	56-134
95-47-6	PS	o-Xylene	50.0	0.00	U	51.7	103	68-126
100-42-5	PS	Styrene	50.0	0.00	U	51.6	103	57-138
75-25-2	PS	Bromoform	50.0	0.00	U	47.5	95	66-129
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	U	43.5	87	44-146
96-18-4	PS	1,2,3-Trichloropropane	50.0	0.00	U	46.1	92	68-129
108-86-1	PS	Bromobenzene	50.0	0.00	U	46.2	92	70-122
103-65-1	PS	n-Propylbenzene	50.0	0.00	U	49.9	100	61-131
95-49-8	PS	2-Chlorotoluene	50.0	0.00	U	48.6	97	66-126
98-82-8	PS	Isopropylbenzene	50.0	0.00	U	53.1	106	65-130
108-67-8	PS	1,3,5-Trimethylbenzene	50.0	0.00	U	51.8	104	58-134
106-43-4	PS	4-Chlorotoluene	50.0	0.00	U	47.6	95	63-125
98-06-6	PS	tert-Butylbenzene	50.0	0.00	U	53.0	106	66-129
95-63-6	PS	1,2,4-Trimethylbenzene	50.0	0.00	U	51.0	102	60-131
135-98-8	PS	sec-Butylbenzene	50.0	0.00	U	52.5	105	62-130
99-87-6	PS	4-Isopropyltoluene	50.0	0.00	U	53.0	106	62-132
541-73-1	PS	1,3-Dichlorobenzene	50.0	0.00	U	46.6	93	66-121
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	U	45.3	91	65-119
104-51-8	PS	n-Butylbenzene	50.0	0.00	U	51.7	103	55-134
96-12-8	PS	1,2-Dibromo-3-chloropropane	50.0	0.00	U	39.9	80	58-137
87-68-3	PS	Hexachlorobutadiene	50.0	0.00	U	48.1	96	49-139
91-20-3	PS	Naphthalene	50.0	0.00	U	44.4	89	46-145

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Sample Type: **Post Spike**
Client ID: **CAMO-13-24276PS**
Matrix: **W**
Lab Sample ID: **1202780643**
Instrument: **VOA1.I**
Analysis Date: **11/14/2012 21:40**
Dilution: 1
Analyst: **ACJ**
Prep Batch ID: **1263542**
Purge Vol: **5 mL**
Batch ID: **1263542**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	PS	1,2,3-Trichlorobenzene	50.0	0.00	U	46.1	92	54-134
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	U	50.8	102	79-128
120-82-1	PS	1,2,4-Trichlorobenzene	50.0	0.00	U	47.7	95	55-128
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	U	46.8	94	68-121

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **CAMO-13-24276PSD**
Lab Sample ID: **1202780644**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/14/2012 22:10**
Prep Batch ID: **1263542**
Batch ID: **1263542**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
75-71-8	PSD	Dichlorodifluoromethane	50.0	0.00	U	54.0	108	36-123	0	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	U	51.3	103	47-134	0	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	U	48.9	98	49-129	1	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	U	50.0	100	56-127	1	0-20
75-00-3	PSD	Chloroethane	50.0	0.00	U	50.2	100	67-122	3	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	U	58.5	117	60-123	0	0-20
60-29-7	PSD	Ethyl ether	50.0	0.00	U	47.2	94	69-121	1	0-20
67-64-1	PSD	Acetone	250	0.00	U	110	44	30-143	3	0-20
75-05-8	PSD	Acetonitrile	1250	0.00	U	1080	86	60-133	2	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	U	53.8	108	67-132	1	0-20
74-88-4	PSD	Iodomethane	250	0.00	U	267	107	69-147	1	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	U	49.5	99	56-135	0	0-20
75-15-0	PSD	Carbon disulfide	250	0.00	U	266	106	65-153	1	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	U	50.4	101	73-126	0	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	U	51.0	102	69-128	1	0-20
108-05-4	PSD	Vinyl acetate	250	0.00	U	225	90	50-143	0	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	U	48.9	98	75-124	1	0-20
78-93-3	PSD	2-Butanone	250	0.00	U	158	63	30-140	2	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	U	49.9	100	52-147	0	0-20
594-20-7	PSD	2,2-Dichloropropane	50.0	0.00	U	57.1	114	67-143	0	0-20
67-66-3	PSD	Chloroform	50.0	0.00	U	48.8	98	75-125	1	0-20
74-97-5	PSD	Bromochloromethane	50.0	0.00	U	49.2	98	80-120	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **CAMO-13-24276PSD**
Lab Sample ID: **1202780644**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/14/2012 22:10**
Prep Batch ID: **1263542**
Batch ID: **1263542**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
71-55-6	PSD	1,1,1-Trichloroethane	50.0	0.00	U	55.7	111	69-140	1	0-20
563-58-6	PSD	1,1-Dichloropropene	50.0	0.00	U	53.2	106	71-130	0	0-20
71-36-3	PSD	n-Butyl alcohol	5000	0.00	U	5470	109	53-150	5	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	U	56.9	114	69-142	0	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	U	47.3	95	72-126	0	0-20
71-43-2	PSD	Benzene	50.0	0.00	U	47.1	94	73-119	1	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	U	50.0	100	54-147	1	0-20
78-87-5	PSD	1,2-Dichloropropane	50.0	0.00	U	45.9	92	78-123	1	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	U	48.9	98	76-131	1	0-20
74-95-3	PSD	Dibromomethane	50.0	0.00	U	47.1	94	79-120	1	0-20
108-10-1	PSD	4-Methyl-2-pentanone	250	0.00	U	238	95	68-136	2	0-20
10061-01-5	PSD	cis-1,3-Dichloropropylene	50.0	0.00	U	49.6	99	72-134	2	0-20
108-88-3	PSD	Toluene	50.0	0.00	U	47.2	94	62-126	0	0-20
10061-02-6	PSD	trans-1,3-Dichloropropylene	50.0	0.00	U	50.5	101	72-133	2	0-20
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	U	45.1	90	74-120	1	0-20
591-78-6	PSD	2-Hexanone	250	0.00	U	187	75	31-132	2	0-20
142-28-9	PSD	1,3-Dichloropropane	50.0	0.00	U	46.4	93	73-121	1	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	U	50.9	102	54-139	0	0-20
124-48-1	PSD	Dibromochloromethane	50.0	0.00	U	49.9	100	74-128	1	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	U	47.9	96	80-120	1	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.00	U	47.2	94	73-119	1	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	U	49.9	100	66-125	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271** **Sample Type:** **Post Spike Duplicate**

Client ID: **CAMO-13-24276PSD** **Matrix:** **W**

Lab Sample ID: **1202780644**

Instrument: **VOA1.I** **Analysis Date:** **11/14/2012 22:10** **Dilution: 1**

Analyst: **ACJ** **Prep Batch ID:** **1263542**

Purge Vol: **5 mL** **Batch ID:** **1263542**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	PSD	m,p-Xylenes	100	0.00	U	101	101	56-134	1	0-20
95-47-6	PSD	o-Xylene	50.0	0.00	U	51.6	103	68-126	0	0-20
100-42-5	PSD	Styrene	50.0	0.00	U	51.7	103	57-138	0	0-20
75-25-2	PSD	Bromoform	50.0	0.00	U	49.1	98	66-129	3	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	U	44.3	89	44-146	2	0-20
96-18-4	PSD	1,2,3-Trichloropropane	50.0	0.00	U	46.8	94	68-129	2	0-20
108-86-1	PSD	Bromobenzene	50.0	0.00	U	46.8	94	70-122	1	0-20
103-65-1	PSD	n-Propylbenzene	50.0	0.00	U	50.2	100	61-131	1	0-20
95-49-8	PSD	2-Chlorotoluene	50.0	0.00	U	49.0	98	66-126	1	0-20
98-82-8	PSD	Isopropylbenzene	50.0	0.00	U	53.6	107	65-130	1	0-20
108-67-8	PSD	1,3,5-Trimethylbenzene	50.0	0.00	U	51.8	104	58-134	0	0-20
106-43-4	PSD	4-Chlorotoluene	50.0	0.00	U	48.2	96	63-125	1	0-20
98-06-6	PSD	tert-Butylbenzene	50.0	0.00	U	53.0	106	66-129	0	0-20
95-63-6	PSD	1,2,4-Trimethylbenzene	50.0	0.00	U	51.6	103	60-131	1	0-20
135-98-8	PSD	sec-Butylbenzene	50.0	0.00	U	52.1	104	62-130	1	0-20
99-87-6	PSD	4-Isopropyltoluene	50.0	0.00	U	53.6	107	62-132	1	0-20
541-73-1	PSD	1,3-Dichlorobenzene	50.0	0.00	U	47.2	94	66-121	1	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	U	46.2	92	65-119	2	0-20
104-51-8	PSD	n-Butylbenzene	50.0	0.00	U	52.2	104	55-134	1	0-20
96-12-8	PSD	1,2-Dibromo-3-chloropropane	50.0	0.00	U	41.3	83	58-137	4	0-20
87-68-3	PSD	Hexachlorobutadiene	50.0	0.00	U	49.6	99	49-139	3	0-20
91-20-3	PSD	Naphthalene	50.0	0.00	U	45.7	91	46-145	3	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **CAMO-13-24276PSD**
Lab Sample ID: **1202780644**
Instrument: **VOA1.I**
Analyst: **ACJ**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/14/2012 22:10**
Prep Batch ID: **1263542**
Batch ID: **1263542**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
87-61-6	PSD	1,2,3-Trichlorobenzene	50.0	0.00	U	47.2	94	54-134	2	0-20
630-20-6	PSD	1,1,1,2-Tetrachloroethane	50.0	0.00	U	50.6	101	79-128	0	0-20
120-82-1	PSD	1,2,4-Trichlorobenzene	50.0	0.00	U	49.0	98	55-128	3	0-20
95-50-1	PSD	1,2-Dichlorobenzene	50.0	0.00	U	47.0	94	68-121	1	0-20

Method Blank Summary

SDG Number:	**2013-271**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1263542**	**Instrument ID:**	**VOA1.I**	**Data File:**	**111412V1\1M308BA.D**
Lab Sample ID:	**1202780640**	**Prep Date:**	**11/14/2012 14:34**	**Analyzed:**	**11/14/12 14:34**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1263542	1202780641	111412V1\1M303LA.D	11/14/12	1201
02 LCS for batch 1263542	1202780642	111412V1\1M306LA.D	11/14/12	1332
03 CAMO-13-24276	314637001	111412V1\1M311.D	11/14/12	1605
04 CAMO-13-24275	314637003	111412V1\1M312.D	11/14/12	1635
05 CAMO-13-24276PS	1202780643	111412V1\1M322.D	11/14/12	2140
06 CAMO-13-24276PSD	1202780644	111412V1\1M323.D	11/14/12	2210

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780640**				
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1263542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 14:34**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 14:34**				
Data File:	**111412V1\1M308BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780640**				
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1263542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 14:34**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 14:34**				
Data File:	**111412V1\1M308BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780640**				
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1263542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 14:34**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 14:34**				
Data File:	**111412V1\1M308BA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	54.3	50.0	ug/L	109	(78%-124%)
Bromofluorobenzene	49.2	50.0	ug/L	98.5	(80%-120%)
Toluene-d8	51.3	50.0	ug/L	103	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780641**				
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1263542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 12:01**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 12:01**				
Data File:	**111412V1\1M303LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		54.6	ug/L	0.300	1.00
74-87-3	Chloromethane		53.2	ug/L	0.300	1.00
75-01-4	Vinyl chloride		47.9	ug/L	0.300	1.00
74-83-9	Bromomethane		51.8	ug/L	0.300	1.00
75-00-3	Chloroethane		53.4	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		59.9	ug/L	0.300	1.00
60-29-7	Ethyl ether		47.1	ug/L	0.300	1.00
67-64-1	Acetone		338	ug/L	3.00	10.0
75-05-8	Acetonitrile		1220	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		56.5	ug/L	0.300	1.00
74-88-4	Iodomethane		279	ug/L	1.50	5.00
75-09-2	Methylene chloride		49.1	ug/L	3.00	10.0
75-15-0	Carbon disulfide		279	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		51.7	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		52.5	ug/L	0.300	1.00
108-05-4	Vinyl acetate		258	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		50.0	ug/L	0.300	1.00
78-93-3	2-Butanone		369	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		50.8	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		60.6	ug/L	0.300	1.00
67-66-3	Chloroform		49.8	ug/L	0.300	1.00
74-97-5	Bromochloromethane		49.4	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		58.1	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		54.6	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		6390	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		59.6	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		48.5	ug/L	0.300	1.00
71-43-2	Benzene		48.0	ug/L	0.300	1.00
79-01-6	Trichloroethylene		51.6	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		46.5	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		49.3	ug/L	0.300	1.00
74-95-3	Dibromomethane		49.2	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		306	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		51.8	ug/L	0.300	1.00
108-88-3	Toluene		48.8	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		52.1	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		46.8	ug/L	0.300	1.00
591-78-6	2-Hexanone		382	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780641**				
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1263542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 12:01**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 12:01**				
Data File:	**111412V1\1M303LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		47.3	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		51.6	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		51.4	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		50.0	ug/L	0.300	1.00
108-90-7	Chlorobenzene		48.0	ug/L	0.300	1.00
100-41-4	Ethylbenzene		51.1	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		104	ug/L	0.300	2.00
95-47-6	o-Xylene		53.3	ug/L	0.300	1.00
100-42-5	Styrene		53.7	ug/L	0.300	1.00
75-25-2	Bromoform		51.1	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		47.3	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		50.6	ug/L	0.300	1.00
108-86-1	Bromobenzene		47.3	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		51.7	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		50.0	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		54.6	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		53.4	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		49.3	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		54.1	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		52.7	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		54.2	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		55.4	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		48.3	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		47.4	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		53.4	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		47.2	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		49.8	ug/L	0.300	1.00
91-20-3	Naphthalene		48.0	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		48.6	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780641**				
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1263542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 12:01**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 12:01**				
Data File:	**111412V1\1M303LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		51.7	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		49.5	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		47.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	52.4	50.0	ug/L	105	(78%-124%)
Bromofluorobenzene	47.3	50.0	ug/L	94.6	(80%-120%)
Toluene-d8	50.8	50.0	ug/L	102	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780642**				
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1263542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 13:32**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 13:32**				
Data File:	**111412V1\1M306LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780642**				
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1263542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 13:32**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 13:32**				
Data File:	**111412V1\1M306LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein		273	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		335	ug/L	1.50	5.00
107-05-1	Allyl chloride		285	ug/L	1.50	5.00
107-13-1	Acrylonitrile		263	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		62.2	ug/L	0.300	1.00
107-12-0	Propionitrile		269	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		265	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2770	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		279	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780642**				
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1263542**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 13:32**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 13:32**				
Data File:	**111412V1\1M306LA.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		286	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	51.8	50.0	ug/L	104	(78%-124%)
Bromofluorobenzene	49.1	50.0	ug/L	98.1	(80%-120%)
Toluene-d8	50.3	50.0	ug/L	101	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202780643**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 21:40**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 21:40**				
Data File:	**111412V1\1M322.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		54.2	ug/L	0.300	1.00
74-87-3	Chloromethane		51.2	ug/L	0.300	1.00
75-01-4	Vinyl chloride		48.4	ug/L	0.300	1.00
74-83-9	Bromomethane		50.3	ug/L	0.300	1.00
75-00-3	Chloroethane		51.5	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		58.3	ug/L	0.300	1.00
60-29-7	Ethyl ether		47.0	ug/L	0.300	1.00
67-64-1	Acetone		106	ug/L	3.00	10.0
75-05-8	Acetonitrile		1050	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		54.2	ug/L	0.300	1.00
74-88-4	Iodomethane		269	ug/L	1.50	5.00
75-09-2	Methylene chloride		49.5	ug/L	3.00	10.0
75-15-0	Carbon disulfide		268	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		50.2	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		51.6	ug/L	0.300	1.00
108-05-4	Vinyl acetate		225	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		49.2	ug/L	0.300	1.00
78-93-3	2-Butanone		155	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		50.1	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		57.0	ug/L	0.300	1.00
67-66-3	Chloroform		49.2	ug/L	0.300	1.00
74-97-5	Bromochloromethane		48.8	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		56.0	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		53.0	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5180	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		57.0	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		47.3	ug/L	0.300	1.00
71-43-2	Benzene		46.6	ug/L	0.300	1.00
79-01-6	Trichloroethylene		49.5	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		46.2	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		48.3	ug/L	0.300	1.00
74-95-3	Dibromomethane		46.8	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		233	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		48.8	ug/L	0.300	1.00
108-88-3	Toluene		47.1	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		49.7	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		44.6	ug/L	0.300	1.00
591-78-6	2-Hexanone		183	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202780643**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 21:40**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 21:40**				
Data File:	**111412V1\1M322.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		45.8	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		51.0	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		49.6	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		47.6	ug/L	0.300	1.00
108-90-7	Chlorobenzene		46.7	ug/L	0.300	1.00
100-41-4	Ethylbenzene		49.5	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		101	ug/L	0.300	2.00
95-47-6	o-Xylene		51.7	ug/L	0.300	1.00
100-42-5	Styrene		51.6	ug/L	0.300	1.00
75-25-2	Bromoform		47.5	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		43.5	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		46.1	ug/L	0.300	1.00
108-86-1	Bromobenzene		46.2	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		49.9	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		48.6	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		53.1	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		51.8	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		47.6	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		53.0	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		51.0	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		52.5	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		53.0	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		46.6	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		45.3	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		51.7	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		39.9	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		48.1	ug/L	0.300	1.00
91-20-3	Naphthalene		44.4	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		46.1	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202780643**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 21:40**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 21:40**				
Data File:	**111412V1\1M322.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		50.8	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		47.7	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		46.8	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	51.0	50.0	ug/L	102	(78%-124%)
Bromofluorobenzene	47.7	50.0	ug/L	95.3	(80%-120%)
Toluene-d8	50.8	50.0	ug/L	102	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202780644**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 22:10**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 22:10**				
Data File:	**111412V1\1M323.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		54.0	ug/L	0.300	1.00
74-87-3	Chloromethane		51.3	ug/L	0.300	1.00
75-01-4	Vinyl chloride		48.9	ug/L	0.300	1.00
74-83-9	Bromomethane		50.0	ug/L	0.300	1.00
75-00-3	Chloroethane		50.2	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		58.5	ug/L	0.300	1.00
60-29-7	Ethyl ether		47.2	ug/L	0.300	1.00
67-64-1	Acetone		110	ug/L	3.00	10.0
75-05-8	Acetonitrile		1080	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		53.8	ug/L	0.300	1.00
74-88-4	Iodomethane		267	ug/L	1.50	5.00
75-09-2	Methylene chloride		49.5	ug/L	3.00	10.0
75-15-0	Carbon disulfide		266	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		50.4	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		51.0	ug/L	0.300	1.00
108-05-4	Vinyl acetate		225	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		48.9	ug/L	0.300	1.00
78-93-3	2-Butanone		158	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		49.9	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		57.1	ug/L	0.300	1.00
67-66-3	Chloroform		48.8	ug/L	0.300	1.00
74-97-5	Bromochloromethane		49.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		55.7	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		53.2	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5470	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		56.9	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		47.3	ug/L	0.300	1.00
71-43-2	Benzene		47.1	ug/L	0.300	1.00
79-01-6	Trichloroethylene		50.0	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		45.9	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		48.9	ug/L	0.300	1.00
74-95-3	Dibromomethane		47.1	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		238	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		49.6	ug/L	0.300	1.00
108-88-3	Toluene		47.2	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		50.5	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		45.1	ug/L	0.300	1.00
591-78-6	2-Hexanone		187	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202780644**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 22:10**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 22:10**				
Data File:	**111412V1\1M323.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		46.4	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		50.9	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		49.9	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		47.9	ug/L	0.300	1.00
108-90-7	Chlorobenzene		47.2	ug/L	0.300	1.00
100-41-4	Ethylbenzene		49.9	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		101	ug/L	0.300	2.00
95-47-6	o-Xylene		51.6	ug/L	0.300	1.00
100-42-5	Styrene		51.7	ug/L	0.300	1.00
75-25-2	Bromoform		49.1	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		44.3	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		46.8	ug/L	0.300	1.00
108-86-1	Bromobenzene		46.8	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		50.2	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		49.0	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		53.6	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		51.8	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		48.2	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		53.0	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		51.6	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		52.1	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		53.6	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		47.2	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		46.2	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		52.2	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		41.3	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		49.6	ug/L	0.300	1.00
91-20-3	Naphthalene		45.7	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		47.2	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202780644**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1263542**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1263542**	**Inst:**	**VOA1.I**	**Dilution:**	**1**
Run Date:	**11/14/2012 22:10**	**Analyst:**	**ACJ**	**Purge Vol:**	**5 mL**
Prep Date:	**11/14/2012 22:10**				
Data File:	**111412V1\1M323.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		50.6	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		49.0	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		47.0	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	51.1	50.0	ug/L	102	(78%-124%)
Bromofluorobenzene	47.4	50.0	ug/L	94.8	(80%-120%)
Toluene-d8	50.7	50.0	ug/L	101	(80%-120%)

Semi-Volatile Analysis

Case Narrative

Semi-Volatile Case Narrative
ARS International (ARSL)
SDG 2013-271

Method/Analysis Information

Procedure:	**Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method:	SW846 8270C
Prep Method:	SW846 3510C
Analytical Batch Number:	1262245
Prep Batch Number:	1262244

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8270C:

Sample ID	Client ID
314637001	CAMO-13-24276
1202777623	Method Blank (MB)
1202777624	Laboratory Control Sample (LCS)
1202777625	314637001(CAMO-13-24276) Matrix Spike (MS)
1202777626	314637001(CAMO-13-24276) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 29.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 18.2.

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in

the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

CCV Requirements
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG in this batch met the acceptance criteria.

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria for this SDG in this batch.

Laboratory Control Sample (LCS) Recovery
The LCS(1202777624) did not meet spike recovery limits for Aniline at 127% (SPC limits: 38%-105%) and Hexachlorocyclopentadiene at 21.5% (SPC limits: 38%-79%). Hexachlorocyclopentadiene is a known poor responder and is subject to thermal decomposition as stated in the Method. This may account for the low recovery of the analyte in the LCS (as well as in the MS and MSD). The data results have been reported. Since Aniline was not detected in any of the associated client samples, the biased high recovery had no adverse impact on the data and the results have been reported.

QC Sample Designation
Sample 314637001 (CAMO-13-24276) was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) Recovery Statement
The MS(1202777625(CAMO-13-24276)) did not meet spike recovery limits for Pyridine at 13.1% (SPC limits: 20%-93%), Benzidine at 0.0% (SPC limits: 10%-125%) and Hexachlorocyclopentadiene at 16.1% (SPC limits: 25%-75%). Hexachlorocyclopentadiene is a known poor responder and is subject to thermal decomposition as stated in the Method. This may account for the low recovery of the analyte in the MS and MSD (as well as in the LCS). Since Pyridine and Benzidine recovered well within acceptance limits in the MSD and LCS, the failures appear to be limited to the MS only and the data results have been reported.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD(1202777626(CAMO-13-24276)) did not meet spike recovery limits for Hexachlorocyclopentadiene at 15.5% (SPC limits: 25%-75%). Hexachlorocyclopentadiene is a known poor responder and is subject to thermal decomposition as stated in the Method. This may account for the low recovery of the analyte in the MS and MSD (as well as in the LCS).

MS/MSD Relative Percent Difference (RPD) Statement
The MS(1202777626(CAMO-13-24276))/MSD(1202777626(CAMO-13-24276)) displayed RPD values outside of the acceptance limits. Please see the QC Summary Report for specific failures. Since the failed RPD analytes were individually within the acceptance limits for the MS and MSD, with the exception of Pyridine and Benzidine, the non-conformance had no adverse impact on the data and the results have been reported. The Pyridine and Benzidine RPD failures were attributed to the lower recoveries in the MS when compared to the MSD. The data results have been reported.

Internal Standard (ISTD) Acceptance
The internal standard responses used to quantitate the requested target analytes were within the required

acceptance criteria for the SDG associated samples in this batch.

Technical Information:

Holding Time Specifications
All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

Sample Dilutions
The samples in this SDG in this batch did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG in this analytical batch unless confirmations or dilutions were required.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception report 1139636 was generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

TIC Comment
Tentatively identified compounds (TIC) may be requested for samples in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

Additional Comments
Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

System Configuration

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
MSD1.I	Agilent 6890N/5973 GC/MS w/ 7683 Autosampler	HP6890/HP5973	ZB-5ms	25m x 0.2mm, 0.33um (5% Polysilarylene-95% Polydimethylsiloxane)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-271 GEL Work Order: 314637

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Cameron Bearden **Name: Cameron Bearden**

Date: 30 NOV 2012 **Title: Group Leader**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**314637001**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24276**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 09:33**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1306.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
62-53-3	Aniline	U	10.0	ug/L	3.00	10.0
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
78-59-1	Isophorone	U	10.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
65-85-0	Benzoic acid	U	20.0	ug/L	6.00	20.0
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene	U	10.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	10.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**314637001**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24276**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 09:33**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1306.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline	U	10.0	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene	U	10.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.0	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**314637001**	**Date Received:**	**11/07/2012 09:00**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24276**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 09:33**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1306.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	91.2	100	ug/L	91.2	(23%-130%)
2-Fluorobiphenyl	31.5	50.0	ug/L	62.9	(30%-104%)
2-Fluorophenol	36.5	100	ug/L	36.5	(14%-77%)
Nitrobenzene-d5	41.2	50.0	ug/L	82.5	(34%-125%)
Phenol-d5	21.7	100	ug/L	21.7	(10%-78%)
p-Terphenyl-d14	36.2	50.0	ug/L	72.4	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	2.034	26.1	ug/L	0	J
	unknown	2.125	12.3	ug/L	0	J
002597-49-1	Cyclobutane, ethenyl-	2.158	26.9	ug/L	94	NJ
1000154-28-6	Cyclopentene, 1,2,3,4,5-pentamethy	3.887	4.03	ug/L	87	NJ
	unknown	14.368	15.5	ug/L	0	J
	unknown	15.949	17.1	ug/L	0	J
	unknown	17.682	34.8	ug/L	0	J

Quality Control Summary

Semi-Volatile

Surrogate Recovery Report

SDG Number: 2013-271

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1202777623	MB for batch 1262244	30	18	99	44	84	69
1202777624	LCS for batch 1262244	56	36	68	52	101	70
314637001	CAMO-13-24276	36	22	82	63	91	72
1202777625	CAMO-13-24276MS	59	45	93	62	95	69
1202777626	CAMO-13-24276MSD	51	41	92	55	86	59

Surrogate			Acceptance Limits
2FP	=	2-Fluorophenol	(14%-77%)
PHL	=	Phenol-d5	(10%-78%)
NBZ	=	Nitrobenzene-d5	(34%-125%)
FBP	=	2-Fluorobiphenyl	(30%-104%)
TBP	=	2,4,6-Tribromophenol	(23%-130%)
TPH	=	p-Terphenyl-d14	(33%-136%)

* Recovery outside Acceptance Limits

\# Column to be used to flag recovery values

D Sample Diluted

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **LCS for batch 1262244**
Lab Sample ID: **1202777624**
Instrument: **MSD1.I**
Analyst: **JMB3**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/13/2012 09:05**
Prep Batch ID: **1262244**
Batch ID: **1262245**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	LCS	N-Methyl-N-nitrosomethylam	50.0	0.0	33.7	67	29-86
110-86-1	LCS	Pyridine	50.0	0.0	38.7	77	25-96
62-53-3	LCS	Aniline	50.0	0.0	63.3	127 *	38-105
108-95-2	LCS	Phenol	50.0	0.0	20.4	41	13-137
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	40.8	82	37-110
95-57-8	LCS	2-Chlorophenol	50.0	0.0	44.5	89	41-98
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	26.1	52	33-86
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	25.3	51	33-87
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	24.3	49	34-86
39638-32-9	LCS	bis(2-Chloroisopropyl)ether	50.0	0.0	24.2	48	30-118
100-51-6	LCS	Benzyl alcohol	50.0	0.0	33.0	66	39-88
95-48-7	LCS	o-Cresol	50.0	0.0	29.7	59	37-89
65794-96-9	LCS	m,p-Cresols	50.0	0.0	31.5	63	33-99
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	31.3	63	40-112
67-72-1	LCS	Hexachloroethane	50.0	0.0	23.6	47	31-87
98-95-3	LCS	Nitrobenzene	50.0	0.0	40.1	80	42-118
78-59-1	LCS	Isophorone	50.0	0.0	42.2	84	50-132
88-75-5	LCS	2-Nitrophenol	50.0	0.0	35.9	72	45-109
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	31.4	63	44-98
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	35.4	71	45-109
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	40.1	80	46-106
65-85-0	LCS	Benzoic acid	100	0.0	33.3	33	4-134

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **LCS for batch 1262244**
Lab Sample ID: **1202777624**
Instrument: **MSD1.I**
Analyst: **JMB3**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/13/2012 09:05**
Prep Batch ID: **1262244**
Batch ID: **1262245**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	LCS	4-Chloroaniline	50.0	0.0	45.8	92	50-122
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	27.4	55	29-94
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	45.1	90	47-110
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	24.8	50	37-100
91-20-3	LCS	Naphthalene	50.0	0.0	25.4	51	35-97
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	25.7	51	38-105
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	10.8	22 *	38-79
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	40.1	80	43-108
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	43.3	87	43-110
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	29.7	59	40-96
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	40.4	81	45-116
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	42.1	84	46-123
131-11-3	LCS	Dimethylphthalate	50.0	0.0	47.4	95	53-111
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	50.6	101	52-117
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	52.1	104	46-124
208-96-8	LCS	Acenaphthylene	50.0	0.0	29.5	59	42-105
83-32-9	LCS	Acenaphthene	50.0	0.0	33.6	67	42-103
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	43.0	86	33-105
132-64-9	LCS	Dibenzofuran	50.0	0.0	38.0	76	46-106
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	44.3	89	46-119
84-66-2	LCS	Diethylphthalate	50.0	0.0	45.2	90	52-115
100-02-7	LCS	4-Nitrophenol	50.0	0.0	15.3	31	12-130

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **LCS for batch 1262244**
Lab Sample ID: **1202777624**
Instrument: **MSD1.I**
Analyst: **JMB3**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/13/2012 09:05**
Prep Batch ID: **1262244**
Batch ID: **1262245**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	LCS	Fluorene	50.0	0.0	36.3	73	44-110
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	40.1	80	41-113
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	43.8	88	39-132
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	51.2	102	39-111
122-39-4	LCS	Diphenylamine	50.0	0.0	39.3	79	47-111
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	36.8	74	41-111
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	40.2	80	42-113
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	42.4	85	44-115
87-86-5	LCS	Pentachlorophenol	50.0	0.0	36.5	73	36-99
85-01-8	LCS	Phenanthrene	50.0	0.0	40.2	80	47-111
120-12-7	LCS	Anthracene	50.0	0.0	40.0	80	46-109
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	42.1	84	49-115
206-44-0	LCS	Fluoranthene	50.0	0.0	44.9	90	45-118
129-00-0	LCS	Pyrene	50.0	0.0	44.8	90	39-126
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	38.4	77	41-121
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	35.7	71	38-124
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	41.1	82	49-110
218-01-9	LCS	Chrysene	50.0	0.0	41.2	82	45-117
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	34.2	68	34-121
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	42.3	85	47-116
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	41.9	84	47-119
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	39.2	78	48-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **LCS for batch 1262244**
Lab Sample ID: **1202777624**
Instrument: **MSD1.I**
Analyst: **JMB3**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/13/2012 09:05**
Prep Batch ID: **1262244**
Batch ID: **1262245**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	LCS	Indeno(1,2,3-cd)pyrene	50.0	0.0	41.3	83	38-124
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	37.5	75	38-124
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	42.7	85	36-124
123-91-1	LCS	1,4-Dioxane	50.0	0.0	34.1	68	41-69
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	37.5	75	42-105
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	31.0	62	40-93
1912-24-9	LCS	Atrazine	50.0	0.0	37.1	74	47-115
92-87-5	LCS	Benzidine	100	0.0	65.4	65	19-124
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	37.5	75	36-111
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	28.9	58	32-92

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **CAMO-13-24276MS**
Lab Sample ID: **1202777625**
Instrument: **MSD1.I**
Analyst: **JMB3**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/13/2012 10:02**
Prep Batch ID: **1262244**
Batch ID: **1262245**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	MS	N-Methyl-N-nitrosomethylam	118	0.00	U	79.4	67	27-85
110-86-1	MS	Pyridine	118	0.00	U	15.4	13 *	21-93
62-53-3	MS	Aniline	118	0.00	U	79.3	67	28-108
108-95-2	MS	Phenol	118	0.00	U	59.1	50	15-100
111-44-4	MS	bis(2-Chloroethyl) ether	118	0.00	U	78.0	66	27-114
95-57-8	MS	2-Chlorophenol	118	0.00	U	81.0	69	32-103
541-73-1	MS	1,3-Dichlorobenzene	118	0.00	U	56.1	48	23-84
106-46-7	MS	1,4-Dichlorobenzene	118	0.00	U	64.0	54	23-88
95-50-1	MS	1,2-Dichlorobenzene	118	0.00	U	57.2	49	24-86
39638-32-9	MS	bis(2-Chloroisopropyl)ether	118	0.00	U	70.0	60	19-122
100-51-6	MS	Benzyl alcohol	118	0.00	U	91.6	78	34-98
95-48-7	MS	o-Cresol	118	0.00	U	79.6	68	29-96
65794-96-9	MS	m,p-Cresols	118	0.00	U	89.0	76	26-111
621-64-7	MS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	118	0.00	U	76.1	65	32-115
67-72-1	MS	Hexachloroethane	118	0.00	U	55.6	47	25-82
98-95-3	MS	Nitrobenzene	118	0.00	U	127	108	35-124
78-59-1	MS	Isophorone	118	0.00	U	151	129	37-140
88-75-5	MS	2-Nitrophenol	118	0.00	U	132	112	33-115
105-67-9	MS	2,4-Dimethylphenol	118	0.00	U	113	96	31-106
111-91-1	MS	bis(2-Chloroethoxy)methane	118	0.00	U	114	97	35-112
120-83-2	MS	2,4-Dichlorophenol	118	0.00	U	124	106	36-110
65-85-0	MS	Benzoic acid	235	0.00	U	187	80	12-108

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271** **Sample Type:** **Matrix Spike**

Client ID: **CAMO-13-24276MS** **Matrix:** **W**

Lab Sample ID: **1202777625**

Instrument: **MSD1.I** **Analysis Date:** **11/13/2012 10:02** **Dilution: 1**

Analyst: **JMB3** **Prep Batch ID:** **1262244**

Inj. Vol: **1 uL** **Batch ID:** **1262245**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS	4-Chloroaniline	118	0.00	U	102	86	33-120
87-68-3	MS	Hexachlorobutadiene	118	0.00	U	59.4	51	19-96
59-50-7	MS	Parachlorometa cresol *4-Chloro-3-methylphenol*	118	0.00	U	104	88	36-116
91-57-6	MS	2-Methylnaphthalene	118	0.00	U	54.9	47	27-103
91-20-3	MS	Naphthalene	118	0.00	U	58.4	50	28-99
90-12-0	MS	1-Methylnaphthalene	118	0.00	U	58.2	50	29-107
77-47-4	MS	Hexachlorocyclopentadiene	118	0.00	U	18.9	16 *	25-75
88-06-2	MS	2,4,6-Trichlorophenol	118	0.00	U	96.1	82	36-111
95-95-4	MS	2,4,5-Trichlorophenol	118	0.00	U	102	87	34-115
91-58-7	MS	2-Chloronaphthalene	118	0.00	U	68.6	58	33-96
88-74-4	MS	2-Nitroaniline *o-Nitroaniline*	118	0.00	U	91.9	78	31-120
99-09-2	MS	3-Nitroaniline *m-Nitroaniline*	118	0.00	U	96.4	82	32-123
131-11-3	MS	Dimethylphthalate	118	0.00	U	109	93	43-115
606-20-2	MS	2,6-Dinitrotoluene	118	0.00	U	113	96	42-121
121-14-2	MS	2,4-Dinitrotoluene	118	0.00	U	118	100	37-125
208-96-8	MS	Acenaphthylene	118	0.00	U	69.5	59	34-103
83-32-9	MS	Acenaphthene	118	0.00	U	76.0	65	31-104
51-28-5	MS	2,4-Dinitrophenol	118	0.00	U	92.1	78	25-108
132-64-9	MS	Dibenzofuran	118	0.00	U	88.3	75	38-106
58-90-2	MS	2,3,4,6-Tetrachlorophenol	118	0.00	U	103	88	33-123
84-66-2	MS	Diethylphthalate	118	0.00	U	103	87	43-116
100-02-7	MS	4-Nitrophenol	118	0.00	U	62.7	53	26-72

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271** **Sample Type:** **Matrix Spike**
Client ID: **CAMO-13-24276MS** **Matrix:** **W**
Lab Sample ID: **1202777625**
Instrument: **MSD1.I** **Analysis Date:** **11/13/2012 10:02** **Dilution: 1**
Analyst: **JMB3** **Prep Batch ID:** **1262244**
Inj. Vol: **1 uL** **Batch ID:** **1262245**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	118	0.00	U	81.5	69	33-110
7005-72-3	MS	4-Chlorophenylphenylether	118	0.00	U	87.9	75	30-112
100-01-6	MS	4-Nitroaniline *p-Nitroaniline*	118	0.00	U	94.7	81	28-131
534-52-1	MS	2-Methyl-4,6-dinitrophenol	118	0.00	U	112	95	31-113
122-39-4	MS	Diphenylamine	118	0.00	U	89.9	76	36-110
122-66-7	MS	Azobenzene *1,2-Diphenylhydrazine*	118	0.00	U	83.7	71	33-110
101-55-3	MS	4-Bromophenylphenylether	118	0.00	U	86.9	74	33-111
118-74-1	MS	Hexachlorobenzene	118	0.00	U	96.8	82	36-113
87-86-5	MS	Pentachlorophenol	118	0.00	U	87.0	74	25-110
85-01-8	MS	Phenanthrene	118	0.00	U	90.6	77	36-111
120-12-7	MS	Anthracene	118	0.00	U	91.5	78	36-107
84-74-2	MS	Di-n-butylphthalate	118	0.00	U	96.2	82	38-116
206-44-0	MS	Fluoranthene	118	0.00	U	106	90	35-116
129-00-0	MS	Pyrene	118	0.00	U	104	89	28-126
85-68-7	MS	Butylbenzylphthalate	118	0.00	U	88.2	75	32-120
117-81-7	MS	bis(2-Ethylhexyl)phthalate	118	0.00	U	78.7	67	30-121
56-55-3	MS	Benzo(a)anthracene	118	0.00	U	95.4	81	38-110
218-01-9	MS	Chrysene	118	0.00	U	95.4	81	35-115
117-84-0	MS	Di-n-octylphthalate	118	0.00	U	72.6	62	30-115
205-99-2	MS	Benzo(b)fluoranthene	118	0.00	U	98.2	83	37-115
207-08-9	MS	Benzo(k)fluoranthene	118	0.00	U	100	85	36-118
50-32-8	MS	Benzo(a)pyrene	118	0.00	U	87.9	75	36-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **CAMO-13-24276MS**
Lab Sample ID: **1202777625**
Instrument: **MSD1.I**
Analyst: **JMB3**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/13/2012 10:02**
Prep Batch ID: **1262244**
Batch ID: **1262245**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	MS	Indeno(1,2,3-cd)pyrene	118	0.00	U	94.5	80	28-121
53-70-3	MS	Dibenzo(a,h)anthracene	118	0.00	U	84.2	72	26-124
191-24-2	MS	Benzo(ghi)perylene	118	0.00	U	98.0	83	25-122
123-91-1	MS	1,4-Dioxane	118	0.00	U	82.8	70	26-90
930-55-2	MS	N-Nitrosopyrrolidine	118	0.00	U	89.7	76	40-113
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	118	0.00	U	69.1	59	32-94
1912-24-9	MS	Atrazine	118	0.00	U	85.5	73	36-119
92-87-5	MS	Benzidine	235	0.00	U	0.00	0 *	10-125
91-94-1	MS	3,3'-Dichlorobenzidine	118	0.00	U	73.2	62	27-109
120-82-1	MS	1,2,4-Trichlorobenzene	118	0.00	U	72.9	62	23-90

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24276MSD** **Matrix:** **W**

Lab Sample ID: **1202777626**

Instrument: **MSD1.I** **Analysis Date:** **11/13/2012 10:30** **Dilution: 1**

Analyst: **JMB3** **Prep Batch ID:** **1262244**

Inj. Vol: **1 uL** **Batch ID:** **1262245**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
62-75-9	MSD	N-Methyl-N-nitrosomethylam	118	0.00	U	71.6	61	27-85	10	0-30
110-86-1	MSD	Pyridine	118	0.00	U	91.6	78	21-93	142 *	0-30
62-53-3	MSD	Aniline	118	0.00	U	98.0	83	28-108	21	0-30
108-95-2	MSD	Phenol	118	0.00	U	52.9	45	15-100	11	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	118	0.00	U	67.4	57	27-114	15	0-30
95-57-8	MSD	2-Chlorophenol	118	0.00	U	72.8	62	32-103	11	0-30
541-73-1	MSD	1,3-Dichlorobenzene	118	0.00	U	55.9	48	23-84	0	0-30
106-46-7	MSD	1,4-Dichlorobenzene	118	0.00	U	51.6	44	23-88	22	0-30
95-50-1	MSD	1,2-Dichlorobenzene	118	0.00	U	51.5	44	24-86	11	0-30
39638-32-9	MSD	bis(2-Chloroisopropyl)ether	118	0.00	U	58.1	49	19-122	19	0-30
100-51-6	MSD	Benzyl alcohol	118	0.00	U	78.4	67	34-98	16	0-30
95-48-7	MSD	o-Cresol	118	0.00	U	68.5	58	29-96	15	0-30
65794-96-9	MSD	m,p-Cresols	118	0.00	U	88.0	75	26-111	1	0-30
621-64-7	MSD	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	118	0.00	U	73.1	62	32-115	4	0-30
67-72-1	MSD	Hexachloroethane	118	0.00	U	53.2	45	25-82	5	0-30
98-95-3	MSD	Nitrobenzene	118	0.00	U	124	105	35-124	2	0-30
78-59-1	MSD	Isophorone	118	0.00	U	112	95	37-140	30	0-30
88-75-5	MSD	2-Nitrophenol	118	0.00	U	82.9	70	33-115	45 *	0-30
105-67-9	MSD	2,4-Dimethylphenol	118	0.00	U	70.4	60	31-106	47 *	0-30
111-91-1	MSD	bis(2-Chloroethoxy)methane	118	0.00	U	77.2	66	35-112	38 *	0-30
120-83-2	MSD	2,4-Dichlorophenol	118	0.00	U	88.1	75	36-110	34 *	0-30
65-85-0	MSD	Benzoic acid	235	0.00	U	125	53	12-108	40 *	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **CAMO-13-24276MSD**
Lab Sample ID: **1202777626**
Instrument: **MSD1.I**
Analyst: **JMB3**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/13/2012 10:30**
Prep Batch ID: **1262244**
Batch ID: **1262245**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
106-47-8	MSD	4-Chloroaniline	118	0.00	U	102	87	33-120	0	0-30
87-68-3	MSD	Hexachlorobutadiene	118	0.00	U	57.8	49	19-96	3	0-30
59-50-7	MSD	Parachlorometa cresol *4-Chloro-3-methylphenol*	118	0.00	U	96.8	82	36-116	7	0-30
91-57-6	MSD	2-Methylnaphthalene	118	0.00	U	52.2	44	27-103	5	0-30
91-20-3	MSD	Naphthalene	118	0.00	U	54.9	47	28-99	6	0-30
90-12-0	MSD	1-Methylnaphthalene	118	0.00	U	54.7	47	29-107	6	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	118	0.00	U	18.2	15 *	25-75	4	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	118	0.00	U	90.3	77	36-111	6	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	118	0.00	U	95.2	81	34-115	7	0-30
91-58-7	MSD	2-Chloronaphthalene	118	0.00	U	63.8	54	33-96	7	0-30
88-74-4	MSD	2-Nitroaniline *o-Nitroaniline*	118	0.00	U	86.4	73	31-120	6	0-30
99-09-2	MSD	3-Nitroaniline *m-Nitroaniline*	118	0.00	U	93.3	79	32-123	3	0-30
131-11-3	MSD	Dimethylphthalate	118	0.00	U	101	86	43-115	8	0-30
606-20-2	MSD	2,6-Dinitrotoluene	118	0.00	U	105	90	42-121	7	0-30
121-14-2	MSD	2,4-Dinitrotoluene	118	0.00	U	113	96	37-125	4	0-30
208-96-8	MSD	Acenaphthylene	118	0.00	U	65.1	55	34-103	7	0-30
83-32-9	MSD	Acenaphthene	118	0.00	U	71.2	61	31-104	6	0-30
51-28-5	MSD	2,4-Dinitrophenol	118	0.00	U	87.2	74	25-108	6	0-30
132-64-9	MSD	Dibenzofuran	118	0.00	U	82.8	70	38-106	6	0-30
58-90-2	MSD	2,3,4,6-Tetrachlorophenol	118	0.00	U	95.3	81	33-123	8	0-30
84-66-2	MSD	Diethylphthalate	118	0.00	U	94.5	80	43-116	8	0-30
100-02-7	MSD	4-Nitrophenol	118	0.00	U	57.8	49	26-72	8	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24276MSD** **Matrix:** **W**

Lab Sample ID: **1202777626**

Instrument: **MSD1.I** **Analysis Date:** **11/13/2012 10:30** **Dilution: 1**

Analyst: **JMB3** **Prep Batch ID:** **1262244**

Inj. Vol: **1 uL** **Batch ID:** **1262245**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
86-73-7	MSD	Fluorene	118	0.00	U	75.4	64	33-110	8	0-30
7005-72-3	MSD	4-Chlorophenylphenylether	118	0.00	U	82.7	70	30-112	6	0-30
100-01-6	MSD	4-Nitroaniline *p-Nitroaniline*	118	0.00	U	96.5	82	28-131	2	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	118	0.00	U	106	90	31-113	6	0-30
122-39-4	MSD	Diphenylamine	118	0.00	U	82.0	70	36-110	9	0-30
122-66-7	MSD	Azobenzene *1,2-Diphenylhydrazine*	118	0.00	U	77.3	66	33-110	8	0-30
101-55-3	MSD	4-Bromophenylphenylether	118	0.00	U	81.8	70	33-111	6	0-30
118-74-1	MSD	Hexachlorobenzene	118	0.00	U	88.0	75	36-113	10	0-30
87-86-5	MSD	Pentachlorophenol	118	0.00	U	77.9	66	25-110	11	0-30
85-01-8	MSD	Phenanthrene	118	0.00	U	83.6	71	36-111	8	0-30
120-12-7	MSD	Anthracene	118	0.00	U	84.8	72	36-107	8	0-30
84-74-2	MSD	Di-n-butylphthalate	118	0.00	U	86.0	73	38-116	11	0-30
206-44-0	MSD	Fluoranthene	118	0.00	U	96.1	82	35-116	10	0-30
129-00-0	MSD	Pyrene	118	0.00	U	86.2	73	28-126	19	0-30
85-68-7	MSD	Butylbenzylphthalate	118	0.00	U	74.7	63	32-120	17	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	118	0.00	U	69.2	59	30-121	13	0-30
56-55-3	MSD	Benzo(a)anthracene	118	0.00	U	83.9	71	38-110	13	0-30
218-01-9	MSD	Chrysene	118	0.00	U	84.6	72	35-115	12	0-30
117-84-0	MSD	Di-n-octylphthalate	118	0.00	U	67.2	57	30-115	8	0-30
205-99-2	MSD	Benzo(b)fluoranthene	118	0.00	U	83.6	71	37-115	16	0-30
207-08-9	MSD	Benzo(k)fluoranthene	118	0.00	U	86.4	73	36-118	15	0-30
50-32-8	MSD	Benzo(a)pyrene	118	0.00	U	80.2	68	36-109	9	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-271**
Client ID: **CAMO-13-24276MSD**
Lab Sample ID: **1202777626**
Instrument: **MSD1.I**
Analyst: **JMB3**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/13/2012 10:30**
Prep Batch ID: **1262244**
Batch ID: **1262245**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
193-39-5	MSD	Indeno(1,2,3-cd)pyrene	118	0.00	U	88.5	75	28-121	7	0-30
53-70-3	MSD	Dibenzo(a,h)anthracene	118	0.00	U	82.2	70	26-124	2	0-30
191-24-2	MSD	Benzo(ghi)perylene	118	0.00	U	93.2	79	25-122	5	0-30
123-91-1	MSD	1,4-Dioxane	118	0.00	U	72.8	62	26-90	13	0-30
930-55-2	MSD	N-Nitrosopyrrolidine	118	0.00	U	88.8	75	40-113	1	0-30
95-94-3	MSD	1,2,4,5-Tetrachlorobenzene	118	0.00	U	65.8	56	32-94	5	0-30
1912-24-9	MSD	Atrazine	118	0.00	U	75.6	64	36-119	12	0-30
92-87-5	MSD	Benzidine	235	0.00	U	221	94	10-125	200 *	0-30
91-94-1	MSD	3,3'-Dichlorobenzidine	118	0.00	U	79.7	68	27-109	9	0-30
120-82-1	MSD	1,2,4-Trichlorobenzene	118	0.00	U	60.5	51	23-90	19	0-30

Method Blank Summary

SDG Number:	**2013-271**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1262244**	**Instrument ID:**	**MSD1.I**	**Data File:**	**s111312.B\s1k1304.D**
Lab Sample ID:	**1202777623**	**Prep Date:**	**11/12/2012 11:25**	**Analyzed:**	**11/13/12 08:37**
Column:	**25x.20x.33**				

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 1262244	1202777624	s111312.B\s1k1305.D	11/13/12	0905
02	CAMO-13-24276	314637001	s111312.B\s1k1306.D	11/13/12	0933
03	CAMO-13-24276MS	1202777625	s111312.B\s1k1307.D	11/13/12	1002
04	CAMO-13-24276MSD	1202777626	s111312.B\s1k1308.D	11/13/12	1030

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777623**				
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262244**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 08:37**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1304.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
62-53-3	Aniline	U	10.0	ug/L	3.00	10.0
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
78-59-1	Isophorone	U	10.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
65-85-0	Benzoic acid	U	20.0	ug/L	6.00	20.0
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene	U	10.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	10.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777623**				
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262244**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 08:37**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1304.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline	U	10.0	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene	U	10.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.0	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777623**				
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262244**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 08:37**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1304.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	84.4	100	ug/L	84.4	(23%-130%)
2-Fluorobiphenyl	21.9	50.0	ug/L	43.7	(30%-104%)
2-Fluorophenol	29.6	100	ug/L	29.6	(14%-77%)
Nitrobenzene-d5	49.7	50.0	ug/L	99.4	(34%-125%)
Phenol-d5	17.9	100	ug/L	17.9	(10%-78%)
p-Terphenyl-d14	34.7	50.0	ug/L	69.3	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	2.039	33.7	ug/L	0	J
	unknown	2.134	11.9	ug/L	0	J
000110-83-8	Cyclohexene	2.172	20.8	ug/L	91	NJ
	unknown	3.872	4.07	ug/L	0	J
	unknown	13.706	4.93	ug/L	0	J

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777624**				
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262244**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 09:05**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1305.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		33.7	ug/L	3.00	10.0
110-86-1	Pyridine		38.7	ug/L	3.00	10.0
62-53-3	Aniline		63.3	ug/L	3.00	10.0
108-95-2	Phenol		20.4	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		40.8	ug/L	3.00	10.0
95-57-8	2-Chlorophenol		44.5	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		26.1	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		25.3	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		24.3	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether		24.2	ug/L	3.00	10.0
100-51-6	Benzyl alcohol		33.0	ug/L	3.00	10.0
95-48-7	o-Cresol		29.7	ug/L	3.00	10.0
65794-96-9	m,p-Cresols		31.5	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		31.3	ug/L	3.00	10.0
67-72-1	Hexachloroethane		23.6	ug/L	3.00	10.0
98-95-3	Nitrobenzene		40.1	ug/L	3.00	10.0
78-59-1	Isophorone		42.2	ug/L	3.00	10.0
88-75-5	2-Nitrophenol		35.9	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		31.4	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		35.4	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		40.1	ug/L	3.00	10.0
65-85-0	Benzoic acid		33.3	ug/L	6.00	20.0
106-47-8	4-Chloroaniline		45.8	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene		27.4	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		45.1	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		24.8	ug/L	0.300	1.00
91-20-3	Naphthalene		25.4	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene		25.7	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene		10.8	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		40.1	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		43.3	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		29.7	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*		40.4	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		42.1	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		47.4	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		50.6	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777624**				
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262244**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 09:05**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1305.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		52.1	ug/L	3.00	10.0
208-96-8	Acenaphthylene		29.5	ug/L	0.300	1.00
83-32-9	Acenaphthene		33.6	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol		43.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran		38.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol		44.3	ug/L	3.00	10.0
84-66-2	Diethylphthalate		45.2	ug/L	3.00	10.0
100-02-7	4-Nitrophenol		15.3	ug/L	3.00	10.0
86-73-7	Fluorene		36.3	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether		40.1	ug/L	3.00	10.0
100-01-6	4-Nitroaniline		43.8	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		51.2	ug/L	3.00	10.0
122-39-4	Diphenylamine		39.3	ug/L	3.00	10.0
122-66-7	Azobenzene		36.8	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		40.2	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene		42.4	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		36.5	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene		40.2	ug/L	0.300	1.00
120-12-7	Anthracene		40.0	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		42.1	ug/L	3.00	10.0
206-44-0	Fluoranthene		44.9	ug/L	0.300	1.00
129-00-0	Pyrene		44.8	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate		38.4	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		35.7	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene		41.1	ug/L	0.300	1.00
218-01-9	Chrysene		41.2	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate		34.2	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene		42.3	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		41.9	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		39.2	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene		41.3	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene		37.5	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		42.7	ug/L	0.300	1.00
123-91-1	1,4-Dioxane		34.1	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		37.5	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**			**Matrix:**	**WATER**
Lab Sample ID:	**1202777624**				
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262244**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 09:05**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1305.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene		31.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine		37.1	ug/L	3.00	10.0
92-87-5	Benzidine		65.4	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		37.5	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		28.9	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	101	100	ug/L	101	(23%-130%)
2-Fluorobiphenyl	26.2	50.0	ug/L	52.4	(30%-104%)
2-Fluorophenol	55.6	100	ug/L	55.6	(14%-77%)
Nitrobenzene-d5	34.0	50.0	ug/L	68.0	(34%-125%)
Phenol-d5	35.6	100	ug/L	35.6	(10%-78%)
p-Terphenyl-d14	34.9	50.0	ug/L	69.8	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202777625**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 10:02**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**425 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1307.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		79.4	ug/L	7.06	23.5
110-86-1	Pyridine	J	15.4	ug/L	7.06	23.5
62-53-3	Aniline		79.3	ug/L	7.06	23.5
108-95-2	Phenol		59.1	ug/L	7.06	23.5
111-44-4	bis(2-Chloroethyl) ether		78.0	ug/L	7.06	23.5
95-57-8	2-Chlorophenol		81.0	ug/L	7.06	23.5
541-73-1	1,3-Dichlorobenzene		56.1	ug/L	7.06	23.5
106-46-7	1,4-Dichlorobenzene		64.0	ug/L	7.06	23.5
95-50-1	1,2-Dichlorobenzene		57.2	ug/L	7.06	23.5
39638-32-9	bis(2-Chloroisopropyl)ether		70.0	ug/L	7.06	23.5
100-51-6	Benzyl alcohol		91.6	ug/L	7.06	23.5
95-48-7	o-Cresol		79.6	ug/L	7.06	23.5
65794-96-9	m,p-Cresols		89.0	ug/L	7.06	23.5
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		76.1	ug/L	7.06	23.5
67-72-1	Hexachloroethane		55.6	ug/L	7.06	23.5
98-95-3	Nitrobenzene		127	ug/L	7.06	23.5
78-59-1	Isophorone		151	ug/L	7.06	23.5
88-75-5	2-Nitrophenol		132	ug/L	7.06	23.5
105-67-9	2,4-Dimethylphenol		113	ug/L	7.06	23.5
111-91-1	bis(2-Chloroethoxy)methane		114	ug/L	7.06	23.5
120-83-2	2,4-Dichlorophenol		124	ug/L	7.06	23.5
65-85-0	Benzoic acid		187	ug/L	14.1	47.1
106-47-8	4-Chloroaniline		102	ug/L	7.76	23.5
87-68-3	Hexachlorobutadiene		59.4	ug/L	7.06	23.5
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		104	ug/L	7.06	23.5
91-57-6	2-Methylnaphthalene		54.9	ug/L	0.706	2.35
91-20-3	Naphthalene		58.4	ug/L	0.706	2.35
90-12-0	1-Methylnaphthalene		58.2	ug/L	0.706	2.35
77-47-4	Hexachlorocyclopentadiene	J	18.9	ug/L	7.06	23.5
88-06-2	2,4,6-Trichlorophenol		96.1	ug/L	7.06	23.5
95-95-4	2,4,5-Trichlorophenol		102	ug/L	7.06	23.5
91-58-7	2-Chloronaphthalene		68.6	ug/L	0.706	2.35
88-74-4	2-Nitroaniline *o-Nitroaniline*		91.9	ug/L	7.06	23.5
99-09-2	3-Nitroaniline *m-Nitroaniline*		96.4	ug/L	7.06	23.5
131-11-3	Dimethylphthalate		109	ug/L	7.06	23.5
606-20-2	2,6-Dinitrotoluene		113	ug/L	7.06	23.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202777625**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 10:02**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**425 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1307.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		118	ug/L	7.06	23.5
208-96-8	Acenaphthylene		69.5	ug/L	0.706	2.35
83-32-9	Acenaphthene		76.0	ug/L	0.706	2.35
51-28-5	2,4-Dinitrophenol		92.1	ug/L	11.8	47.1
132-64-9	Dibenzofuran		88.3	ug/L	7.06	23.5
58-90-2	2,3,4,6-Tetrachlorophenol		103	ug/L	7.06	23.5
84-66-2	Diethylphthalate		103	ug/L	7.06	23.5
100-02-7	4-Nitrophenol		62.7	ug/L	7.06	23.5
86-73-7	Fluorene		81.5	ug/L	0.706	2.35
7005-72-3	4-Chlorophenylphenylether		87.9	ug/L	7.06	23.5
100-01-6	4-Nitroaniline		94.7	ug/L	7.06	23.5
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		112	ug/L	7.06	23.5
122-39-4	Diphenylamine		89.9	ug/L	7.06	23.5
122-66-7	Azobenzene		83.7	ug/L	7.06	23.5
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		86.9	ug/L	7.06	23.5
118-74-1	Hexachlorobenzene		96.8	ug/L	7.06	23.5
87-86-5	Pentachlorophenol		87.0	ug/L	7.06	23.5
88-85-7	Dinoseb	U	23.5	ug/L	7.06	23.5
85-01-8	Phenanthrene		90.6	ug/L	0.706	2.35
120-12-7	Anthracene		91.5	ug/L	0.706	2.35
84-74-2	Di-n-butylphthalate		96.2	ug/L	7.06	23.5
206-44-0	Fluoranthene		106	ug/L	0.706	2.35
129-00-0	Pyrene		104	ug/L	0.706	2.35
85-68-7	Butylbenzylphthalate		88.2	ug/L	7.06	23.5
117-81-7	bis(2-Ethylhexyl)phthalate		78.7	ug/L	7.06	23.5
56-55-3	Benzo(a)anthracene		95.4	ug/L	0.706	2.35
218-01-9	Chrysene		95.4	ug/L	0.706	2.35
117-84-0	Di-n-octylphthalate		72.6	ug/L	7.06	23.5
205-99-2	Benzo(b)fluoranthene		98.2	ug/L	0.706	2.35
207-08-9	Benzo(k)fluoranthene		100	ug/L	0.706	2.35
50-32-8	Benzo(a)pyrene		87.9	ug/L	1.04	2.35
193-39-5	Indeno(1,2,3-cd)pyrene		94.5	ug/L	0.706	2.35
53-70-3	Dibenzo(a,h)anthracene		84.2	ug/L	0.706	2.35
191-24-2	Benzo(ghi)perylene		98.0	ug/L	0.706	2.35
123-91-1	1,4-Dioxane		82.8	ug/L	7.06	23.5
55-18-5	N-Nitrosodiethylamine	U	23.5	ug/L	7.06	23.5
930-55-2	N-Nitrosopyrrolidine		89.7	ug/L	7.06	23.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202777625**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 10:02**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**425 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1307.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	23.5	ug/L	7.06	23.5
95-94-3	1,2,4,5-Tetrachlorobenzene		69.1	ug/L	7.06	23.5
608-93-5	Pentachlorobenzene	U	23.5	ug/L	7.06	23.5
1912-24-9	Atrazine		85.5	ug/L	7.06	23.5
92-87-5	Benzidine	U	23.5	ug/L	7.06	23.5
91-94-1	3,3'-Dichlorobenzidine		73.2	ug/L	7.06	23.5
120-82-1	1,2,4-Trichlorobenzene		72.9	ug/L	7.06	23.5

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	223	235	ug/L	94.8	(23%-130%)
2-Fluorobiphenyl	72.4	118	ug/L	61.5	(30%-104%)
2-Fluorophenol	139	235	ug/L	59.1	(14%-77%)
Nitrobenzene-d5	109	118	ug/L	93.0	(34%-125%)
Phenol-d5	107	235	ug/L	45.4	(10%-78%)
p-Terphenyl-d14	81.5	118	ug/L	69.2	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202777626**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 10:30**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**425 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1308.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		71.6	ug/L	7.06	23.5
110-86-1	Pyridine		91.6	ug/L	7.06	23.5
62-53-3	Aniline		98.0	ug/L	7.06	23.5
108-95-2	Phenol		52.9	ug/L	7.06	23.5
111-44-4	bis(2-Chloroethyl) ether		67.4	ug/L	7.06	23.5
95-57-8	2-Chlorophenol		72.8	ug/L	7.06	23.5
541-73-1	1,3-Dichlorobenzene		55.9	ug/L	7.06	23.5
106-46-7	1,4-Dichlorobenzene		51.6	ug/L	7.06	23.5
95-50-1	1,2-Dichlorobenzene		51.5	ug/L	7.06	23.5
39638-32-9	bis(2-Chloroisopropyl)ether		58.1	ug/L	7.06	23.5
100-51-6	Benzyl alcohol		78.4	ug/L	7.06	23.5
95-48-7	o-Cresol		68.5	ug/L	7.06	23.5
65794-96-9	m,p-Cresols		88.0	ug/L	7.06	23.5
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		73.1	ug/L	7.06	23.5
67-72-1	Hexachloroethane		53.2	ug/L	7.06	23.5
98-95-3	Nitrobenzene		124	ug/L	7.06	23.5
78-59-1	Isophorone		112	ug/L	7.06	23.5
88-75-5	2-Nitrophenol		82.9	ug/L	7.06	23.5
105-67-9	2,4-Dimethylphenol		70.4	ug/L	7.06	23.5
111-91-1	bis(2-Chloroethoxy)methane		77.2	ug/L	7.06	23.5
120-83-2	2,4-Dichlorophenol		88.1	ug/L	7.06	23.5
65-85-0	Benzoic acid		125	ug/L	14.1	47.1
106-47-8	4-Chloroaniline		102	ug/L	7.76	23.5
87-68-3	Hexachlorobutadiene		57.8	ug/L	7.06	23.5
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		96.8	ug/L	7.06	23.5
91-57-6	2-Methylnaphthalene		52.2	ug/L	0.706	2.35
91-20-3	Naphthalene		54.9	ug/L	0.706	2.35
90-12-0	1-Methylnaphthalene		54.7	ug/L	0.706	2.35
77-47-4	Hexachlorocyclopentadiene	J	18.2	ug/L	7.06	23.5
88-06-2	2,4,6-Trichlorophenol		90.3	ug/L	7.06	23.5
95-95-4	2,4,5-Trichlorophenol		95.2	ug/L	7.06	23.5
91-58-7	2-Chloronaphthalene		63.8	ug/L	0.706	2.35
88-74-4	2-Nitroaniline *o-Nitroaniline*		86.4	ug/L	7.06	23.5
99-09-2	3-Nitroaniline *m-Nitroaniline*		93.3	ug/L	7.06	23.5
131-11-3	Dimethylphthalate		101	ug/L	7.06	23.5
606-20-2	2,6-Dinitrotoluene		105	ug/L	7.06	23.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202777626**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 10:30**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**425 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1308.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		113	ug/L	7.06	23.5
208-96-8	Acenaphthylene		65.1	ug/L	0.706	2.35
83-32-9	Acenaphthene		71.2	ug/L	0.706	2.35
51-28-5	2,4-Dinitrophenol		87.2	ug/L	11.8	47.1
132-64-9	Dibenzofuran		82.8	ug/L	7.06	23.5
58-90-2	2,3,4,6-Tetrachlorophenol		95.3	ug/L	7.06	23.5
84-66-2	Diethylphthalate		94.5	ug/L	7.06	23.5
100-02-7	4-Nitrophenol		57.8	ug/L	7.06	23.5
86-73-7	Fluorene		75.4	ug/L	0.706	2.35
7005-72-3	4-Chlorophenylphenylether		82.7	ug/L	7.06	23.5
100-01-6	4-Nitroaniline		96.5	ug/L	7.06	23.5
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		106	ug/L	7.06	23.5
122-39-4	Diphenylamine		82.0	ug/L	7.06	23.5
122-66-7	Azobenzene		77.3	ug/L	7.06	23.5
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		81.8	ug/L	7.06	23.5
118-74-1	Hexachlorobenzene		88.0	ug/L	7.06	23.5
87-86-5	Pentachlorophenol		77.9	ug/L	7.06	23.5
88-85-7	Dinoseb	U	23.5	ug/L	7.06	23.5
85-01-8	Phenanthrene		83.6	ug/L	0.706	2.35
120-12-7	Anthracene		84.8	ug/L	0.706	2.35
84-74-2	Di-n-butylphthalate		86.0	ug/L	7.06	23.5
206-44-0	Fluoranthene		96.1	ug/L	0.706	2.35
129-00-0	Pyrene		86.2	ug/L	0.706	2.35
85-68-7	Butylbenzylphthalate		74.7	ug/L	7.06	23.5
117-81-7	bis(2-Ethylhexyl)phthalate		69.2	ug/L	7.06	23.5
56-55-3	Benzo(a)anthracene		83.9	ug/L	0.706	2.35
218-01-9	Chrysene		84.6	ug/L	0.706	2.35
117-84-0	Di-n-octylphthalate		67.2	ug/L	7.06	23.5
205-99-2	Benzo(b)fluoranthene		83.6	ug/L	0.706	2.35
207-08-9	Benzo(k)fluoranthene		86.4	ug/L	0.706	2.35
50-32-8	Benzo(a)pyrene		80.2	ug/L	1.04	2.35
193-39-5	Indeno(1,2,3-cd)pyrene		88.5	ug/L	0.706	2.35
53-70-3	Dibenzo(a,h)anthracene		82.2	ug/L	0.706	2.35
191-24-2	Benzo(ghi)perylene		93.2	ug/L	0.706	2.35
123-91-1	1,4-Dioxane		72.8	ug/L	7.06	23.5
55-18-5	N-Nitrosodiethylamine	U	23.5	ug/L	7.06	23.5
930-55-2	N-Nitrosopyrrolidine		88.8	ug/L	7.06	23.5

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-271**	**Date Collected:**	**11/05/2012 10:09**	**Matrix:**	**W**
Lab Sample ID:	**1202777626**	**Date Received:**	**11/07/2012 09:00**		
Client Sample:	**QC for batch 1262244**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24276MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1262245**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 10:30**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/12/2012 11:25**	**Aliquot:**	**425 mL**	**Final Volume:**	**1 mL**
Data File:	**s111312.B\s1k1308.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	23.5	ug/L	7.06	23.5
95-94-3	1,2,4,5-Tetrachlorobenzene		65.8	ug/L	7.06	23.5
608-93-5	Pentachlorobenzene	U	23.5	ug/L	7.06	23.5
1912-24-9	Atrazine		75.6	ug/L	7.06	23.5
92-87-5	Benzidine		221	ug/L	7.06	23.5
91-94-1	3,3'-Dichlorobenzidine		79.7	ug/L	7.06	23.5
120-82-1	1,2,4-Trichlorobenzene		60.5	ug/L	7.06	23.5

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	203	235	ug/L	86.3	(23%-130%)
2-Fluorobiphenyl	65.1	118	ug/L	55.3	(30%-104%)
2-Fluorophenol	120	235	ug/L	51.1	(14%-77%)
Nitrobenzene-d5	108	118	ug/L	91.8	(34%-125%)
Phenol-d5	95.6	235	ug/L	40.6	(10%-78%)
p-Terphenyl-d14	69.1	118	ug/L	58.7	(33%-136%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
13-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 8270C	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1262245	See Below		

Potentially affected work order(s)(SDG): 314637(2013-271),314848(2013-285)

Application Issues:

Failed Recovery for MS/PS

Failed RPD for MS/MSD, or PS/PSD

Failed Recovery for LCS/LCSD

Failed Recovery for MSD/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. The LCS(1202777624) did not meet spike recovery limits for Aniline at 127% (SPC limits: 38%-105%) and Hexachlorocyclopentadiene at 21.5% (SPC limits: 38%-79%).	1. Hexachlorocyclopentadiene is a known poor responder and is subject to thermal decomposition as stated in the Method. This may account for the low recovery of the analyte in the LCS (as well as in the MS and MSD). The data results have been reported. Since Aniline was not detected in any of the associated client samples, the biased high recovery had no adverse impact on the data and the results have been reported.
2. The MS(1202777625) did not meet spike recovery limits for Pyridine at 13.1% (SPC limits: 20%-93%), Benzidine at 0.0% (SPC limits: 10%-125%) and Hexachlorocyclopentadiene at 16.1% (SPC limits: 25%-75%). 3. The MSD(1202777626) did not meet spike recovery limits for Hexachlorocyclopentadiene at 15.5% (SPC limits: 25%-75%).	2. & 3. Hexachlorocyclopentadiene is a known poor responder and is subject to thermal decomposition as stated in the Method. This may account for the low recovery of the analyte in the MS and MSD (as well as in the LCS). Since Pyridine and Benzidine recovered well within acceptance limits in the MSD and LCS, the failures appear to be limited to the MS only and the data results have been reported.
4. The MS(1202777626)/MSD(1202777626) displayed RPD values outside of the acceptance limits. Please see the QC Summary Report for specific failures.	4. Since the failed RPD analytes were individually within the acceptance limits for the MS and MSD, with the exception of Pyridine and Benzidine, the non-conformance had no adverse impact on the data and the results have been reported. The Pyridine and Benzidine RPD failures were attributed to the lower recoveries in the MS when compared to the MSD. The data results have been reported.

Originator's Name:

Josh Brooks 14-NOV-12

Data Validator/Group Leader:

Barbara Bailey 15-NOV-12

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-271

Sample Analysis

Sample ID	Client ID
314637002	CAMO-13-24280
1202775408	Method Blank (MB) **ICP**
1202775409	Laboratory Control Sample (LCS)
1202775412	314637002(CAMO-13-24280L) Serial Dilution (SD)
1202775410	314637002(CAMO-13-24280D) Sample Duplicate (DUP)
1202775411	314637002(CAMO-13-24280S) Matrix Spike (MS)
1202775403	Method Blank (MB) **ICP-MS**
1202775404	Laboratory Control Sample (LCS)
1202775407	314637002(CAMO-13-24280L) Serial Dilution (SD)
1202775405	314637002(CAMO-13-24280D) Sample Duplicate (DUP)
1202775406	314637002(CAMO-13-24280S) Matrix Spike (MS)
1202783062	Method Blank (MB) **CVAA**
1202783069	Laboratory Control Sample (LCS)
1202783066	314445002(CAMO-13-24258L) Serial Dilution (SD)
1202783064	314445002(CAMO-13-24258D) Sample Duplicate (DUP)
1202783068	314445002(CAMO-13-24258S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1261333, 1261331, 1264600 and 1267632
Prep Batch :	1261332, 1261330 and 1264596
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 7
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B
Prep Method :	SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 314637002 (CAMO-13-24280)-ICP and ICP-MS and 314445002 (CAMO-13-24258)-CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes with the exception of sodium.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations that are 25X the IDL/MDL for CVAA, 50X the IDL/MDL for ICP, and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria of less than 10% difference (%D).

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are

calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER ID 1145271. A copy is included in the Miscellaneous Data section of this package.

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or

Mg.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 12.03.12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-271 GEL Work Order: 314637

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

N Metals--The Matrix spike sample recovery is not within specified control limits

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 12.03.12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-271 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314637002 **BASIS:** As Received **DATE COLLECTED** 05-NOV-12

CLIENT ID: CAMO-13-24280 **LEVEL:** Low **DATE RECEIVED** 07-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/20/12 09:52	112012W1-12	1264600

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-271 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314637002 **BASIS:** As Received **DATE COLLECTED** 05-NOV-12

CLIENT ID: CAMO-13-24280 **LEVEL:** Low **DATE RECEIVED** 07-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/20/12 06:25	121119-3	1261331
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/20/12 16:42	121120-4	1261331
7440-39-3	Barium	28.5	ug/L		1	5	5	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/20/12 17:57	121120-5	1261331
7440-70-2	Calcium	10600	ug/L		50	200	200	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-47-3	Chromium	5.68	ug/L	J	2	10	10	1	MS	BAJ	11/20/12 06:25	121119-3	1261331
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/19/12 09:43	111912-2	1261333
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/17/12 15:47	111712-1	1261333
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/21/12 09:04	121120-11	1261331
7439-95-4	Magnesium	3530	ug/L		110	300	300	1	P	HSC	11/17/12 15:47	111712-1	1261333
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/17/12 15:47	111712-1	1261333
7439-98-7	Molybdenum	1.2	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/20/12 06:25	121119-3	1261331
7440-02-0	Nickel	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/20/12 16:42	121120-4	1261331
7440-09-7	Potassium	2200	ug/L		50	150	150	1	P	HSC	11/19/12 09:43	111912-2	1261333
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/20/12 16:42	121120-4	1261331
7631-86-9	Silica	86300	ug/L		53	213	213	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/20/12 16:42	121120-4	1261331
7440-23-5	Sodium	11300	ug/L	N	100	300	300	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-24-6	Strontium	49.9	ug/L		1	5	5	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/20/12 06:25	121119-3	1261331
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/19/12 09:43	111912-2	1261333
7440-61-1	Uranium	0.930	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/21/12 09:04	121120-11	1261331
7440-62-2	Vanadium	7.66	ug/L		1	5	5	1	P	HSC	11/17/12 15:47	111712-1	1261333
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	11/17/12 15:47	111712-1	1261333

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-271 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314637002 **BASIS:** As Received **DATE COLLECTED** 05-NOV-12

CLIENT ID: CAMO-13-24280 **LEVEL:** Low **DATE RECEIVED** 07-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	40.9	mg/L		0.453	1.24	1.24	1		JJ2	12/03/12 11:12		1267632

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1261331	1261330	SW846 3005A	50	mL	50	mL	11/15/12	AXG2
1261333	1261332	SW846 3005A	50	mL	50	mL	11/15/12	AXG2
1264600	1264596	EPA 245.1/245.2 Prep	20	mL	20	mL	11/19/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−271

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202775403								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202775408								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	81.8	ug/L	+/−150	J	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	100	ug/L	+/−300	U	P	100	300
	Strontium	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202783062								
	Mercury	0.067	ug/L	+/−0.2	U	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−271 **Client ID** CAMO−13−24280S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314637002 **Spike ID:** 1202775406

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	192		1	U	200	95.8		MS
Arsenic	ug/L	75−125	78.5		1.7	U	80	96.9		MS
Cadmium	ug/L	75−125	11.3		0.11	U	10	113		MS
Chromium	ug/L	75−125	55.6		5.68	J	50	99.9		MS
Lead	ug/L	75−125	45.1		0.5	U	40	113		MS
Molybdenum	ug/L	75−125	49.9		1.2		50	97.3		MS
Nickel	ug/L	75−125	49.4		0.5	U	50	98.1		MS
Selenium	ug/L	75−125	19.9		1.5	U	20	98		MS
Silver	ug/L	75−125	48.6		0.2	U	50	97.3		MS
Thallium	ug/L	75−125	98.3		0.45	U	100	98.3		MS
Uranium	ug/L	75−125	57.1		0.93		50	112		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−271 **Client ID** CAMO−13−24280S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314637002 **Spike ID:** 1202775411

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	5290		68	U	5000	105		P
Barium	ug/L	75−125	548		28.5		500	104		P
Beryllium	ug/L	75−125	530		1	U	500	106		P
Boron	ug/L	75−125	537		15	U	500	105		P
Calcium	ug/L	75−125	16400		10600		5000	118		P
Cobalt	ug/L	75−125	517		1	U	500	103		P
Copper	ug/L	75−125	542		3	U	500	108		P
Iron	ug/L	75−125	5220		30	U	5000	104		P
Magnesium	ug/L	75−125	9000		3530		5000	110		P
Manganese	ug/L	75−125	522		2	U	500	104		P
Potassium	ug/L	75−125	7330		2200		5000	103		P
Silica	ug/L		105000		86300		10700	178	N/A	P
Sodium	ug/L	75−125	17900		11300		5000	132	N	P
Strontium	ug/L	75−125	568		49.9		500	104		P
Tin	ug/L	75−125	507		2.5	U	500	101		P
Vanadium	ug/L	75−125	540		7.66		500	106		P
Zinc	ug/L	75−125	516		3.3	U	500	103		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−271 **Client ID** CAMO−13−24258S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314445002 **Spike ID:** 1202783068

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	1.95		0.067	U	2	97.3		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−271 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24280D

Matrix: LIQUID **Level:** Low

Sample ID: 314637002 **Duplicate ID:** 1202775405 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	5.68	J	4.97	J	13.3		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.2		1.12		7.25		MS
Nickel	ug/L		0.5	U	0.5	U			MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.93		0.881		5.41		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−271 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24280D

Matrix: LIQUID **Level:** Low

Sample ID: 314637002 **Duplicate ID:** 1202775410 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−20%	28.5		28.6		.525		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	15	U			P
Calcium	ug/L	+/−20%	10600		10500		.133		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L		3	U	3	U			P
Iron	ug/L		30	U	30	U			P
Magnesium	ug/L	+/−20%	3530		3500		.837		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	2200		2120		3.45		P
Silica	ug/L	+/−20%	86300		86300		.0243		P
Sodium	ug/L	+/−20%	11300		11200		.523		P
Strontium	ug/L	+/−20%	49.9		49.6		.541		P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L	+/−5	7.66		7.79		1.66		P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−271 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24258D

Matrix: LIQUID **Level:** Low

Sample ID: 314445002 **Duplicate ID:** 1202783064 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−271

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202775404								
	Antimony	ug/L	50	47.6		95.3	80−120	MS
	Arsenic	ug/L	50	49.2		98.3	80−120	MS
	Cadmium	ug/L	50	51.4		103	80−120	MS
	Chromium	ug/L	50	51.2		102	80−120	MS
	Lead	ug/L	50	51.6		103	80−120	MS
	Molybdenum	ug/L	50	46.6		93.1	80−120	MS
	Nickel	ug/L	50	51.1		102	80−120	MS
	Selenium	ug/L	50	50.6		101	80−120	MS
	Silver	ug/L	50	48.7		97.4	80−120	MS
	Thallium	ug/L	50	51.2		102	80−120	MS
	Uranium	ug/L	50	52.6		105	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−271

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202775409								
	Aluminum	ug/L	5000	5270		105	80−120	P
	Barium	ug/L	500	510		102	80−120	P
	Beryllium	ug/L	500	514		103	80−120	P
	Boron	ug/L	500	509		102	80−120	P
	Calcium	ug/L	5000	5180		104	80−120	P
	Cobalt	ug/L	500	511		102	80−120	P
	Copper	ug/L	500	510		102	80−120	P
	Iron	ug/L	5000	5120		102	80−120	P
	Magnesium	ug/L	5000	5250		105	80−120	P
	Manganese	ug/L	500	517		103	80−120	P
	Potassium	ug/L	5000	5070		101	80−120	P
	Silica	ug/L	10700	11000		102	80−120	P
	Sodium	ug/L	5000	5500		110	80−120	P
	Strontium	ug/L	500	508		102	80−120	P
	Tin	ug/L	500	511		102	80−120	P
	Vanadium	ug/L	500	520		104	80−120	P
	Zinc	ug/L	500	504		101	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−271

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783069								
	Mercury	ug/L	2	2.08		104	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−271 **Client ID** CAMO−13−24280L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314637002 **Serial Dilution ID:** 1202775407

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	5.68	J	10	U	100			MS
Lead	.5	U	2.5	U				MS
Molybdenum	1.2		1.32	J	9.49			MS
Nickel	.5	U	2.5	U				MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.93		.92	J	1.08			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−271 **Client ID** CAMO−13−24280L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314637002 **Serial Dilution ID:** 1202775412

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	28.5		28.5		.125			P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	10600		10300		2.43		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	3530		3550		.553			P
Manganese	2	U	10	U				P
Potassium	2200		2380		8.18			P
Silica	86300		86400		.155		10	P
Sodium	11300		11500		1.48		10	P
Strontium	49.9		54.9		9.99			P
Tin	2.5	U	12.5	U				P
Vanadium	7.66		9.56	J	24.8			P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−271 **Client ID** CAMO−13−24258L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314445002 **Serial Dilution ID:** 1202783066

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
30-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ICP	SW846 3005/6010B	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1261333	See Below		

Potentially affected work order(s)(SDG): 314637(2013-271),314639(2013-270)

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS/PS: QC 1202775411MS	1. The matrix spike recovery failed outside of the control limits for sodium due to possible matrix interferences and/or non-homogeneity. Per GEL's accredited methods and SOPs, a corrective action is not required and the data is qualified and reported.

Originator's Name:

Helen Camello 03-DEC-12

Data Validator/Group Leader:

Theresa McKelvey 03-DEC-12

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-271

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1260735 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
314637001	CAMO-13-24276
1202773871	Method Blank (MB)
1202773872	314445001(CAMO-13-24241) Sample Duplicate (DUP)
1202773874	314445001(CAMO-13-24241) Post Spike (PS)
1202773876	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314445001 (CAMO-13-24241).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following sample was re-analyzed due to CCV failure: 314637001 (CAMO-13-24276).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1265843	**Method:**	EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
314637002	CAMO-13-24280
1202785831	314637002(CAMO-13-24280) Sample Duplicate (DUP)
1202785832	314749002(CAMO-13-24264) Sample Duplicate (DUP)
1202785833	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314637002 (CAMO-13-24280) and 314749002 (CAMO-13-24264).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1261553 **Method:** EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
314637002	CAMO-13-24280
1202775968	314639002(CASA-13-24217) Sample Duplicate (DUP)
1202775970	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

The following sample was selected for QC analysis: 314639002 (CASA-13-24217).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following sample from this sample group was received by the lab outside of the method specified holding time: 314637002 (CAMO-13-24280).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1141330 314637002 (CAMO-13-24280).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1261315	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
314637002	CAMO-13-24280
1202775358	Method Blank (MB)
1202775359	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202775360	314591002(CAMO-13-24256) Post Spike (PS)
1202775361	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-5000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202775359 (CAMO-13-24256) and 1202775360 (CAMO-13-24256).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202775359 (CAMO-13-24256), 1202775360 (CAMO-13-24256) and 314637002 (CAMO-13-24280).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1261640	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1261639	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
314637002	CAMO-13-24280
1202776122	Method Blank (MB)
1202776123	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202776124	314591002(CAMO-13-24256) Matrix Spike (MS)
1202776125	314591002(CAMO-13-24256) Matrix Spike Duplicate (MSD)
1202776126	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits due to matrix interference and/or sample matrix non-homogeneity: 1202776124 (CAMO-13-24256).

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The Relative Percent Difference (RPD) between the MS and MSD falls outside of the established acceptance limits because of the heterogeneous matrix of the sample: 1202776125 (CAMO-13-24256).

Duplicate Relative Percent Difference (RPD) Statement
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202776123 (CAMO-13-24256).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation

The following DER was generated for this SDG: 1139508 1202776124 (CAMO-13-24256) and 1202776125 (CAMO-13-24256).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1261638	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1261637	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
314637001	CAMO-13-24276
1202776117	Method Blank (MB)
1202776118	314591001(CAMO-13-24239) Sample Duplicate (DUP)
1202776119	314591001(CAMO-13-24239) Matrix Spike (MS)
1202776120	314591001(CAMO-13-24239) Matrix Spike Duplicate (MSD)
1202776121	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591001 (CAMO-13-24239).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the established acceptance limits. Since both the spike duplicate recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported. 1202776119 (CAMO-13-24239).

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
One or more of the values for the sample and/or duplicate are less than 5 times the Practical Quantitation Limit (PQL), and the difference is within one PQL value; therefore, the RPD is not applicable. 1202776118 (CAMO-13-24239).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1139938 1202776119 (CAMO-13-24239).

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1261528	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
314637002	CAMO-13-24280
1202775880	Method Blank (MB)
1202775881	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202775883	314591002(CAMO-13-24256) Post Spike (PS)
1202775885	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration: 1202775881 (CAMO-13-24256) and 1202775883 (CAMO-13-24256).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1261643	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1261641	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
314637002	CAMO-13-24280
1202776127	Method Blank (MB)
1202776128	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202776130	314591002(CAMO-13-24256) Matrix Spike (MS)
1202776132	314591002(CAMO-13-24256) Matrix Spike Duplicate (MSD)
1202776134	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following samples were re-analyzed due to CCV failure: 1202776132 (CAMO-13-24256) and 314637002 (CAMO-13-24280).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Solids, Total Dissolved**		
Analytical Batch:	1261522	**Method:**	EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
314637002	CAMO-13-24280
1202775861	Method Blank (MB)
1202775862	314637002(CAMO-13-24280) Sample Duplicate (DUP)
1202775864	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

The following sample was selected for QC analysis: 314637002 (CAMO-13-24280).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Alkalinity**

Analytical Batch: 1263936 **Method:** EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
314637002	CAMO-13-24280
1202781586	Laboratory Control Sample (LCS)
1202781593	314637002(CAMO-13-24280) Sample Duplicate (DUP)
1202781606	314637002(CAMO-13-24280) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314637002 (CAMO-13-24280).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____03Dec12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-271 GEL Work Order: 314637

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

H Analytical holding time was exceeded

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 30, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-271

Client Sample ID:	CAMO-13-24276	Project:	ESHL00210
Sample ID:	314637001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	05-NOV-12 10:09		
Receive Date:	07-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	J	0.398	0.330	1.00	mg/L	1	TSM	11/09/12	1145	1260735	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	U	ND	0.035	0.100	mg/L	1	KLP1	11/14/12	1047	1261638	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/13/12	1700	1261637

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 30, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-271

Client Sample ID:	CAMO-13-24280	Project:	ESHL00210
Sample ID:	314637002	Client ID:	ARSL001
Matrix:	W		
Collect Date:	05-NOV-12 10:09		
Receive Date:	07-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		130	1.00	1.00	umhos/cm	1	TXT1	11/26/12	1143	1265843	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 9.50C	H	8.28	0.010	0.100	SU	1	LYG1	11/08/12	0916	1261553	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide	U	ND	0.067	0.200	mg/L	1	VH1	11/09/12	0432	1261315	3
Chloride		1.64	0.067	0.200	mg/L	1					
Fluoride		0.196	0.033	0.100	mg/L	1					
Sulfate		1.98	0.133	0.400	mg/L	1					
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	J	0.0341	0.017	0.050	mg/L	1	KLP1	11/13/12	1249	1261640	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.333	0.017	0.050	mg/L	1	AXH3	11/09/12	1019	1261528	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	U	ND	0.017	0.050	mg/L	1	KLP1	11/14/12	1323	1261643	6
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		144	3.40	14.3	mg/L		LYG1	11/08/12	0809	1261522	7
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		59.0	0.725	1.00	mg/L		LXA1	11/16/12	1228	1263936	8
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/12/12	1500	1261639
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/13/12	1700	1261641

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 30, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-271
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24280	Project:	ESHL00210
Sample ID:	314637002	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 160.1	
8	EPA 310.1	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 30, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **314637**

Parmname	NOM		Sample	Qual	QC	Units	RPD%		REC%	Range	Anlst	Date Time
Carbon Analysis												
Batch 1260735												
QC1202773872 314445001 DUP												
Total Organic Carbon Average		J	0.680	J	0.815	mg/L	18.1	^		(+/-1.00)	TSM	11/08/12 23:32
QC1202773876 LCS												
Total Organic Carbon Average	10.0				9.75	mg/L			97.5	(85%-115%)		11/08/12 18:41
QC1202773871 MB												
Total Organic Carbon Average				J	0.488	mg/L						11/08/12 18:32
QC1202773874 314445001 PS												
Total Organic Carbon Average	10.0	J	0.680		10.4	mg/L			97.7	(65%-120%)		11/08/12 23:52
Conductivity Analysis												
Batch 1265843												
QC1202785831 314637002 DUP												
Conductivity			130		129	umhos/cm	1.01			(0%-10%)	TXT1	11/26/12 11:45
QC1202785832 314749002 DUP												
Conductivity			175		177	umhos/cm	0.795			(0%-10%)		11/26/12 11:54
QC1202785833 LCS												
Conductivity	1410				1420	umhos/cm			100	(95%-105%)		11/26/12 11:39
Electrode Analysis												
Batch 1261553												
QC1202775968 314639002 DUP												
pH		H	8.09	H	8.10	SU	0.124			(0%-10%)	LYG1	11/08/12 09:19
QC1202775970 LCS												
pH	7.00				7.02	SU			100	(99%-101%)		11/08/12 09:14
Ion Chromatography												
Batch 1261315												
QC1202775359 314591002 DUP												
Bromide			0.702		0.653	mg/L	7.21	^		(+/-0.200)	VH1	11/09/12 03:29
Chloride			58.6		58.7	mg/L	0.167			(0%-20%)		11/12/12 19:16
Fluoride			0.563		0.561	mg/L	0.374			(0%-20%)		11/09/12 03:29
Sulfate			66.1		65.2	mg/L	1.35			(0%-20%)		11/12/12 19:16
QC1202775361 LCS												
Bromide	2.50				2.76	mg/L			110	(90%-110%)		11/09/12 02:26
Chloride	10.0				9.95	mg/L			99.5	(90%-110%)		
Fluoride	5.00				5.42	mg/L			108	(90%-110%)		
Sulfate	20.0				20.6	mg/L			103	(90%-110%)		
QC1202775358 MB												
Bromide				U	ND	mg/L						11/09/12 01:55
Chloride				U	ND	mg/L						
Fluoride				U	ND	mg/L						
Sulfate				U	ND	mg/L						
QC1202775360 314591002 PS												

QC Summary

Workorder: 314637

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 1261315										
Bromide	2.50	0.702		3.31	mg/L		104	(90%-110%)		11/09/12 04:00
Chloride	10.0	5.86		16.8	mg/L		109	(90%-110%)	VH1	11/12/12 19:48
Fluoride	5.00	0.563		5.61	mg/L		101	(90%-110%)		11/09/12 04:00
Sulfate	20.0	6.61		27.2	mg/L		103	(90%-110%)		11/12/12 19:48
Nutrient Analysis										
Batch 1261528										
QC1202775881 314591002 DUP										
Nitrogen, Nitrate/Nitrite		8.50		8.20	mg/L	3.59		(0%-20%)	AXH3	11/09/12 10:17
QC1202775885 LCS										
Nitrogen, Nitrate/Nitrite	1.00			1.02	mg/L		102	(90%-110%)		11/09/12 10:14
QC1202775880 MB										
Nitrogen, Nitrate/Nitrite			U	ND	mg/L					11/09/12 10:13
QC1202775883 314591002 PS										
Nitrogen, Nitrate/Nitrite	1.00	0.340		1.41	mg/L		107	(90%-110%)		11/09/12 10:18
Batch 1261638										
QC1202776118 314591001 DUP										
Nitrogen, Total Kjeldahl		0.163	J	0.0865	mg/L	61.3 ^		(+/-0.100)	KLP1	11/14/12 10:44
QC1202776121 LCS										
Nitrogen, Total Kjeldahl	1.00			1.00	mg/L		100	(90%-110%)		11/14/12 10:42
QC1202776117 MB										
Nitrogen, Total Kjeldahl			U	ND	mg/L					11/14/12 10:42
QC1202776119 314591001 MS										
Nitrogen, Total Kjeldahl	1.00	0.163		1.06	mg/L		89.7 *	(90%-110%)		11/14/12 10:45
QC1202776120 314591001 MSD										
Nitrogen, Total Kjeldahl	1.00	0.163		1.07	mg/L	0.939	90.7	(0%-20%)		11/14/12 10:46
Batch 1261640										
QC1202776123 314591002 DUP										
Nitrogen, Ammonia		0.0587	J	0.0276	mg/L	72.1 ^		(+/-0.050)	KLP1	11/13/12 12:46
QC1202776126 LCS										
Nitrogen, Ammonia	1.00			1.06	mg/L		106	(90%-110%)		11/13/12 12:45
QC1202776122 MB										
Nitrogen, Ammonia			U	ND	mg/L					11/13/12 12:44
QC1202776124 314591002 MS										
Nitrogen, Ammonia	1.00	0.0587		1.20	mg/L		114 *	(90%-110%)		11/13/12 12:47
QC1202776125 314591002 MSD										
Nitrogen, Ammonia	1.00	0.0587		1.01	mg/L	17.2*	95.1	(0%-15%)		11/13/12 12:48
Batch 1261643										
QC1202776128 314591002 DUP										
Phosphorus, Total as P		0.0976		0.0915	mg/L	6.45 ^		(+/-0.050)	KLP1	11/14/12 13:01
QC1202776134 LCS										
Phosphorus, Total as P	1.00			1.08	mg/L		108	(76%-120%)		11/14/12 12:55
QC1202776127 MB										
Phosphorus, Total as P			U	ND	mg/L					11/14/12 12:54
QC1202776130 314591002 MS										
Phosphorus, Total as P	1.00	0.0976		1.17	mg/L		107	(62%-139%)		11/14/12 13:02
QC1202776132 314591002 MSD										

QC Summary

Workorder: 314637

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis										
Batch 1261643										
Phosphorus, Total as P	1.00	0.0976		0.986	mg/L	17.1	88.8	(0%-20%)		11/14/12 13:22
Solids Analysis										
Batch 1261522										
QC1202775862 314637002 DUP										
Total Dissolved Solids		144		143	mg/L	0.995		(0%-10%)	LYG1	11/08/12 08:09
QC1202775864 LCS										
Total Dissolved Solids	300			300	mg/L		100	(95%-105%)		11/08/12 08:09
QC1202775861 MB										
Total Dissolved Solids			U	ND	mg/L					11/08/12 08:09
Titration Analysis										
Batch 1263936										
QC1202781593 314637002 DUP										
Alkalinity, Total as CaCO3		59.0		59.5	mg/L	0.905		(0%-20%)	LXA1	11/16/12 14:21
Carbonate alkalinity (CaCO3)	U	ND	U	ND	mg/L	N/A				
QC1202781586 LCS										
Alkalinity, Total as CaCO3	50.0			52.6	mg/L		105	(90%-110%)		11/16/12 12:01
QC1202781606 314637002 MS										
Alkalinity, Total as CaCO3	50.0	59.0		111	mg/L		104	(80%-120%)		11/16/12 14:25

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E Organics--Concentration of the target analyte exceeds the instrument calibration range
- F Estimated Value
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- H Analytical holding time was exceeded
- J Value is estimated
- JNX Non Calibrated Compound
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.

QC Summary

Workorder: **314637**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
13-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 350.1	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1261640	See below.		

Potentially affected work order(s)(SDG): **314591(2013-267),314637(2013-271),314639(2013-270),314696,314749(2013-276),314750(2013-277),314773,314848(2013-285),314849(2013-286),314945,314987(2013-297)**

Application Issues:

Failed Recovery for MS/PS

Failed RPD for MS/MSD, or PS/PSD

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS: QC 1202776124MS 2. Failed RPD for MS/MSD: QC 1202776125MSD	1. The spike recovery falls outside of the established acceptance limits due to matrix interference and/or sample matrix non-homogeneity. 2. The Relative Percent Difference (RPD) between the MS and MSD falls outside of the established acceptance limits because of the heterogeneous matrix of the sample.

Originator's Name:

Kristen Parson 13-NOV-12

Data Validator/Group Leader:

Julia Hamilton 13-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
14-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1261638	See below.		

Potentially affected work order(s)(SDG): **314591(2013-267),314637(2013-271),314639(2013-270),314749(2013-276),314750(2013-277),314773,314848(2013-285),314849(2013-286),314945,314987(2013-297)**

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS: QC 1202776119MS	1. The spike recovery falls outside of the established acceptance limits. Since both the spike duplicate recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported.

Originator's Name:
Kristen Parson 14-NOV-12

Data Validator/Group Leader:
Julia Hamilton 14-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
16-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ESHL, FBWP
Batch ID:	**Sample Numbers:**		
1261553	See below.		

Potentially affected work order(s)(SDG): 314597,314637(2013-271),314639(2013-270),314643

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 314597 009 314637 002 314639 002,003 314643 018	1. Samples were received out of holding.

Originator's Name:

Lisa Gregory 19-NOV-12

Data Validator/Group Leader:

Julia Hamilton 19-NOV-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-271
Work Order 314637

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1261192

Sample ID	Client ID
314637001	CAMO-13-24276
1202775075	Method Blank (MB)
1202775076	314639001(CASA-13-24209) Sample Duplicate (DUP)
1202775077	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202775075 (MB) and 1202775077 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314639001 (CASA-13-24209). The QC was from ARSL work order 314639.

QC Information

All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Samples 1202775077 (LCS) and 314637001 (CAMO-13-24276) were recounted due to poor resolution. The recounts are reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1261194

Sample ID	Client ID
314637001	CAMO-13-24276
1202775078	Method Blank (MB)
1202775079	314639001(CASA-13-24209) Sample Duplicate (DUP)
1202775080	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202775078 (MB) and 1202775080 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314639001 (CASA-13-24209). The QC was from ARSL work order 314639.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202775078 (MB) was recounted due to a peak shift. The recount is reported. Sample 1202775080 (LCS) was recounted due to poor resolution. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1261195

Sample ID	Client ID
314637001	CAMO-13-24276
1202775081	Method Blank (MB)
1202775082	314639001(CASA-13-24209) Sample Duplicate (DUP)
1202775083	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202775081 (MB) and 1202775083 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314639001 (CASA-13-24209). The QC was from ARSL work order 314639.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 314637001 (CAMO-13-24276) was recounted due to detector error. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1261091

Sample ID	Client ID
314637001	CAMO-13-24276
1202774851	Method Blank (MB)
1202774852	314637001(CAMO-13-24276) Sample Duplicate (DUP)
1202774853	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in June 2012, July 2012, August 2012 and October 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314637001 (CAMO-13-24276). The QC was from ARSL work order 314637.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1263026

Sample ID	Client ID
314637001	CAMO-13-24276
1202779527	Method Blank (MB)
1202779528	314987003(CAMO-13-24253) Sample Duplicate (DUP)
1202779529	314987003(CAMO-13-24253) Matrix Spike (MS)
1202779530	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202779527 (MB) and 1202779530 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314987003 (CAMO-13-24253). The QC was from ARSL work order 314987.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank 1202779527 (MB) result is greater than 1.65 times the CSU but less than the MDC.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202779529 (CAMO-13-24253), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1263054

Sample ID	Client ID
314637001	CAMO-13-24276
1202779586	Method Blank (MB)
1202779587	314849003(CASA-13-24214) Sample Duplicate (DUP)
1202779588	314849003(CASA-13-24214) Matrix Spike (MS)
1202779589	314849003(CASA-13-24214) Matrix Spike Duplicate (MSD)
1202779590	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in September 2011. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha

crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202779586 (MB) and 1202779590 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314849003 (CASA-13-24214). The QC was from ARSL work order 314849.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike and matrix spike duplicate, 1202779588 (CASA-13-24214) and 1202779589 (CASA-13-24214), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-271 GEL Work Order: 314637

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Heather M. McCarty **Name:** **Heather McCarty**

Date: **28 NOV 2012** **Title:** **Analyst II**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 28, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24276
Sample ID: 314637001
Matrix: W
Collect Date: 05-NOV-12
Receive Date: 07-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.00559	+/-0.00559	0.0318	+/-0.00559	0.050	pCi/L		LYS1	11/26/12	1603	1261192	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	-0.0208	+/-0.00834	0.0222	+/-0.00834	0.050	pCi/L		LYS1	11/21/12	1140	1261194	2
Plutonium-239/240	U	0.00694	+/-0.00834	0.0369	+/-0.00834	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.477	+/-0.0371	0.0619	+/-0.0486	1.00	pCi/L		LYS1	11/26/12	1234	1261195	3
Uranium-235/236	U	0.00659	+/-0.00659	0.0386	+/-0.00661	1.00	pCi/L						
Uranium-238		0.224	+/-0.025	0.042	+/-0.0289	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	-2.29	+/-1.46	4.65	+/-1.46	8.00	pCi/L		KXG3	11/08/12	1218	1261091	4
Cobalt-60	U	-1.01	+/-1.43	5.01	+/-1.43	8.00	pCi/L						
Neptunium-237	U	-2.08	+/-2.92	10.1	+/-2.92	10.0	pCi/L						
Potassium-40	U	-17.6	+/-15.8	52.1	+/-15.8	10.0	pCi/L						
Sodium-22	U	-0.457	+/-1.03	3.82	+/-1.03	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.0232	+/-0.119	0.440	+/-0.119	0.500	pCi/L		VXC2	11/25/12	1541	1263026	5
WSP-GrossA/B "As Received"													
Beta	U	1.50	+/-0.776	2.49	+/-0.786	3.00	pCi/L		MYS1	11/26/12	1921	1263054	6
Alpha	U	0.880	+/-0.814	2.84	+/-0.818	3.00	pCi/L		MYS1	11/27/12	1955	1263054	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1261192	79.4	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1261194	70.3	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1261195	82.5	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1263026	100	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 28, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24276
Sample ID: 314637001

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

QC Summary

Report Date: November 28, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico
Contact: **Keith Greene**

Workorder: **314637**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1261192										
QC1202775076 314639001 DUP										
Americium-241	U	0.0123	U	0.0045	pCi/L	0.245		(0-1)	LYS1	11/21/1211:40
	Uncert:	+/-0.00867		+/-0.00712						
	TPU:	+/-0.00869		+/-0.00712						
**Americium-243 Tracer	2.60	2.09		2.05	pCi/L		78.7	(50%-105%)		
	Uncert:	+/-0.0889		+/-0.0767						
	TPU:	+/-0.147		+/-0.132						
QC1202775077 LCS										
Americium-241	1.41			1.42	pCi/L		100	(80%-120%)	LYS1	11/26/1216:03
	Uncert:			+/-0.0543						
	TPU:			+/-0.0816						
**Americium-243 Tracer	2.08			1.78	pCi/L		85.2	(50%-105%)		
	Uncert:			+/-0.0652						
	TPU:			+/-0.111						
QC1202775075 MB										
Americium-241			U	-0.00174	pCi/L				LYS1	11/21/1211:40
	Uncert:			+/-0.00627						
	TPU:			+/-0.00627						
**Americium-243 Tracer	2.08			1.61	pCi/L		77.4	(50%-105%)		
	Uncert:			+/-0.060						
	TPU:			+/-0.104						
Batch 1261194										
QC1202775079 314639001 DUP										
Plutonium-238	U	-0.0105	U	-0.00459	pCi/L	0.230		(0-1)	LYS1	11/21/1211:40
	Uncert:	+/-0.00628		+/-0.0065						
	TPU:	+/-0.00628		+/-0.0065						
Plutonium-239/240	U	0.00837	U	0.00919	pCi/L	0.0332		(0-1)		
	Uncert:	+/-0.00662		+/-0.00563						
	TPU:	+/-0.00663		+/-0.00564						
**Plutonium-242 Tracer	2.43	1.99		1.89	pCi/L		77.9	(50%-105%)		
	Uncert:	+/-0.0722		+/-0.0757						
	TPU:	+/-0.124		+/-0.128						
QC1202775080 LCS										
Plutonium-238				0.0208	pCi/L			(80%-120%)	LYS1	11/26/1215:37
	Uncert:			+/-0.00779						
	TPU:			+/-0.00784						
Plutonium-239/240	2.03			2.23	pCi/L		110	(80%-120%)		
	Uncert:			+/-0.0683						
	TPU:			+/-0.119						
**Plutonium-242 Tracer	1.94			1.65	pCi/L		84.6	(50%-105%)		
	Uncert:			+/-0.0638						
	TPU:			+/-0.106						
QC1202775078 MB										

QC Summary

Workorder: 314637

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1261194										
Plutonium-238			U	0.00	pCi/L				LYS1	11/26/1215:37
	Uncert:			+/-0.0049						
	TPU:			+/-0.0049						
Plutonium-239/240			U	0.00	pCi/L					
	Uncert:			+/-0.00566						
	TPU:			+/-0.00566						
**Plutonium-242 Tracer	1.94			1.80	pCi/L		92.7	(50%-105%)		
	Uncert:			+/-0.0626						
	TPU:			+/-0.105						
Batch 1261195										
QC1202775082 314639001 DUP										
Uranium-234		0.516		0.547	pCi/L	0.144		(0-1)	LYS1	11/21/1211:36
	Uncert:	+/-0.039		+/-0.0427						
	TPU:	+/-0.0516		+/-0.056						
Uranium-235/236	U	0.0132	U	0.00722	pCi/L	0.129		(0-1)		
	Uncert:	+/-0.0104		+/-0.0125						
	TPU:	+/-0.0104		+/-0.0125						
Uranium-238		0.218		0.231	pCi/L	0.105		(0-1)		
	Uncert:	+/-0.0258		+/-0.0272						
	TPU:	+/-0.0294		+/-0.0311						
**Uranium-232 Tracer	2.73	2.23		2.14	pCi/L		78.4	(50%-105%)		
	Uncert:	+/-0.0859		+/-0.0899						
	TPU:	+/-0.196		+/-0.200						
QC1202775083 LCS										
Uranium-234				2.68	pCi/L				LYS1	11/21/1211:34
	Uncert:			+/-0.074						
	TPU:			+/-0.188						
Uranium-235/236				0.134	pCi/L					
	Uncert:			+/-0.0192						
	TPU:			+/-0.021						
Uranium-238	2.70			2.75	pCi/L		102	(80%-120%)		
	Uncert:			+/-0.0745						
	TPU:			+/-0.192						
**Uranium-232 Tracer	2.19			1.93	pCi/L		88.2	(50%-105%)		
	Uncert:			+/-0.0672						
	TPU:			+/-0.156						
QC1202775081 MB										
Uranium-234			U	-0.0048	pCi/L				LYS1	11/21/1211:36
	Uncert:			+/-0.0085						
	TPU:			+/-0.0085						
Uranium-235/236			U	-0.00241	pCi/L					
	Uncert:			+/-0.00539						
	TPU:			+/-0.00539						
Uranium-238			U	0.00195	pCi/L					
	Uncert:			+/-0.00338						
	TPU:			+/-0.00338						
**Uranium-232 Tracer	2.19			1.94	pCi/L		89	(50%-105%)		
	Uncert:			+/-0.0657						

QC Summary

Workorder: 314637

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1261195										
	TPU:			+/-0.154						
Rad Gamma Spec										
Batch 1261091										
QC1202774852 314637001 DUP										
Cesium-137	U	-2.29	U	-1.95	pCi/L	0.053		(0-1)	KXG3	11/09/1208:43
	Uncert:	+/-1.46		+/-1.74						
	TPU:	+/-1.46		+/-1.74						
Cobalt-60	U	-1.01	U	-0.983	pCi/L	0.00507		(0-1)		
	Uncert:	+/-1.43		+/-1.43						
	TPU:	+/-1.43		+/-1.43						
Neptunium-237	U	-2.08	U	-4.08	pCi/L	0.160		(0-1)		
	Uncert:	+/-2.92		+/-3.32						
	TPU:	+/-2.92		+/-3.32						
Potassium-40	U	-17.6	U	2.23	pCi/L	0.298		(0-1)		
	Uncert:	+/-15.8		+/-17.3						
	TPU:	+/-15.8		+/-17.3						
Sodium-22	U	-0.457	U	-0.731	pCi/L	0.0504		(0-1)		
	Uncert:	+/-1.03		+/-1.68						
	TPU:	+/-1.03		+/-1.68						
QC1202774853 LCS										
Americium-241	2780			2640	pCi/L		95	(80%-120%)	KXG3	11/09/1211:44
	Uncert:			+/-191						
	TPU:			+/-191						
Cesium-137	6090			6090	pCi/L		99.9	(80%-120%)		
	Uncert:			+/-257						
	TPU:			+/-257						
Cobalt-60	5660			5620	pCi/L		99.2	(80%-120%)		
	Uncert:			+/-235						
	TPU:			+/-235						
Neptunium-237			U	8.55	pCi/L					
	Uncert:			+/-21.9						
	TPU:			+/-21.9						
Potassium-40			U	-57.9	pCi/L					
	Uncert:			+/-50.4						
	TPU:			+/-50.4						
Sodium-22			U	4.78	pCi/L					
	Uncert:			+/-7.41						
	TPU:			+/-7.41						
QC1202774851 MB										
Cesium-137			U	0.997	pCi/L				KXG3	11/08/1212:23
	Uncert:			+/-1.34						
	TPU:			+/-1.34						
Cobalt-60			U	-2.32	pCi/L					
	Uncert:			+/-1.41						
	TPU:			+/-1.41						
Neptunium-237			U	-1.66	pCi/L					
	Uncert:			+/-2.58						
	TPU:			+/-2.58						

QC Summary

Workorder: 314637

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1261091										
Potassium-40			U	-6.49	pCi/L					
	Uncert:			+/-14.7						
	TPU:			+/-14.7						
Sodium-22			U	-1.17	pCi/L					
	Uncert:			+/-0.991						
	TPU:			+/-0.991						
Rad Gas Flow										
Batch 1263026										
QC1202779528 314987003 DUP										
Strontium-90	U	0.0275	U	-0.0248	pCi/L	0.104		(0-1)	VXC2	11/26/1215:37
	Uncert:	+/-0.123		+/-0.130						
	TPU:	+/-0.123		+/-0.130						
**Strontium Carrier	7.17	7.00		7.10	mg		99.1	(50%-105%)		
QC1202779530 LCS										
Strontium-90	24.8			24.6	pCi/L		99	(80%-120%)	VXC2	11/26/1215:38
	Uncert:			+/-0.498						
	TPU:			+/-2.02						
**Strontium Carrier	7.17			6.40	mg		89.3	(50%-105%)		
QC1202779527 MB										
Strontium-90			U	0.162	pCi/L				VXC2	11/26/1215:37
	Uncert:			+/-0.0895						
	TPU:			+/-0.0904						
**Strontium Carrier	7.17			6.70	mg		93.5	(50%-105%)		
QC1202779529 314987003 MS										
Strontium-90	124 U	0.0275		122	pCi/L		98.1	(75%-125%)	VXC2	11/26/1215:38
	Uncert:	+/-0.123		+/-2.49						
	TPU:	+/-0.123		+/-10.2						
**Strontium Carrier	7.17	7.00		6.40	mg		89.3	(50%-105%)		
Batch 1263054										
QC1202779587 314849003 DUP										
Alpha	U	2.00	U	2.13	pCi/L	0.0316		(0-1)	MYS1	11/27/1221:14
	Uncert:	+/-0.977		+/-1.00						
	TPU:	+/-0.992		+/-1.02						
Beta	U	2.13	U	0.444	pCi/L	0.563		(0-1)		11/26/1219:58
	Uncert:	+/-0.785		+/-0.686						
	TPU:	+/-0.805		+/-0.688						
QC1202779590 LCS										
Alpha	12.0			12.1	pCi/L		101	(80%-120%)	MYS1	11/27/1220:02
	Uncert:			+/-0.661						
	TPU:			+/-1.27						
Beta	49.6			49.0	pCi/L		98.8	(80%-120%)		11/26/1219:56
	Uncert:			+/-0.892						
	TPU:			+/-4.18						
QC1202779586 MB										
Alpha			U	-0.0618	pCi/L				MYS1	11/27/1221:14
	Uncert:			+/-0.0846						
	TPU:			+/-0.0846						
Beta			U	0.0566	pCi/L					11/26/1219:56

QC Summary

Workorder: **314637**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1263054										
	Uncert:			+/-0.101						
	TPU:			+/-0.101						
QC1202779588 314849003 MS										
Alpha	481	2.00	U	416	pCi/L		86.3	(75%-125%)	MYS1	11/27/1220:19
	Uncert:	+/-0.977		+/-22.5						
	TPU:	+/-0.992		+/-42.7						
Beta	1990	2.13	U	1990	pCi/L		100	(75%-125%)		11/26/1219:56
	Uncert:	+/-0.785		+/-36.5						
	TPU:	+/-0.805		+/-169						
QC1202779589 314849003 MSD										
Alpha	481	2.00	U	496	pCi/L	0.402	103	(0-1)	MYS1	11/27/1220:02
	Uncert:	+/-0.977		+/-26.2						
	TPU:	+/-0.992		+/-57.4						
Beta	1990	2.13	U	2100	pCi/L	0.153	106	(0-1)		11/26/1219:56
	Uncert:	+/-0.785		+/-38.0						
	TPU:	+/-0.805		+/-187						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.

QC Summary

Workorder: **314637**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

General Engineering Laboratories, Inc.
2040 Savage Road
Charleston SC 29407

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-265

Client Contact:

Lab Agreement # : 126310011

Project Number :

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-GENINORG	WSP-GrossA/B	~~WSP-LL H-3~~	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC	Special Instructions:
CAMO-13-24279	Nov 1 2012	11:34	W	2	3		1	1			1	1	
CAMO-13-24283	Nov 1 2012	11:34	W			1			1	1			
CAMO-13-24274	Nov 1 2012	11:34	W	2									

Special Instructions:

Relinquished by:		Date/Time:	Received by:
Shem Sherwood	S. Sherwood	11/2/12 3pm	
Relinquished by:		Date/Time:	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4031

EVENT NAME: Mortandad/Sandia (MDA C and GS Monitoring) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24279

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		ow 11/01/12 ~~11/01/12~~ 2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1134	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSI
LOCATION ID:	R-60		FIELD PREP:	UF	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE		
	WSP-GrossA/B	1 LITER POLY	1	NONE		
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 50 feet of a running diesel generator

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 5.85 mg/L Oxidation-Reduction Potential 132.2 MV pH 8.30 SU

Specific Conductance 116 uS/cm Temperature 23.72 deg C Turbidity 1.49 NTU

COLLECTED BY (PRINT) D Fellenz

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/01/12 1230	(Printed Name) L. Martin (Signature)	11/01/12 1230
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4031

EVENT NAME: Mortandad/Sandia (MDA C and GS Monitoring) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24283

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		11/01/2012	FIELD MATRIX:	WG	OV
TIME COLLECTED (HH:MM):		1134	MEDIA:	UA	OV
PRS ID:		OV	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-60		FIELD PREP:	F	OV
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-GENINORG	1 LITER POLY	1	ICE	Y	NA
	WSP-Met+B+SN+SR+U	1 LITER POLY	1	HNO3		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Oxidation-Reduction Potential _____ MV pH _____ SU

Specific Conductance _____ uS/cm Temperature _____ deg C Turbidity _____ NTU

See CAMO-13-24279

COLLECTED BY (PRINT) D Fellenz

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) D Woody	11/01/12 1230	(Printed Name) (Signature)	11/01/12 1230
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-265

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
314528	EPA:120.1	1				
314528	EPA:150.1	1				
314528	EPA:160.1	1				
314528	EPA:245.2	1				
314528	EPA:300.0	1				
314528	EPA:310.1	1				
314528	EPA:350.1	1				
314528	EPA:351.2	1				
314528	EPA:353.2	1				
314528	EPA:365.4	1				
314528	EPA:900	1				
314528	EPA:901.1	1				
314528	EPA:905.0	1				
314528	HASL-300:AM-241	1				
314528	HASL-300:ISOPU	1				
314528	HASL-300:ISOU	1				
314528	SM:A2340B	1				
314528	SW-846:6010B	1				
314528	SW-846:6020	1				
314528	SW-846:8260B	1		1		
314528	SW-846:8270C	1				
314528	SW-846:9060	1				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
314528	EPA:120.1	1265081	1265081	1							
314528	EPA:150.1	1260327	1260327	1							
314528	EPA:160.1	1260149	1260149	1					1		
314528	EPA:245.2	1264600	1264596	1					1	2	
314528	EPA:300.0	1259659	1259659	1					1		
314528	EPA:310.1	1262945	1262945	1					1	1	
314528	EPA:350.1	1260275	1260272	1					1	2	2
314528	EPA:351.2	1260284	1260283	1					1	1	1
314528	EPA:353.2	1260242	1260242	1					1		
314528	EPA:365.4	1260281	1260280	1					1	1	1
314528	EPA:900	1260898	1260898	1					1	1	1
314528	EPA:901.1	1260199	1260199	1					1		
314528	EPA:905.0	1260884	1260884	1					1	1	
314528	HASL-300:AM-241	1259852	1259852	1					1		
314528	HASL-300:ISOPU	1259851	1259851	1					1		
314528	HASL-300:ISOU	1259850	1259850	1					1		
314528	SM:A2340B	1266665	1266665	1							
314528	SW-846:6010B	1260610	1260609	1					1	1	
314528	SW-846:6020	1260607	1260605	1					1	1	
314528	SW-846:8260B	1262779	1262779	1		1			2		
314528	SW-846:8270C	1261145	1261144	1					1	1	1
314528	SW-846:9060	1260735	1260735	1					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24255	1202784135	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24258	1202784136	DUP	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	CAMO-13-24283	314528002	REG	1	0	0	0
EPA:120.1	GENERAL CHEMISTRY	LCS	1202784137	LCS	0	0	1	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24258	1202772818	DUP	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	CAMO-13-24283	314528002	REG	1	0	0	0
EPA:150.1	GENERAL CHEMISTRY	LCS	1202772819	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24260	1202772397	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CAMO-13-24283	314528002	REG	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	CASA-13-24223	1202772398	DUP	1	0	0	0
EPA:160.1	GENERAL CHEMISTRY	LCS	1202772399	LCS	0	0	1	0
EPA:160.1	GENERAL CHEMISTRY	MB	1202772396	MB	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783063	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24255	1202783067	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783064	DUP	1	0	0	0
EPA:245.2	INORGANIC	CAMO-13-24258	1202783068	MS	0	0	1	0
EPA:245.2	INORGANIC	CAMO-13-24283	314528002	REG	1	0	0	0
EPA:245.2	INORGANIC	LCS	1202783069	LCS	0	0	1	0
EPA:245.2	INORGANIC	MB	1202783062	MB	1	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24255	1202771232	DUP	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	CAMO-13-24283	314528002	REG	4	0	0	0
EPA:300.0	GENERAL CHEMISTRY	LCS	1202771234	LCS	0	0	4	0
EPA:300.0	GENERAL CHEMISTRY	MB	1202771231	MB	4	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24256	1202779306	DUP	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24256	1202779307	MS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	CAMO-13-24283	314528002	REG	2	0	0	0
EPA:310.1	GENERAL CHEMISTRY	LCS	1202779299	LCS	0	0	1	0
EPA:310.1	GENERAL CHEMISTRY	MB	1202779298	MB	3	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	1202772677	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	1202772679	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24255	1202772681	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	1202772678	DUP	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	1202772680	MS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24257	1202772682	MSD	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	CAMO-13-24283	314528002	REG	1	0	0	0
EPA:350.1	GENERAL CHEMISTRY	LCS	1202772683	LCS	0	0	1	0
EPA:350.1	GENERAL CHEMISTRY	MB	1202772676	MB	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	1202772708	DUP	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	1202772709	MS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24238	1202772710	MSD	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	CAMO-13-24279	314528001	REG	1	0	0	0
EPA:351.2	GENERAL CHEMISTRY	LCS	1202772711	LCS	0	0	1	0
EPA:351.2	GENERAL CHEMISTRY	MB	1202772707	MB	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24283	1202772623	DUP	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	CAMO-13-24283	314528002	REG	1	0	0	0
EPA:353.2	GENERAL CHEMISTRY	LCS	1202772626	LCS	0	0	1	0
EPA:353.2	GENERAL CHEMISTRY	MB	1202772621	MB	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	1202772696	DUP	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	1202772698	MS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24255	1202772700	MSD	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	CAMO-13-24283	314528002	REG	1	0	0	0
EPA:365.4	GENERAL CHEMISTRY	LCS	1202772701	LCS	0	0	1	0
EPA:365.4	GENERAL CHEMISTRY	MB	1202772694	MB	1	0	0	0

EPA:900	RAD	CAMO-13-24279	314528001	REG	2	0	0	0
EPA:900	RAD	CAPA-12-23808	1202774276	DUP	2	0	0	0
EPA:900	RAD	CAPA-12-23808	1202774277	MS	0	0	2	0
EPA:900	RAD	CAPA-12-23808	1202774278	MSD	0	0	2	0
EPA:900	RAD	LCS	1202774279	LCS	0	0	2	0
EPA:900	RAD	MB	1202774275	MB	2	0	0	0
EPA:901.1	RAD	CAMO-13-24279	1202772495	DUP	6	0	0	0
EPA:901.1	RAD	CAMO-13-24279	314528001	REG	5	0	0	0
EPA:901.1	RAD	LCS	1202772496	LCS	0	0	3	0
EPA:901.1	RAD	MB	1202772494	MB	6	0	0	0
EPA:905.0	RAD	CAMO-13-24241	1202774231	DUP	1	0	0	0
EPA:905.0	RAD	CAMO-13-24241	1202774232	MS	0	0	1	0
EPA:905.0	RAD	CAMO-13-24279	314528001	REG	1	0	0	0
EPA:905.0	RAD	LCS	1202774233	LCS	0	0	1	0
EPA:905.0	RAD	MB	1202774230	MB	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24225	1202771691	DUP	1	0	0	0
HASL-300:AM-241	RAD	CAMO-13-24279	314528001	REG	1	0	0	0
HASL-300:AM-241	RAD	LCS	1202771693	LCS	0	0	1	0
HASL-300:AM-241	RAD	MB	1202771689	MB	1	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24225	1202771686	DUP	2	0	0	0
HASL-300:ISOPU	RAD	CAMO-13-24279	314528001	REG	2	0	0	0
HASL-300:ISOPU	RAD	LCS	1202771688	LCS	0	0	1	0
HASL-300:ISOPU	RAD	MB	1202771684	MB	2	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24225	1202771682	DUP	3	0	0	0
HASL-300:ISOU	RAD	CAMO-13-24279	314528001	REG	3	0	0	0
HASL-300:ISOU	RAD	LCS	1202771683	LCS	0	0	1	0
HASL-300:ISOU	RAD	MB	1202771681	MB	3	0	0	0
SM:A2340B	INORGANIC	CAMO-13-24283	314528002	REG	1	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24283	1202773562	DUP	17	0	0	0
SW-846:6010B	INORGANIC	CAMO-13-24283	1202773563	MS	0	0	17	0
SW-846:6010B	INORGANIC	CAMO-13-24283	314528002	REG	17	0	0	0
SW-846:6010B	INORGANIC	LCS	1202773561	LCS	0	0	17	0
SW-846:6010B	INORGANIC	MB	1202773560	MB	17	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24283	1202773554	DUP	11	0	0	0
SW-846:6020	INORGANIC	CAMO-13-24283	1202773555	MS	0	0	11	0
SW-846:6020	INORGANIC	CAMO-13-24283	314528002	REG	11	0	0	0
SW-846:6020	INORGANIC	LCS	1202773553	LCS	0	0	11	0
SW-846:6020	INORGANIC	MB	1202773552	MB	11	0	0	0
SW-846:8260B	VOC	CAMO-13-24274	314528003	FTB	80	3	0	0
SW-846:8260B	VOC	CAMO-13-24279	314528001	REG	80	3	0	0
SW-846:8260B	VOC	LCS	1202778863	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202778864	LCS	0	3	10	0
SW-846:8260B	VOC	LCS	1202780091	LCS	0	3	70	0
SW-846:8260B	VOC	LCS	1202780092	LCS	0	3	10	0
SW-846:8260B	VOC	MB	1202778860	MB	80	3	0	0
SW-846:8260B	VOC	MB	1202780090	MB	80	3	0	0
SW-846:8270C	SVOC	CAMO-13-24279	1202774964	MS	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24279	1202774965	MSD	0	6	76	0
SW-846:8270C	SVOC	CAMO-13-24279	314528001	REG	80	6	0	0
SW-846:8270C	SVOC	LCS	1202774966	LCS	0	6	76	0
SW-846:8270C	SVOC	MB	1202774963	MB	80	6	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24241	1202773872	DUP	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	CAMO-13-24279	314528001	REG	1	0	0	0
SW-846:9060	GENERAL CHEMISTRY	LCS	1202773876	LCS	0	0	1	0
SW-846:9060	GENERAL CHEMISTRY	MB	1202773871	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

Field Sample ID	Lab Sample ID	Type Of Blank	Analytical Method	Sample Matrix	Parameter Name	Lab Result	Lab Qualifier	Units	Lab Detection Limit
MB	1202772694	METHOD BLANK	EPA:365.4	W	Total Phosphate as Phosphorus	0.0459	J	mg/L	0.05
MB	1202772707	METHOD BLANK	EPA:351.2	W	Total Kjeldahl Nitrogen	0.0602	J	mg/L	0.1
MB	1202773560	METHOD BLANK	SW-846:6010B	W	Sodium	236	J	ug/L	300
MB	1202773560	METHOD BLANK	SW-846:6010B	W	Strontium	1.55	J	ug/L	5

Any samples affected by the presence of contaminants in blanks?

Field Sample ID	Blank Field Sample ID	Blank Lab Sample ID	Blank Type	Analytical Method	Parameter Name	Units	Blank Result	Sample Result	Lab Qualifier	Detect Limit	Detected
CAMO-13-24279	MB	1202772707	METHOD BLANK	EPA:351.2	Total Kjeldahl Nitrogen	mg/L	0.0602	0.0882	J	0.1	Y
CAMO-13-24283	MB	1202772694	METHOD BLANK	EPA:365.4	Total Phosphate as Phosphorus	mg/L	0.0459	0.0274	J	0.05	Y

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

Field Sample ID	Matrix Spike ID	Matrix Spike Dup ID	Analytical Method	Parameter Name	Analysis Lot ID	Analysis Date	Sample Matrix	MS % Recvry	MSD % Recvry	Upper Limit	Lower Limit
CAMO-13-24238	1202772709	1202772710	EPA:351.2	Total Kjeldahl Nitrogen	1260283	11/6/2012	W	84.8	96	110	90
CAMO-13-24279	1202774964	1202774965	SW-846:8270C	Benzidine	1261144	11/8/2012	W	50	21	125	10

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

LCS Sample ID	LCSD Sample ID	Analytical Method	Parameter Name	Lab Lot ID	Analysis Date	Sample Matrix	LCS Recovery	LCSD Recovery	Upper Limit	Lower Limit	Lower Reject Limit
1202778863		SW-846:8260B	Bromoform	1262779	11/13/2012	W	128		125	72	10
1202778863		SW-846:8260B	Dibromo-3-Chloropropane[1,2-]	1262779	11/13/2012	W	129		128	69	10
1202778863		SW-846:8260B	Trichlorofluoromethane	1262779	11/13/2012	W	124		123	65	10
1202774966		SW-846:8270C	Benzidine	1261144	11/8/2012	W	6		124	19	10

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

Data Validation Report for:

Chain Of Custody No. 2013-265

Correction Factor (ND)	Correction Factor (J)	Use Factors
5		Y
5		Y

Rejection Limit	RPD	RPD Limit
10	11.6	20
10	80	30

Upper Reject Limit	RPD	RPD Limit

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-60	2013-265	CAMO-13-24279	REG	INIT	RAD	HASL-300:AM-241	Americium-241	U	U	R5	N
R-60	2013-265	CAMO-13-24279	REG	INIT	SVOC	SW-846:8270C	Benzidine	U	R	SV12	N
R-60	2013-265	CAMO-13-24279	REG	INIT	RAD	EPA:901.1	Cesium-137	U	U	R5	N
R-60	2013-265	CAMO-13-24279	REG	INIT	RAD	EPA:901.1	Cobalt-60	U	U	R5	N
R-60	2013-265	CAMO-13-24279	REG	INIT	RAD	EPA:901.1	Neptunium-237	U	U	R5	N
R-60	2013-265	CAMO-13-24279	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-238	U	U	R5	N
R-60	2013-265	CAMO-13-24279	REG	INIT	RAD	HASL-300:ISOPU	Plutonium-239/240	U	U	R5	N
R-60	2013-265	CAMO-13-24279	REG	INIT	RAD	EPA:901.1	Potassium-40	U	U	R5	N
R-60	2013-265	CAMO-13-24279	REG	INIT	RAD	EPA:901.1	Sodium-22	U	U	R5	N
R-60	2013-265	CAMO-13-24279	REG	INIT	RAD	EPA:905.0	Strontium-90	U	U	R5	N
R-60	2013-265	CAMO-13-24279	REG	INIT	GENERAL CHEMISTRY	EPA:351.2	Total Kjeldahl Nitrogen	J	U	I4	N
R-60	2013-265	CAMO-13-24279	REG	INIT	RAD	HASL-300:ISOU	Uranium-235/236	U	U	R5	N
R-60	2013-265	CAMO-13-24283	REG	INIT	GENERAL CHEMISTRY	EPA:365.4	Total Phosphate as Phosphorus	J	U	I4	N

Reason Code	Description
I4	the sample result is =<5x the concentration of related analyte in the method blank.
J_LAB	The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL
NQ	The analytical laboratory did not qualifiy the analyte as not detected and/or any other standard qualifire. The analyte is detected in the sample.
R5	Analyte is not detected because the amount reported is less than the MDC.
SV12	The LCS percent recovery was <10%. Follow the external laboratory limits located within the associated data package.
U_LAB	The analytical laboratory qualified the analyte as not detected.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24274	R-60	FTB	SW-846:8260B	0	80
CAMO-13-24279	R-60	REG	EPA:351.2	0	1
CAMO-13-24279	R-60	REG	EPA:900	0	2
CAMO-13-24279	R-60	REG	EPA:901.1	0	5
CAMO-13-24279	R-60	REG	EPA:905.0	0	1
CAMO-13-24279	R-60	REG	HASL-300:AM-241	0	1
CAMO-13-24279	R-60	REG	HASL-300:ISOPU	0	2
CAMO-13-24279	R-60	REG	HASL-300:ISOU	0	3
CAMO-13-24279	R-60	REG	SW-846:8260B	0	80
CAMO-13-24279	R-60	REG	SW-846:8270C	0	80
CAMO-13-24279	R-60	REG	SW-846:9060	0	1

Data Validation Report for: Chain Of Custody No. 2013-265

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
0.0104	pCi/L	0.0104	pCi/L	0.0297	0.00737	W	11/1/2012		1259852	VAL	Y
3	ug/L	3	ug/L			W	11/1/2012		1261145	VAL	Y
1.76	pCi/L	1.76	pCi/L	5.07	1.34	W	11/1/2012		1260199	VAL	Y
0.442	pCi/L	0.442	pCi/L	4.89	1.3	W	11/1/2012		1260199	VAL	Y
-0.2	pCi/L	-0.2	pCi/L	8.69	2.48	W	11/1/2012		1260199	VAL	Y
0.0085	pCi/L	0.0085	pCi/L	0.0237	0.00637	W	11/1/2012		1259851	VAL	Y
0.00637	pCi/L	0.00637	pCi/L	0.0402	0.00601	W	11/1/2012		1259851	VAL	Y
-29.9	pCi/L	-29.9	pCi/L	61.6	16.8	W	11/1/2012		1260199	VAL	Y
-1.35	pCi/L	-1.35	pCi/L	4.96	1.46	W	11/1/2012		1260199	VAL	Y
0.285	pCi/L	0.285	pCi/L	0.484	0.15	W	11/1/2012		1260884	VAL	Y
0.0882	mg/L	0.0882	mg/L			W	11/1/2012		1260284	VAL	Y
0.00362	pCi/L	0.00362	pCi/L	0.0424	0.00627	W	11/1/2012		1259850	VAL	Y
0.0274	mg/L	0.0274	mg/L			W	11/1/2012		1260281	VAL	Y

CAMO-13-24283	R-60	REG	EPA:120.1	0	1
CAMO-13-24283	R-60	REG	EPA:150.1	0	1
CAMO-13-24283	R-60	REG	EPA:160.1	0	1
CAMO-13-24283	R-60	REG	EPA:245.2	0	1
CAMO-13-24283	R-60	REG	EPA:300.0	0	4
CAMO-13-24283	R-60	REG	EPA:310.1	0	2
CAMO-13-24283	R-60	REG	EPA:350.1	0	1
CAMO-13-24283	R-60	REG	EPA:353.2	0	1
CAMO-13-24283	R-60	REG	EPA:365.4	0	1
CAMO-13-24283	R-60	REG	SM:A2340B	0	1
CAMO-13-24283	R-60	REG	SW-846:6010B	0	17
CAMO-13-24283	R-60	REG	SW-846:6020	0	11

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

November 29, 2012

Keith Greene
Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Re: LANL-WQH Water Samples
Work Order: 314528
SDG: 2013-265

Dear Keith Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on November 03, 2012, and analyzed for GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

for

Valerie Davis
Project Manager

Purchase Order: 63641-10
Chain of Custody: 2013-265
Enclosures

ARS International (63641-10)
LANL-WQH Water Samples
Work Order #: 314528
SDG: 2013-265

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....9

Volatile Analysis.....11

Case Narrative.....12

Sample Data Summary.....18

Quality Control Summary.....25

Quality Control Data.....47

Miscellaneous.....72

Semi-Volatile Analysis.....74

Case Narrative.....75

Sample Data Summary.....81

Quality Control Summary.....85

Quality Control Data.....100

Miscellaneous.....113

Metals Analysis.....115

Case Narrative.....116

Sample Data Summary.....122

Quality Control Summary.....126

General Chem Analysis.....140

Case Narrative.....141

Sample Data Summary.....169

Quality Control Summary.....174

Miscellaneous.....179

Radiological Analysis.....182

Sample Data Summary.....194

Quality Control Data.....197

Case Narrative

Case Narrative for
ARS International (63641-10)
LANL-WQH Water Samples
Workorder #: 314528
SDG # : 2013-265

November 29, 2012

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 03, 2012 for analysis. Please see attached email for discrepancies. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
314528001	CAMO-13-24279
314528002	CAMO-13-24283
314528003	CAMO-13-24274

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

for

Valerie Davis
Project Manager

List of current GEL Certifications as of 29 November 2012

State	Certification
Arkansas	88−0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−12−00283, P330−12−00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA120008
Maryland	270
Massachusetts	M−SC012
Mississippi	SC00012
Nevada	SC000122011−1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68−00485
Plant Material Permit	PDEP−12−00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235−12−7
Utah NELAP	SC00012
Vermont	VT87156
Virginia NELAP	460202
Washington	C780−12
Wisconsin	999887790

Chain of Custody and Supporting Documentation

General Engineering Laboratories, Inc.
2040 Savage Road
Charleston SC 29407

Chain of Custody/Analysis Request

314528

COC/Lab Request #: 2013-265

Page 1 of 1

Client Contact:

Lab Agreement # : 126310011

Project Number :

Site Name: Los Alamos National Laboratory

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	WSP-8260B-VOA	WSP-8270C-SVOA	WSP-GENINORG	WSP-GrossA/B	WSP-LL-H-3	WSP-Met+B+SN+SR+U	WSP-NH3+NO3/NO2+PO4	WSP-RAD	WSP-TKN+TOC
CAMO-13-24279	Nov 1 2012	11:34	W	2	3		1	1			1	1
CAMO-13-24283	Nov 1 2012	11:34	W			1			1	1		
CAMO-13-24274	Nov 1 2012	11:34	W	2								

Special Instructions:

Special Instructions:

Relinquished by:		Date/Time:	Received by:	
Steve Sherwood	S. Sherwood	11/2/12 3pm	Mike Kaber	11-3-12 0930
Relinquished by:		Date/Time:	Received by:	
Relinquished by:		Date/Time:	Received by:	

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: LANL	**SDG/AR/COC/Work Order:** 2013-264 2013-265
Received By: MK	**Date Received:** 11-3-12

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): cpm 0
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample contatiners < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregeated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius 4c
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: 4150182 Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	✓			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?	✓			Sample ID's and containers affected:
7	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?			✓	Sample ID's affected: * see Below
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			
14	Carrier and tracking number.	✓			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 5462 9832 4911 4c 4922 18c No ice

Comments (Use Continuation Form if needed):

* MISSING 1 VIAL FOR CAMO-13-24274
MISSING 1 PCB Bottle FOR CASA-13-24215

PM (or PMA) review: Initials HT Date 110512 Page 1 of 1

Subject: Sample Receipt for 110212 and 110312
From: Hope Taylor <Hope.Taylor@gel.com>
Date: 11/5/2012 11:00 AM
To: "Keith R. Greene" <kgreene@lanl.gov>, LANL@amrad.com, "team.davis" <team.davis@gel.com>

Good morning Keith,

The containers for Gross A/B were preserved prior to analysis.

RN 2013-259 The lab received one container each for HEXP, SVOA and PCB for ID CAMO-13-24225, chain indicates three.
Received a broken vial(8260) for ID CAMO-13-24225.

RN 2013-263 The lab received one container for ID WST55-13-24513, chain indicates six.

RN 2013-265 The lab received one container for 8260 for ID CAMO-13-24274, chain indicates two

RN 2013-264 The lab received two containers for PCB for ID CASA-13-24215, chain indicates three.

Thanks

--
Hope Taylor
Project Manager Assistant
GEL Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Direct: 843.769.7376 ext. 4778
Main: 843.556.8171
Fax: 843.766.1178
E-mail: hop01200@gel.com
Web: www.gel.com

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 02NOV12
ACTWGT: 51.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MRIA015AGWL0

4°C

5BDC1/9CCB/10BC

FedEx Express

J1113110606 0125

1 of 2

TRK# 0201 5462 9832 4911

MASTER

SATURDAY ### A1
PRIORITY OVERNIGHT

X0 CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

ORIGIN ID: SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 02NOV12
ACTWGT: 29.0 LB MAN
CAD: 0014176/CAFE2511

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: MRIA015AGWL0

18°
No ice

FedEx Express

2 of 2

MPS# 0263 5462 9832 4922

Mstr# 5462 9832 4911

0201

SATURDAY ### A1
PRIORITY OVERNIGHT

X0 CHSA

29407
SC-US CHS

Part # 156148-434 RIT2 08/10

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

Volatile Analysis

Case Narrative

ChemStation Case Narrative
ARS International (ARSL)
SDG 2013-265

Method/Analysis Information

Procedure:	**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method:	SW846 8260B DOE-AL
Analytical Batch Number:	1262779

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

Sample ID	Client ID
314528001	CAMO-13-24279
314528003	CAMO-13-24274
1202778860	Method Blank (MB)
1202778861	314528001(CAMO-13-24279) Post Spike (PS)
1202778862	314528001(CAMO-13-24279) Post Spike Duplicate (PSD)
1202778863	Laboratory Control Sample (LCS)
1202778864	Laboratory Control Sample (LCS)
1202780090	Method Blank (MB)
1202780091	Laboratory Control Sample (LCS)
1202780092	Laboratory Control Sample (LCS)

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 18.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 19.1.2. False positive analytes are designated on the quantitation report with a ’d’ qualifier.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the

Calibration History report located in the Standard Data section of the data package.

The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

Initial Calibration
At the request of the client, linear curve fits, for target analytes that did not meet the x-intercept criteria of less than or equal to 3 times the MDL and had %RSDs less than 60%, were set to use the average response factor to quantitate data in this SDG.

Continuing Calibration Verification Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement
Target analytes were detected in the blank 1202778860 (MB) below the reporting limit.

Surrogate Recoveries
Surrogate recoveries in all client and quality control samples were within the acceptance limits.

Laboratory Control Sample (LCS) Recovery
The LCS 1202778863 (LCS) recoveries were not all within the acceptance limits. The unacceptable recoveries were less than 5% of the requested analyte list. This satisfies the client criteria. The results are reported. See the Data Exception Report in the miscellaneous section of the data package.

QC Sample Designation
Sample 314528001 (CAMO-13-24279) was designated for spike analysis.

Matrix Spike (PS) Recovery Statement
The spike recoveries were within the required acceptance limits.

Matrix Spike Duplicate (PSD) Recovery Statement
The spike duplicate recoveries were within the required acceptance limits.

Relative Percent Difference (RPD) Statement
The RPDs between the matrix spike pair met the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Samples 1202778861 (CAMO-13-24279) and 1202778862 (CAMO-13-24279) were re-analyzed due to unacceptable surrogate or internal standard recoveries in the initial analysis.

Miscellaneous Information

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER# 1141833.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) may be requested for this sample delivery group/work order. Please note that non-requested target analytes that are reported on the quantitation reports will be present on the Form I. These detected analytes are included in the calibrated method and as a result will be reported on the Sample Data Summary (Form I) or Certificate of Analysis (C of A). TIC data, if requested, are included on the Sample Data Summary (Form I) and are also included with the sample raw data.

Additional Comments
Additional comments were not required for this SDG.

Residual Chlorine
Residual Chlorine was not detected in any of the samples in this SDG.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description	P & T Trap
VOA9.I	Agilent 6890/5973 GC/MS w/ OI Eclipse/Archon Autosampler	HP6890/HP5973	DB-624	J&W, 60m x 0.25mm x 1.4um	Trap 10

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-265 GEL Work Order: 314528

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Erin Haubert **Name:** **Erin Haubert**

Date: **28 NOV 2012** **Title:** **Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**314528001**	**Date Received:**	**11/03/2012 09:30**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24279**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 11:58**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 11:58**				
Data File:	**111312V9\9M211.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**314528001**	**Date Received:**	**11/03/2012 09:30**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24279**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 11:58**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 11:58**				
Data File:	**111312V9\9M211.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**314528001**	**Date Received:**	**11/03/2012 09:30**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24279**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 11:58**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 11:58**				
Data File:	**111312V9\9M211.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	61.9	50.0	ug/L	124	(78%-124%)
Bromofluorobenzene	51.7	50.0	ug/L	103	(80%-120%)
Toluene-d8	48.7	50.0	ug/L	97.4	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.36	14.2	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**314528003**	**Date Received:**	**11/03/2012 09:30**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24274**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 11:04**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 11:04**				
Data File:	**111312V9\9M209.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**314528003**	**Date Received:**	**11/03/2012 09:30**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24274**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 11:04**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 11:04**				
Data File:	**111312V9\9M209.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**314528003**	**Date Received:**	**11/03/2012 09:30**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24274**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 11:04**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 11:04**				
Data File:	**111312V9\9M209.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	59.0	50.0	ug/L	118	(78%-124%)
Bromofluorobenzene	50.1	50.0	ug/L	100	(80%-120%)
Toluene-d8	47.0	50.0	ug/L	94.1	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.316	13.3	ug/L	0	J

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2013-265

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1202778863	LCS for batch 1262779	121	96	102
1202778864	LCS for batch 1262779	112	94	98
1202778860	MB for batch 1262779	111	95	98
314528003	CAMO-13-24274	118	94	100
314528001	CAMO-13-24279	124	97	103
1202780091	LCS for batch 1262779	96	97	98
1202780092	LCS for batch 1262779	91	94	99
1202780090	MB for batch 1262779	99	97	103
1202778861	CAMO-13-24279PS	101	98	102
1202778862	CAMO-13-24279PSD	108	105	106

Surrogate		Acceptance Limits
DCED4	= 1,2-Dichloroethane-d4	(78%-124%)
TOL	= Toluene-d8	(80%-120%)
BFB	= Bromofluorobenzene	(80%-120%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **CAMO-13-24279PS**
Lab Sample ID: **1202778861**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **11/15/2012 17:05**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	PS	Dichlorodifluoromethane	50.0	0.00	U	43.8	88	36-123
74-87-3	PS	Chloromethane	50.0	0.00	U	45.3	91	47-134
75-01-4	PS	Vinyl chloride	50.0	0.00	U	43.0	86	49-129
74-83-9	PS	Bromomethane	50.0	0.00	U	45.5	91	56-127
75-00-3	PS	Chloroethane	50.0	0.00	U	47.0	94	67-122
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	U	46.2	92	60-123
60-29-7	PS	Ethyl ether	50.0	0.00	U	45.6	91	69-121
67-64-1	PS	Acetone	250	0.00	U	146	58	30-143
75-05-8	PS	Acetonitrile	1250	0.00	U	1230	99	60-133
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	U	49.2	98	67-132
74-88-4	PS	Iodomethane	250	0.00	U	257	103	69-147
75-09-2	PS	Methylene chloride	50.0	0.00	U	47.1	94	56-135
75-15-0	PS	Carbon disulfide	250	0.00	U	253	101	65-153
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	U	47.1	94	73-126
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	U	48.4	97	69-128
108-05-4	PS	Vinyl acetate	250	0.00	U	226	90	50-143
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	U	47.4	95	75-124
78-93-3	PS	2-Butanone	250	0.00	U	182	73	30-140
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	U	47.2	94	52-147
594-20-7	PS	2,2-Dichloropropane	50.0	0.00	U	49.8	100	67-143
67-66-3	PS	Chloroform	50.0	0.00	U	47.0	94	75-125
74-97-5	PS	Bromochloromethane	50.0	0.00	U	49.0	98	80-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265** **Sample Type:** **Post Spike**
Client ID: **CAMO-13-24279PS** **Matrix:** **W**
Lab Sample ID: **1202778861**
Instrument: **VOA9.I** **Analysis Date:** **11/15/2012 17:05** **Dilution: 1**
Analyst: **RXY1** **Prep Batch ID:** **1262779**
Purge Vol: **5 mL** **Batch ID:** **1262779**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	PS	1,1,1-Trichloroethane	50.0	0.00	U	50.2	100	69-140
563-58-6	PS	1,1-Dichloropropene	50.0	0.00	U	49.7	99	71-130
71-36-3	PS	n-Butyl alcohol	5000	0.00	U	5480	110	53-150
56-23-5	PS	Carbon tetrachloride	50.0	0.00	U	53.1	106	69-142
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	U	47.1	94	72-126
71-43-2	PS	Benzene	50.0	0.00	U	47.2	94	73-119
79-01-6	PS	Trichloroethylene	50.0	0.00	U	49.2	98	54-147
78-87-5	PS	1,2-Dichloropropane	50.0	0.00	U	47.8	96	78-123
75-27-4	PS	Bromodichloromethane	50.0	0.00	U	51.3	103	76-131
74-95-3	PS	Dibromomethane	50.0	0.00	U	49.2	98	79-120
108-10-1	PS	4-Methyl-2-pentanone	250	0.00	U	246	98	68-136
10061-01-5	PS	cis-1,3-Dichloropropylene	50.0	0.00	U	52.7	105	72-134
108-88-3	PS	Toluene	50.0	0.00	U	45.2	90	62-126
10061-02-6	PS	trans-1,3-Dichloropropylene	50.0	0.00	U	51.1	102	72-133
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	U	47.5	95	74-120
591-78-6	PS	2-Hexanone	250	0.00	U	191	76	31-132
142-28-9	PS	1,3-Dichloropropane	50.0	0.00	U	46.5	93	73-121
127-18-4	PS	Tetrachloroethylene	50.0	0.00	U	47.9	96	54-139
124-48-1	PS	Dibromochloromethane	50.0	0.00	U	52.6	105	74-128
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	U	51.6	103	80-120
108-90-7	PS	Chlorobenzene	50.0	0.00	U	46.3	93	73-119
100-41-4	PS	Ethylbenzene	50.0	0.00	U	46.3	93	66-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265** **Sample Type:** **Post Spike**
Client ID: **CAMO-13-24279PS** **Matrix:** **W**
Lab Sample ID: **1202778861**
Instrument: **VOA9.I** **Analysis Date:** **11/15/2012 17:05** **Dilution: 1**
Analyst: **RXY1** **Prep Batch ID:** **1262779**
Purge Vol: **5 mL** **Batch ID:** **1262779**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	PS	m,p-Xylenes	100	0.00	U	97.2	97	56-134
95-47-6	PS	o-Xylene	50.0	0.00	U	47.8	96	68-126
100-42-5	PS	Styrene	50.0	0.00	U	50.0	100	57-138
75-25-2	PS	Bromoform	50.0	0.00	U	57.6	115	66-129
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	U	49.6	99	44-146
96-18-4	PS	1,2,3-Trichloropropane	50.0	0.00	U	48.9	98	68-129
108-86-1	PS	Bromobenzene	50.0	0.00	U	48.5	97	70-122
103-65-1	PS	n-Propylbenzene	50.0	0.00	U	46.6	93	61-131
95-49-8	PS	2-Chlorotoluene	50.0	0.00	U	48.0	96	66-126
98-82-8	PS	Isopropylbenzene	50.0	0.00	U	47.3	95	65-130
108-67-8	PS	1,3,5-Trimethylbenzene	50.0	0.00	U	47.7	95	58-134
106-43-4	PS	4-Chlorotoluene	50.0	0.00	U	46.8	94	63-125
98-06-6	PS	tert-Butylbenzene	50.0	0.00	U	48.3	97	66-129
95-63-6	PS	1,2,4-Trimethylbenzene	50.0	0.00	U	47.2	94	60-131
135-98-8	PS	sec-Butylbenzene	50.0	0.00	U	47.6	95	62-130
99-87-6	PS	4-Isopropyltoluene	50.0	0.00	U	47.7	95	62-132
541-73-1	PS	1,3-Dichlorobenzene	50.0	0.00	U	47.0	94	66-121
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	U	46.5	93	65-119
104-51-8	PS	n-Butylbenzene	50.0	0.00	U	47.4	95	55-134
96-12-8	PS	1,2-Dibromo-3-chloropropane	50.0	0.00	U	57.1	114	58-137
87-68-3	PS	Hexachlorobutadiene	50.0	0.00	U	48.5	97	49-139
91-20-3	PS	Naphthalene	50.0	0.00	U	48.0	96	46-145

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Sample Type: **Post Spike**
Client ID: **CAMO-13-24279PS**
Matrix: **W**
Lab Sample ID: **1202778861**
Instrument: **VOA9.I**
Analysis Date: **11/15/2012 17:05**
Dilution: 1
Analyst: **RXY1**
Prep Batch ID: **1262779**
Purge Vol: **5 mL**
Batch ID: **1262779**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	PS	1,2,3-Trichlorobenzene	50.0	0.00	U	45.5	91	54-134
630-20-6	PS	1,1,1,2-Tetrachloroethane	50.0	0.00	U	47.0	94	79-128
120-82-1	PS	1,2,4-Trichlorobenzene	50.0	0.00	U	45.0	90	55-128
95-50-1	PS	1,2-Dichlorobenzene	50.0	0.00	U	46.7	93	68-121

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **CAMO-13-24279PSD**
Lab Sample ID: **1202778862**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/15/2012 17:33**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
75-71-8	PSD	Dichlorodifluoromethane	50.0	0.00	U	43.7	87	36-123	0	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	U	42.9	86	47-134	5	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	U	41.0	82	49-129	5	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	U	43.6	87	56-127	4	0-20
75-00-3	PSD	Chloroethane	50.0	0.00	U	45.4	91	67-122	4	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	U	45.5	91	60-123	2	0-20
60-29-7	PSD	Ethyl ether	50.0	0.00	U	46.2	92	69-121	1	0-20
67-64-1	PSD	Acetone	250	0.00	U	142	57	30-143	3	0-20
75-05-8	PSD	Acetonitrile	1250	0.00	U	1180	94	60-133	4	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	U	48.6	97	67-132	1	0-20
74-88-4	PSD	Iodomethane	250	0.00	U	254	102	69-147	1	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	U	46.7	93	56-135	1	0-20
75-15-0	PSD	Carbon disulfide	250	0.00	U	248	99	65-153	2	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	U	45.8	92	73-126	3	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	U	47.6	95	69-128	2	0-20
108-05-4	PSD	Vinyl acetate	250	0.00	U	212	85	50-143	6	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	U	46.7	93	75-124	2	0-20
78-93-3	PSD	2-Butanone	250	0.00	U	175	70	30-140	4	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	U	46.1	92	52-147	2	0-20
594-20-7	PSD	2,2-Dichloropropane	50.0	0.00	U	48.0	96	67-143	4	0-20
67-66-3	PSD	Chloroform	50.0	0.00	U	46.0	92	75-125	2	0-20
74-97-5	PSD	Bromochloromethane	50.0	0.00	U	47.2	94	80-120	4	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **CAMO-13-24279PSD**
Lab Sample ID: **1202778862**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/15/2012 17:33**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
71-55-6	PSD	1,1,1-Trichloroethane	50.0	0.00	U	48.9	98	69-140	3	0-20
563-58-6	PSD	1,1-Dichloropropene	50.0	0.00	U	48.8	98	71-130	2	0-20
71-36-3	PSD	n-Butyl alcohol	5000	0.00	U	5090	102	53-150	7	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	U	52.0	104	69-142	2	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	U	45.0	90	72-126	5	0-20
71-43-2	PSD	Benzene	50.0	0.00	U	45.7	91	73-119	3	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	U	47.7	95	54-147	3	0-20
78-87-5	PSD	1,2-Dichloropropane	50.0	0.00	U	45.9	92	78-123	4	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	U	49.5	99	76-131	4	0-20
74-95-3	PSD	Dibromomethane	50.0	0.00	U	47.2	94	79-120	4	0-20
108-10-1	PSD	4-Methyl-2-pentanone	250	0.00	U	249	100	68-136	1	0-20
10061-01-5	PSD	cis-1,3-Dichloropropylene	50.0	0.00	U	50.0	100	72-134	5	0-20
108-88-3	PSD	Toluene	50.0	0.00	U	44.8	90	62-126	1	0-20
10061-02-6	PSD	trans-1,3-Dichloropropylene	50.0	0.00	U	49.9	100	72-133	2	0-20
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	U	46.0	92	74-120	3	0-20
591-78-6	PSD	2-Hexanone	250	0.00	U	187	75	31-132	2	0-20
142-28-9	PSD	1,3-Dichloropropane	50.0	0.00	U	44.5	89	73-121	4	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	U	47.1	94	54-139	2	0-20
124-48-1	PSD	Dibromochloromethane	50.0	0.00	U	51.3	103	74-128	2	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	U	49.5	99	80-120	4	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.00	U	45.8	92	73-119	1	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	U	45.4	91	66-125	2	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **CAMO-13-24279PSD**
Lab Sample ID: **1202778862**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **11/15/2012 17:33**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	PSD	m,p-Xylenes	100	0.00	U	94.8	95	56-134	3	0-20
95-47-6	PSD	o-Xylene	50.0	0.00	U	47.1	94	68-126	2	0-20
100-42-5	PSD	Styrene	50.0	0.00	U	48.5	97	57-138	3	0-20
75-25-2	PSD	Bromoform	50.0	0.00	U	55.2	110	66-129	4	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	U	47.2	94	44-146	5	0-20
96-18-4	PSD	1,2,3-Trichloropropane	50.0	0.00	U	46.8	94	68-129	5	0-20
108-86-1	PSD	Bromobenzene	50.0	0.00	U	46.1	92	70-122	5	0-20
103-65-1	PSD	n-Propylbenzene	50.0	0.00	U	44.5	89	61-131	5	0-20
95-49-8	PSD	2-Chlorotoluene	50.0	0.00	U	45.5	91	66-126	5	0-20
98-82-8	PSD	Isopropylbenzene	50.0	0.00	U	46.2	92	65-130	2	0-20
108-67-8	PSD	1,3,5-Trimethylbenzene	50.0	0.00	U	45.5	91	58-134	5	0-20
106-43-4	PSD	4-Chlorotoluene	50.0	0.00	U	43.6	87	63-125	7	0-20
98-06-6	PSD	tert-Butylbenzene	50.0	0.00	U	47.9	96	66-129	1	0-20
95-63-6	PSD	1,2,4-Trimethylbenzene	50.0	0.00	U	45.0	90	60-131	5	0-20
135-98-8	PSD	sec-Butylbenzene	50.0	0.00	U	46.7	93	62-130	2	0-20
99-87-6	PSD	4-Isopropyltoluene	50.0	0.00	U	46.1	92	62-132	3	0-20
541-73-1	PSD	1,3-Dichlorobenzene	50.0	0.00	U	44.5	89	66-121	5	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	U	43.8	88	65-119	6	0-20
104-51-8	PSD	n-Butylbenzene	50.0	0.00	U	45.0	90	55-134	5	0-20
96-12-8	PSD	1,2-Dibromo-3-chloropropane	50.0	0.00	U	57.2	114	58-137	0	0-20
87-68-3	PSD	Hexachlorobutadiene	50.0	0.00	U	48.8	98	49-139	1	0-20
91-20-3	PSD	Naphthalene	50.0	0.00	U	48.5	97	46-145	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Sample Type: **Post Spike Duplicate**
Client ID: **CAMO-13-24279PSD**
Matrix: **W**
Lab Sample ID: **1202778862**
Instrument: **VOA9.I**
Analysis Date: **11/15/2012 17:33**
Dilution: 1
Analyst: **RXY1**
Prep Batch ID: **1262779**
Purge Vol: **5 mL**
Batch ID: **1262779**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
87-61-6	PSD	1,2,3-Trichlorobenzene	50.0	0.00	U	45.8	92	54-134	1	0-20
630-20-6	PSD	1,1,1,2-Tetrachloroethane	50.0	0.00	U	47.2	94	79-128	1	0-20
120-82-1	PSD	1,2,4-Trichlorobenzene	50.0	0.00	U	44.2	88	55-128	2	0-20
95-50-1	PSD	1,2-Dichlorobenzene	50.0	0.00	U	44.7	89	68-121	4	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202778863**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/13/2012 08:24**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	58.5	117	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	57.9	116	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	53.1	106	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	50.1	100	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	50.2	100	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	62.1	124 *	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	54.1	108	74-120
67-64-1	LCS	Acetone	250	0.0	354	141	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	1330	106	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	56.7	113	76-127
74-88-4	LCS	Iodomethane	250	0.0	273	109	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	46.9	94	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	239	96	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	55.9	112	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	54.1	108	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	305	122	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	52.1	104	79-120
78-93-3	LCS	2-Butanone	250	0.0	381	152	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	55.9	112	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	63.4	127	76-145
67-66-3	LCS	Chloroform	50.0	0.0	56.6	113	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	55.9	112	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202778863**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/13/2012 08:24**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	63.9	128	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	54.0	108	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	6690	134	66-138
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	68.8	138	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	59.6	119	75-121
71-43-2	LCS	Benzene	50.0	0.0	48.1	96	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	52.8	106	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	48.6	97	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	61.3	123	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	54.0	108	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	286	114	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	56.7	113	80-127
108-88-3	LCS	Toluene	50.0	0.0	45.9	92	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	56.7	113	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	47.1	94	79-120
591-78-6	LCS	2-Hexanone	250	0.0	362	145	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	44.7	89	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	50.4	101	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	61.0	122	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	52.3	105	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	47.6	95	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	46.4	93	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202778863**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/13/2012 08:24**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	96.6	97	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	48.0	96	80-120
100-42-5	LCS	Styrene	50.0	0.0	49.2	98	80-121
75-25-2	LCS	Bromoform	50.0	0.0	64.0	128 *	72-125
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	45.4	91	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	50.7	101	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	47.6	95	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	45.9	92	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	46.2	92	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	48.8	98	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	50.1	100	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	48.3	97	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	51.0	102	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	49.0	98	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	48.2	96	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	50.2	100	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	46.3	93	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	47.3	95	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	47.4	95	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	64.4	129 *	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	59.1	118	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	59.2	118	71-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202778863**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/13/2012 08:24**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	60.2	120	73-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	58.0	116	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	57.6	115	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	47.6	95	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202778864**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/13/2012 09:43**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS	Acrolein	250	0.0	279	111	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	302	121	65-157
107-05-1	LCS	Allyl chloride	250	0.0	267	107	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	267	107	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	65.9	132	45-159
107-12-0	LCS	Propionitrile	250	0.0	278	111	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	269	108	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2780	111	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	239	96	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	224	90	66-132

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202780091**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/15/2012 11:07**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	41.2	82	39-124
74-87-3	LCS	Chloromethane	50.0	0.0	40.7	81	57-126
75-01-4	LCS	Vinyl chloride	50.0	0.0	40.2	80	62-121
74-83-9	LCS	Bromomethane	50.0	0.0	42.3	85	68-120
75-00-3	LCS	Chloroethane	50.0	0.0	44.8	90	73-120
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	44.1	88	65-123
60-29-7	LCS	Ethyl ether	50.0	0.0	46.7	93	74-120
67-64-1	LCS	Acetone	250	0.0	222	89	36-163
75-05-8	LCS	Acetonitrile	1250	0.0	1130	90	64-127
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	46.2	92	76-127
74-88-4	LCS	Iodomethane	250	0.0	254	101	80-134
75-09-2	LCS	Methylene chloride	50.0	0.0	44.5	89	72-121
75-15-0	LCS	Carbon disulfide	250	0.0	230	92	80-143
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	46.7	93	76-123
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	45.7	91	77-123
108-05-4	LCS	Vinyl acetate	250	0.0	242	97	75-144
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	45.2	90	79-120
78-93-3	LCS	2-Butanone	250	0.0	260	104	46-158
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	44.9	90	80-122
594-20-7	LCS	2,2-Dichloropropane	50.0	0.0	47.5	95	76-145
67-66-3	LCS	Chloroform	50.0	0.0	44.1	88	80-120
74-97-5	LCS	Bromochloromethane	50.0	0.0	49.7	99	83-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202780091**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/15/2012 11:07**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	48.0	96	80-133
563-58-6	LCS	1,1-Dichloropropene	50.0	0.0	46.1	92	80-127
71-36-3	LCS	n-Butyl alcohol	5000	0.0	5280	106	66-138
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	50.6	101	77-139
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	45.4	91	75-121
71-43-2	LCS	Benzene	50.0	0.0	45.0	90	79-120
79-01-6	LCS	Trichloroethylene	50.0	0.0	47.5	95	80-121
78-87-5	LCS	1,2-Dichloropropane	50.0	0.0	46.7	93	80-120
75-27-4	LCS	Bromodichloromethane	50.0	0.0	50.7	101	80-127
74-95-3	LCS	Dibromomethane	50.0	0.0	49.3	99	80-120
108-10-1	LCS	4-Methyl-2-pentanone	250	0.0	269	108	76-131
10061-01-5	LCS	cis-1,3-Dichloropropylene	50.0	0.0	51.7	103	80-127
108-88-3	LCS	Toluene	50.0	0.0	43.8	88	77-120
10061-02-6	LCS	trans-1,3-Dichloropropylene	50.0	0.0	50.8	102	80-128
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	46.2	92	79-120
591-78-6	LCS	2-Hexanone	250	0.0	279	112	53-158
142-28-9	LCS	1,3-Dichloropropane	50.0	0.0	43.8	88	77-120
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	48.5	97	77-125
124-48-1	LCS	Dibromochloromethane	50.0	0.0	53.1	106	77-126
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	50.5	101	80-120
108-90-7	LCS	Chlorobenzene	50.0	0.0	45.8	92	80-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	44.0	88	78-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202780091**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/15/2012 11:07**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	LCS	m,p-Xylenes	100	0.0	94.5	95	79-120
95-47-6	LCS	o-Xylene	50.0	0.0	46.6	93	80-120
100-42-5	LCS	Styrene	50.0	0.0	49.3	99	80-121
75-25-2	LCS	Bromoform	50.0	0.0	58.5	117	72-125
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	46.4	93	73-120
96-18-4	LCS	1,2,3-Trichloropropane	50.0	0.0	49.2	98	74-121
108-86-1	LCS	Bromobenzene	50.0	0.0	47.6	95	79-120
103-65-1	LCS	n-Propylbenzene	50.0	0.0	43.5	87	75-125
95-49-8	LCS	2-Chlorotoluene	50.0	0.0	46.8	94	77-121
98-82-8	LCS	Isopropylbenzene	50.0	0.0	45.7	91	76-125
108-67-8	LCS	1,3,5-Trimethylbenzene	50.0	0.0	45.9	92	77-123
106-43-4	LCS	4-Chlorotoluene	50.0	0.0	44.2	88	75-120
98-06-6	LCS	tert-Butylbenzene	50.0	0.0	48.8	98	79-123
95-63-6	LCS	1,2,4-Trimethylbenzene	50.0	0.0	45.7	91	77-121
135-98-8	LCS	sec-Butylbenzene	50.0	0.0	45.4	91	76-124
99-87-6	LCS	4-Isopropyltoluene	50.0	0.0	46.3	93	79-125
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	47.2	94	78-120
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	46.5	93	77-120
104-51-8	LCS	n-Butylbenzene	50.0	0.0	45.2	90	75-127
96-12-8	LCS	1,2-Dibromo-3-chloropropane	50.0	0.0	58.8	118	69-128
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	50.6	101	75-128
91-20-3	LCS	Naphthalene	50.0	0.0	49.1	98	71-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202780091**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/15/2012 11:07**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
87-61-6	LCS	1,2,3-Trichlorobenzene	50.0	0.0	48.3	97	73-125
630-20-6	LCS	1,1,1,2-Tetrachloroethane	50.0	0.0	49.0	98	80-124
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	49.6	99	75-123
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	47.0	94	79-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **LCS for batch 1262779**
Lab Sample ID: **1202780092**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/15/2012 14:23**
Prep Batch ID: **1262779**
Batch ID: **1262779**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
107-02-8	LCS	Acrolein	250	0.0	212	85	28-152
76-13-1	LCS	Trichlorotrifluoroethane	250	0.0	292	117	65-157
107-05-1	LCS	Allyl chloride	250	0.0	258	103	60-135
107-13-1	LCS	Acrylonitrile	250	0.0	250	100	64-131
126-99-8	LCS	2-Chloro-1,3-butadiene	50.0	0.0	58.6	117	45-159
107-12-0	LCS	Propionitrile	250	0.0	258	103	67-135
126-98-7	LCS	Methacrylonitrile	250	0.0	242	97	64-132
78-83-1	LCS	Isobutyl alcohol	2500	0.0	2290	92	60-136
80-62-6	LCS	Methyl methacrylate	250	0.0	247	99	66-129
97-63-2	LCS	Ethyl methacrylate	250	0.0	243	97	66-132

Method Blank Summary

SDG Number:	**2013-265**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1262779**	**Instrument ID:**	**VOA9.I**	**Data File:**	**111312V9\9M207B3.D**
Lab Sample ID:	**1202778860**	**Prep Date:**	**11/13/2012 10:10**	**Analyzed:**	**11/13/12 10:10**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1262779	1202778863	111312V9\9M203L3.D	11/13/12	0824
02 LCS for batch 1262779	1202778864	111312V9\9M206L.D	11/13/12	0943
03 CAMO-13-24274	314528003	111312V9\9M209.D	11/13/12	1104
04 CAMO-13-24279	314528001	111312V9\9M211.D	11/13/12	1158

Method Blank Summary

SDG Number:	**2013-265**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1262779**	**Instrument ID:**	**VOA9.I**	**Data File:**	**111512V9\9M411B1.D**
Lab Sample ID:	**1202780090**	**Prep Date:**	**11/15/2012 14:49**	**Analyzed:**	**11/15/12 14:49**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
06 LCS for batch 1262779	1202780091	111512V9\9M403L1.D	11/15/12	1107
07 LCS for batch 1262779	1202780092	111512V9\9M410L.D	11/15/12	1423
08 CAMO-13-24279PS	1202778861	111512V9\9M416.D	11/15/12	1705
09 CAMO-13-24279PSD	1202778862	111512V9\9M417.D	11/15/12	1733

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778860**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 10:10**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 10:10**				
Data File:	**111312V9\9M207B3.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	J	0.390	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778860**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 10:10**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 10:10**				
Data File:	**111312V9\9M207B3.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778860**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 10:10**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 10:10**				
Data File:	**111312V9\9M207B3.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	55.5	50.0	ug/L	111	(78%-124%)
Bromofluorobenzene	49.1	50.0	ug/L	98.2	(80%-120%)
Toluene-d8	47.4	50.0	ug/L	94.8	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.286	6.46	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202778861**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 17:05**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 17:05**				
Data File:	**111512V9\9M416.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		43.8	ug/L	0.300	1.00
74-87-3	Chloromethane		45.3	ug/L	0.300	1.00
75-01-4	Vinyl chloride		43.0	ug/L	0.300	1.00
74-83-9	Bromomethane		45.5	ug/L	0.300	1.00
75-00-3	Chloroethane		47.0	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		46.2	ug/L	0.300	1.00
60-29-7	Ethyl ether		45.6	ug/L	0.300	1.00
67-64-1	Acetone		146	ug/L	3.00	10.0
75-05-8	Acetonitrile		1230	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		49.2	ug/L	0.300	1.00
74-88-4	Iodomethane		257	ug/L	1.50	5.00
75-09-2	Methylene chloride		47.1	ug/L	3.00	10.0
75-15-0	Carbon disulfide		253	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		47.1	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		48.4	ug/L	0.300	1.00
108-05-4	Vinyl acetate		226	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		47.4	ug/L	0.300	1.00
78-93-3	2-Butanone		182	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		47.2	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		49.8	ug/L	0.300	1.00
67-66-3	Chloroform		47.0	ug/L	0.300	1.00
74-97-5	Bromochloromethane		49.0	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		50.2	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		49.7	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5480	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		53.1	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		47.1	ug/L	0.300	1.00
71-43-2	Benzene		47.2	ug/L	0.300	1.00
79-01-6	Trichloroethylene		49.2	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		47.8	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		51.3	ug/L	0.300	1.00
74-95-3	Dibromomethane		49.2	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		246	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		52.7	ug/L	0.300	1.00
108-88-3	Toluene		45.2	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		51.1	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		47.5	ug/L	0.300	1.00
591-78-6	2-Hexanone		191	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202778861**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 17:05**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 17:05**				
Data File:	**111512V9\9M416.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		46.5	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		47.9	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		52.6	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		51.6	ug/L	0.300	1.00
108-90-7	Chlorobenzene		46.3	ug/L	0.300	1.00
100-41-4	Ethylbenzene		46.3	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		97.2	ug/L	0.300	2.00
95-47-6	o-Xylene		47.8	ug/L	0.300	1.00
100-42-5	Styrene		50.0	ug/L	0.300	1.00
75-25-2	Bromoform		57.6	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		49.6	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		48.9	ug/L	0.300	1.00
108-86-1	Bromobenzene		48.5	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		46.6	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		48.0	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		47.3	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		47.7	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		46.8	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		48.3	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		47.2	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		47.6	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		47.7	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		47.0	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		46.5	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		47.4	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		57.1	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		48.5	ug/L	0.300	1.00
91-20-3	Naphthalene		48.0	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		45.5	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202778861**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279PS**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 17:05**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 17:05**				
Data File:	**111512V9\9M416.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		47.0	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		45.0	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		46.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	50.3	50.0	ug/L	101	(78%-124%)
Bromofluorobenzene	50.9	50.0	ug/L	102	(80%-120%)
Toluene-d8	48.8	50.0	ug/L	97.6	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202778862**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 17:33**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 17:33**				
Data File:	**111512V9\9M417.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		43.7	ug/L	0.300	1.00
74-87-3	Chloromethane		42.9	ug/L	0.300	1.00
75-01-4	Vinyl chloride		41.0	ug/L	0.300	1.00
74-83-9	Bromomethane		43.6	ug/L	0.300	1.00
75-00-3	Chloroethane		45.4	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		45.5	ug/L	0.300	1.00
60-29-7	Ethyl ether		46.2	ug/L	0.300	1.00
67-64-1	Acetone		142	ug/L	3.00	10.0
75-05-8	Acetonitrile		1180	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		48.6	ug/L	0.300	1.00
74-88-4	Iodomethane		254	ug/L	1.50	5.00
75-09-2	Methylene chloride		46.7	ug/L	3.00	10.0
75-15-0	Carbon disulfide		248	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		45.8	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		47.6	ug/L	0.300	1.00
108-05-4	Vinyl acetate		212	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		46.7	ug/L	0.300	1.00
78-93-3	2-Butanone		175	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		46.1	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		48.0	ug/L	0.300	1.00
67-66-3	Chloroform		46.0	ug/L	0.300	1.00
74-97-5	Bromochloromethane		47.2	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		48.9	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		48.8	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5090	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		52.0	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		45.0	ug/L	0.300	1.00
71-43-2	Benzene		45.7	ug/L	0.300	1.00
79-01-6	Trichloroethylene		47.7	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		45.9	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		49.5	ug/L	0.300	1.00
74-95-3	Dibromomethane		47.2	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		249	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		50.0	ug/L	0.300	1.00
108-88-3	Toluene		44.8	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		49.9	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		46.0	ug/L	0.300	1.00
591-78-6	2-Hexanone		187	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202778862**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 17:33**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 17:33**				
Data File:	**111512V9\9M417.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		44.5	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		47.1	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		51.3	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		49.5	ug/L	0.300	1.00
108-90-7	Chlorobenzene		45.8	ug/L	0.300	1.00
100-41-4	Ethylbenzene		45.4	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		94.8	ug/L	0.300	2.00
95-47-6	o-Xylene		47.1	ug/L	0.300	1.00
100-42-5	Styrene		48.5	ug/L	0.300	1.00
75-25-2	Bromoform		55.2	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		47.2	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		46.8	ug/L	0.300	1.00
108-86-1	Bromobenzene		46.1	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		44.5	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		45.5	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		46.2	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		45.5	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		43.6	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		47.9	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		45.0	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		46.7	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		46.1	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		44.5	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		43.8	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		45.0	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		57.2	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		48.8	ug/L	0.300	1.00
91-20-3	Naphthalene		48.5	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		45.8	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202778862**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279PSD**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 17:33**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 17:33**				
Data File:	**111512V9\9M417.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		47.2	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		44.2	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		44.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	53.9	50.0	ug/L	108	(78%-124%)
Bromofluorobenzene	53.0	50.0	ug/L	106	(80%-120%)
Toluene-d8	52.7	50.0	ug/L	105	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778863**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 08:24**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 08:24**				
Data File:	**111312V9\9M203L3.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		58.5	ug/L	0.300	1.00
74-87-3	Chloromethane		57.9	ug/L	0.300	1.00
75-01-4	Vinyl chloride		53.1	ug/L	0.300	1.00
74-83-9	Bromomethane		50.1	ug/L	0.300	1.00
75-00-3	Chloroethane		50.2	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		62.1	ug/L	0.300	1.00
60-29-7	Ethyl ether	B	54.1	ug/L	0.300	1.00
67-64-1	Acetone		354	ug/L	3.00	10.0
75-05-8	Acetonitrile		1330	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		56.7	ug/L	0.300	1.00
74-88-4	Iodomethane		273	ug/L	1.50	5.00
75-09-2	Methylene chloride		46.9	ug/L	3.00	10.0
75-15-0	Carbon disulfide		239	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		55.9	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		54.1	ug/L	0.300	1.00
108-05-4	Vinyl acetate		305	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		52.1	ug/L	0.300	1.00
78-93-3	2-Butanone		381	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		55.9	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		63.4	ug/L	0.300	1.00
67-66-3	Chloroform		56.6	ug/L	0.300	1.00
74-97-5	Bromochloromethane		55.9	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		63.9	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		54.0	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		6690	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		68.8	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		59.6	ug/L	0.300	1.00
71-43-2	Benzene		48.1	ug/L	0.300	1.00
79-01-6	Trichloroethylene		52.8	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		48.6	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		61.3	ug/L	0.300	1.00
74-95-3	Dibromomethane		54.0	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		286	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		56.7	ug/L	0.300	1.00
108-88-3	Toluene		45.9	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		56.7	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		47.1	ug/L	0.300	1.00
591-78-6	2-Hexanone		362	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778863**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 08:24**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 08:24**				
Data File:	**111312V9\9M203L3.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		44.7	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		50.4	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		61.0	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		52.3	ug/L	0.300	1.00
108-90-7	Chlorobenzene		47.6	ug/L	0.300	1.00
100-41-4	Ethylbenzene		46.4	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		96.6	ug/L	0.300	2.00
95-47-6	o-Xylene		48.0	ug/L	0.300	1.00
100-42-5	Styrene		49.2	ug/L	0.300	1.00
75-25-2	Bromoform		64.0	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		45.4	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		50.7	ug/L	0.300	1.00
108-86-1	Bromobenzene		47.6	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		45.9	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		46.2	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		48.8	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		50.1	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		48.3	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		51.0	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		49.0	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		48.2	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		50.2	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		46.3	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		47.3	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		47.4	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		64.4	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		59.1	ug/L	0.300	1.00
91-20-3	Naphthalene		59.2	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		60.2	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778863**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 08:24**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 08:24**				
Data File:	**111312V9\9M203L3.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		58.0	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		57.6	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		47.6	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	60.3	50.0	ug/L	121	(78%-124%)
Bromofluorobenzene	50.8	50.0	ug/L	102	(80%-120%)
Toluene-d8	48.1	50.0	ug/L	96.2	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778864**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 09:43**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 09:43**				
Data File:	**111312V9\9M206L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778864**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 09:43**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 09:43**				
Data File:	**111312V9\9M206L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein		279	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		302	ug/L	1.50	5.00
107-05-1	Allyl chloride		267	ug/L	1.50	5.00
107-13-1	Acrylonitrile		267	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		65.9	ug/L	0.300	1.00
107-12-0	Propionitrile		278	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		269	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2780	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		239	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202778864**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/13/2012 09:43**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/13/2012 09:43**				
Data File:	**111312V9\9M206L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		224	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	56.0	50.0	ug/L	112	(78%-124%)
Bromofluorobenzene	49.0	50.0	ug/L	98.0	(80%-120%)
Toluene-d8	46.9	50.0	ug/L	93.8	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780090**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 14:49**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 14:49**				
Data File:	**111512V9\9M411B1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780090**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 14:49**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 14:49**				
Data File:	**111512V9\9M411B1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780090**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 14:49**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 14:49**				
Data File:	**111512V9\9M411B1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	49.7	50.0	ug/L	99.3	(78%-124%)
Bromofluorobenzene	51.4	50.0	ug/L	103	(80%-120%)
Toluene-d8	48.4	50.0	ug/L	96.8	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown hydrocarbon	4.286	6.07	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780091**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 11:07**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 11:07**				
Data File:	**111512V9\9M403L1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane		41.2	ug/L	0.300	1.00
74-87-3	Chloromethane		40.7	ug/L	0.300	1.00
75-01-4	Vinyl chloride		40.2	ug/L	0.300	1.00
74-83-9	Bromomethane		42.3	ug/L	0.300	1.00
75-00-3	Chloroethane		44.8	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		44.1	ug/L	0.300	1.00
60-29-7	Ethyl ether		46.7	ug/L	0.300	1.00
67-64-1	Acetone		222	ug/L	3.00	10.0
75-05-8	Acetonitrile		1130	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene		46.2	ug/L	0.300	1.00
74-88-4	Iodomethane		254	ug/L	1.50	5.00
75-09-2	Methylene chloride		44.5	ug/L	3.00	10.0
75-15-0	Carbon disulfide		230	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether		46.7	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		45.7	ug/L	0.300	1.00
108-05-4	Vinyl acetate		242	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane		45.2	ug/L	0.300	1.00
78-93-3	2-Butanone		260	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene		44.9	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane		47.5	ug/L	0.300	1.00
67-66-3	Chloroform		44.1	ug/L	0.300	1.00
74-97-5	Bromochloromethane		49.7	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane		48.0	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene		46.1	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol		5280	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride		50.6	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		45.4	ug/L	0.300	1.00
71-43-2	Benzene		45.0	ug/L	0.300	1.00
79-01-6	Trichloroethylene		47.5	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane		46.7	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		50.7	ug/L	0.300	1.00
74-95-3	Dibromomethane		49.3	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone		269	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene		51.7	ug/L	0.300	1.00
108-88-3	Toluene		43.8	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene		50.8	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		46.2	ug/L	0.300	1.00
591-78-6	2-Hexanone		279	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780091**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 11:07**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 11:07**				
Data File:	**111512V9\9M403L1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane		43.8	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene		48.5	ug/L	0.300	1.00
124-48-1	Dibromochloromethane		53.1	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		50.5	ug/L	0.300	1.00
108-90-7	Chlorobenzene		45.8	ug/L	0.300	1.00
100-41-4	Ethylbenzene		44.0	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		94.5	ug/L	0.300	2.00
95-47-6	o-Xylene		46.6	ug/L	0.300	1.00
100-42-5	Styrene		49.3	ug/L	0.300	1.00
75-25-2	Bromoform		58.5	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		46.4	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane		49.2	ug/L	0.300	1.00
108-86-1	Bromobenzene		47.6	ug/L	0.300	1.00
103-65-1	n-Propylbenzene		43.5	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene		46.8	ug/L	0.300	1.00
98-82-8	Isopropylbenzene		45.7	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene		45.9	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene		44.2	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene		48.8	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene		45.7	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene		45.4	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene		46.3	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene		47.2	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene		46.5	ug/L	0.300	1.00
104-51-8	n-Butylbenzene		45.2	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane		58.8	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene		50.6	ug/L	0.300	1.00
91-20-3	Naphthalene		49.1	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene		48.3	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780091**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 11:07**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 11:07**				
Data File:	**111512V9\9M403L1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane		49.0	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene		49.6	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene		47.0	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.2	50.0	ug/L	96.3	(78%-124%)
Bromofluorobenzene	48.9	50.0	ug/L	97.8	(80%-120%)
Toluene-d8	48.6	50.0	ug/L	97.2	(80%-120%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780092**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 14:23**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 14:23**				
Data File:	**111512V9\9M410L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone	U	10.0	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	U	10.0	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform	U	1.00	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780092**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 14:23**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 14:23**				
Data File:	**111512V9\9M410L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein		212	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane		292	ug/L	1.50	5.00
107-05-1	Allyl chloride		258	ug/L	1.50	5.00
107-13-1	Acrylonitrile		250	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene		58.6	ug/L	0.300	1.00
107-12-0	Propionitrile		258	ug/L	1.50	5.00
126-98-7	Methacrylonitrile		242	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol		2290	ug/L	15.0	50.0
80-62-6	Methyl methacrylate		247	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202780092**				
Client Sample:	**QC for batch 1262779**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1262779**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1262779**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**11/15/2012 14:23**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**11/15/2012 14:23**				
Data File:	**111512V9\9M410L.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate		243	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	45.3	50.0	ug/L	90.7	(78%-124%)
Bromofluorobenzene	49.5	50.0	ug/L	99.0	(80%-120%)
Toluene-d8	47.1	50.0	ug/L	94.3	(80%-120%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
19-NOV-12	Federal	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
VOA GC/MS	SW846 8260B DOE-AL	Liquid	ESHL 314528, 314591
Batch ID:	**Sample Numbers:**		
1262779	1202778863		

Potentially affected work order(s)(SDG): 314528(2013-265),314591(2013-267)

Application Issues:

Failed Recovery for LCS/LCSD

Specification and Requirements Exception Description:	DER Disposition:
1. The LCS 1202778863 did not meet the acceptable recovery criteria for several of the compounds of interest.	1. The unacceptable recoveries were less than 5% of the required analyte list. This satified the client's criteria. The data were narrated and reported.

Originator's Name:

Ramona Yarbrough 19-NOV-12

Data Validator/Group Leader:

Kelle Bellamy 27-NOV-12

Semi-Volatile Analysis

Case Narrative

Semi-Volatile Case Narrative
ARS International (ARSL)
SDG 2013-265

Method/Analysis Information

Procedure:	**Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method:	SW846 8270C
Prep Method:	SW846 3510C
Analytical Batch Number:	1261145
Prep Batch Number:	1261144

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8270C:

Sample ID	Client ID
314528001	CAMO-13-24279
1202774963	Method Blank (MB)
1202774964	314528001(CAMO-13-24279) Matrix Spike (MS)
1202774965	314528001(CAMO-13-24279) Matrix Spike Duplicate (MSD)
1202774966	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 29.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP) section 18.2.

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in

the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

CCV Requirements
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG in this batch met the acceptance criteria.

Surrogate Recoveries
All the surrogate recoveries were within the established acceptance criteria for this SDG in this batch.

Laboratory Control Sample (LCS) Recovery
The LCS(1202774966) recovered Benzidine at 6.32%. The limits are 19%-124%. Benzidine is identified as poor responding analyte in the analytical method (EPA 8270) and is subject to oxidative loss during extraction. This may account for the low recovery of the analyte. The data results have been reported.

QC Sample Designation
Sample 314528001 (CAMO-13-24279) was selected for analysis as the matrix spike and matrix spike duplicate.

Matrix Spike (MS) Recovery Statement
The MS recoveries were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The MS(1202774964(CAMO-13-24279))/MSD(1202774965(CAMO-13-24279)) RPD value for Benzidine was outside of the acceptance limits. Please see the QC Summary report for specific failure. Since Benzidine was individually within the acceptance limits for the MS and MSD, the non-conformance had no adverse impact on the data and the results have been reported.

Internal Standard (ISTD) Acceptance
The internal standard responses used to quantitate the requested target analytes were within the required acceptance criteria for the SDG associated samples in this batch.

Technical Information:

Holding Time Specifications
All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

Sample Dilutions
The samples in this SDG in this batch did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG in this analytical batch unless confirmations or dilutions were required.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception report 1138269 was generated for this SDG.

Manual Integrations
Some initial calibration standards, continuing calibration standards, and/or samples may require manual integrations due to software limitations. Manual integrations, if any, are included with the raw data.

TIC Comment
Tentatively identified compounds (TIC) may be requested for samples in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, are included on the Sample Data Summary (Form 1) and are also included with the sample raw data.

Additional Comments
Due to rounding differences in the calculation, the data reported in the Surrogate Recovery Report may differ slightly from the raw data. Due to software issue, the raw data may not correctly display the updated SPC limits. Please see Sample Data Summary Report and Surrogate Recovery Report for the correct surrogate acceptance limits.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

System Configuration

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
MSD3.I	Agilent 7890A/5975C GC/MS w/ 7683 Autosampler	HP7890A/HP5975C	DB-5MS	25m x 0.2mm, 0.33um (5% Phenylmethylpolysiloxane)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-265 GEL Work Order: 314528

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Barbara Bailey **Name: Barbara Bailey**

Date: 27 NOV 2012 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**314528001**	**Date Received:**	**11/03/2012 09:30**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24279**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/08/2012 23:45**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0828.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
62-53-3	Aniline	U	10.0	ug/L	3.00	10.0
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
78-59-1	Isophorone	U	10.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
65-85-0	Benzoic acid	U	20.0	ug/L	6.00	20.0
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene	U	10.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	10.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**314528001**	**Date Received:**	**11/03/2012 09:30**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24279**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/08/2012 23:45**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0828.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline	U	10.0	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene	U	10.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.0	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**314528001**	**Date Received:**	**11/03/2012 09:30**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**CAMO-13-24279**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/08/2012 23:45**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0828.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	64.5	100	ug/L	64.5	(23%-130%)
2-Fluorobiphenyl	30.2	50.0	ug/L	60.3	(30%-104%)
2-Fluorophenol	47.7	100	ug/L	47.7	(14%-77%)
Nitrobenzene-d5	41.1	50.0	ug/L	82.3	(34%-125%)
Phenol-d5	30.7	100	ug/L	30.7	(10%-78%)
p-Terphenyl-d14	42.1	50.0	ug/L	84.1	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.892	5.66	ug/L	0	J
	unknown	2.065	46	ug/L	0	J
	unknown	2.156	14	ug/L	0	J
000110-83-8	Cyclohexene	2.19	20.1	ug/L	95	NJ
197390-29-7	Cyclopentene, 1,2,3,3,4-pentamethy	3.898	4.37	ug/L	91	NJ

Quality Control Summary

Semi-Volatile

Surrogate Recovery Report

SDG Number: 2013-265

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1202774963	MB for batch 1261144	56	35	96	80	74	102
1202774966	LCS for batch 1261144	44	27	69	62	64	78
314528001	CAMO-13-24279	48	31	82	60	64	84
1202774964	CAMO-13-24279MS	64	50	75	62	63	74
1202774965	CAMO-13-24279MSD	62	48	73	64	58	73

Surrogate			Acceptance Limits
2FP	=	2-Fluorophenol	(14%-77%)
PHL	=	Phenol-d5	(10%-78%)
NBZ	=	Nitrobenzene-d5	(34%-125%)
FBP	=	2-Fluorobiphenyl	(30%-104%)
TBP	=	2,4,6-Tribromophenol	(23%-130%)
TPH	=	p-Terphenyl-d14	(33%-136%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265** **Sample Type:** **Matrix Spike**

Client ID: **CAMO-13-24279MS** **Matrix:** **W**

Lab Sample ID: **1202774964**

Instrument: **MSD3.I** **Analysis Date:** **11/09/2012 00:10** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1261144**

Inj. Vol: **1 uL** **Batch ID:** **1261145**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	MS	N-Methyl-N-nitrosomethylam	120	0.00	U	81.8	68	27-85
110-86-1	MS	Pyridine	120	0.00	U	85.1	71	21-93
62-53-3	MS	Aniline	120	0.00	U	109	90	28-108
108-95-2	MS	Phenol	120	0.00	U	65.5	54	15-100
111-44-4	MS	bis(2-Chloroethyl) ether	120	0.00	U	94.5	78	27-114
95-57-8	MS	2-Chlorophenol	120	0.00	U	94.0	78	32-103
541-73-1	MS	1,3-Dichlorobenzene	120	0.00	U	81.7	68	23-84
106-46-7	MS	1,4-Dichlorobenzene	120	0.00	U	81.1	67	23-88
95-50-1	MS	1,2-Dichlorobenzene	120	0.00	U	82.0	68	24-86
39638-32-9	MS	bis(2-Chloroisopropyl)ether	120	0.00	U	89.7	74	19-122
100-51-6	MS	Benzyl alcohol	120	0.00	U	92.1	76	34-98
95-48-7	MS	o-Cresol	120	0.00	U	93.2	77	29-96
65794-96-9	MS	m,p-Cresols	120	0.00	U	116	96	26-111
621-64-7	MS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	120	0.00	U	98.1	81	32-115
67-72-1	MS	Hexachloroethane	120	0.00	U	79.1	66	25-82
98-95-3	MS	Nitrobenzene	120	0.00	U	98.2	82	35-124
78-59-1	MS	Isophorone	120	0.00	U	101	84	37-140
88-75-5	MS	2-Nitrophenol	120	0.00	U	97.3	81	33-115
105-67-9	MS	2,4-Dimethylphenol	120	0.00	U	84.8	70	31-106
111-91-1	MS	bis(2-Chloroethoxy)methane	120	0.00	U	91.0	76	35-112
120-83-2	MS	2,4-Dichlorophenol	120	0.00	U	96.3	80	36-110
65-85-0	MS	Benzoic acid	241	0.00	U	147	61	12-108

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265** **Sample Type:** **Matrix Spike**

Client ID: **CAMO-13-24279MS** **Matrix:** **W**

Lab Sample ID: **1202774964**

Instrument: **MSD3.I** **Analysis Date:** **11/09/2012 00:10** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1261144**

Inj. Vol: **1 uL** **Batch ID:** **1261145**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	MS	4-Chloroaniline	120	0.00	U	93.3	77	33-120
87-68-3	MS	Hexachlorobutadiene	120	0.00	U	90.8	75	19-96
59-50-7	MS	Parachlorometa cresol *4-Chloro-3-methylphenol*	120	0.00	U	96.4	80	36-116
91-57-6	MS	2-Methylnaphthalene	120	0.00	U	75.9	63	27-103
91-20-3	MS	Naphthalene	120	0.00	U	78.8	65	28-99
90-12-0	MS	1-Methylnaphthalene	120	0.00	U	80.5	67	29-107
77-47-4	MS	Hexachlorocyclopentadiene	120	0.00	U	55.1	46	25-75
88-06-2	MS	2,4,6-Trichlorophenol	120	0.00	U	94.3	78	36-111
95-95-4	MS	2,4,5-Trichlorophenol	120	0.00	U	94.6	79	34-115
91-58-7	MS	2-Chloronaphthalene	120	0.00	U	79.3	66	33-96
88-74-4	MS	2-Nitroaniline *o-Nitroaniline*	120	0.00	U	89.5	74	31-120
99-09-2	MS	3-Nitroaniline *m-Nitroaniline*	120	0.00	U	87.4	73	32-123
131-11-3	MS	Dimethylphthalate	120	0.00	U	103	85	43-115
606-20-2	MS	2,6-Dinitrotoluene	120	0.00	U	96.8	80	42-121
121-14-2	MS	2,4-Dinitrotoluene	120	0.00	U	97.6	81	37-125
208-96-8	MS	Acenaphthylene	120	0.00	U	80.6	67	34-103
83-32-9	MS	Acenaphthene	120	0.00	U	80.1	67	31-104
51-28-5	MS	2,4-Dinitrophenol	120	0.00	U	93.2	77	25-108
132-64-9	MS	Dibenzofuran	120	0.00	U	89.5	74	38-106
58-90-2	MS	2,3,4,6-Tetrachlorophenol	120	0.00	U	96.3	80	33-123
84-66-2	MS	Diethylphthalate	120	0.00	U	98.4	82	43-116
100-02-7	MS	4-Nitrophenol	120	0.00	U	53.3	44	26-72

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265** **Sample Type:** **Matrix Spike**

Client ID: **CAMO-13-24279MS** **Matrix:** **W**

Lab Sample ID: **1202774964**

Instrument: **MSD3.I** **Analysis Date:** **11/09/2012 00:10** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1261144**

Inj. Vol: **1 uL** **Batch ID:** **1261145**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	MS	Fluorene	120	0.00	U	86.3	72	33-110
7005-72-3	MS	4-Chlorophenylphenylether	120	0.00	U	95.4	79	30-112
100-01-6	MS	4-Nitroaniline *p-Nitroaniline*	120	0.00	U	87.6	73	28-131
534-52-1	MS	2-Methyl-4,6-dinitrophenol	120	0.00	U	102	85	31-113
122-39-4	MS	Diphenylamine	120	0.00	U	86.8	72	36-110
122-66-7	MS	Azobenzene *1,2-Diphenylhydrazine*	120	0.00	U	91.1	76	33-110
101-55-3	MS	4-Bromophenylphenylether	120	0.00	U	99.9	83	33-111
118-74-1	MS	Hexachlorobenzene	120	0.00	U	86.4	72	36-113
87-86-5	MS	Pentachlorophenol	120	0.00	U	75.6	63	25-110
85-01-8	MS	Phenanthrene	120	0.00	U	88.5	73	36-111
120-12-7	MS	Anthracene	120	0.00	U	85.5	71	36-107
84-74-2	MS	Di-n-butylphthalate	120	0.00	U	94.5	78	38-116
206-44-0	MS	Fluoranthene	120	0.00	U	84.9	70	35-116
129-00-0	MS	Pyrene	120	0.00	U	106	88	28-126
85-68-7	MS	Butylbenzylphthalate	120	0.00	U	101	84	32-120
117-81-7	MS	bis(2-Ethylhexyl)phthalate	120	0.00	U	98.7	82	30-121
56-55-3	MS	Benzo(a)anthracene	120	0.00	U	96.7	80	38-110
218-01-9	MS	Chrysene	120	0.00	U	95.3	79	35-115
117-84-0	MS	Di-n-octylphthalate	120	0.00	U	86.4	72	30-115
205-99-2	MS	Benzo(b)fluoranthene	120	0.00	U	96.9	80	37-115
207-08-9	MS	Benzo(k)fluoranthene	120	0.00	U	96.3	80	36-118
50-32-8	MS	Benzo(a)pyrene	120	0.00	U	92.3	77	36-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **CAMO-13-24279MS**
Lab Sample ID: **1202774964**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **11/09/2012 00:10**
Prep Batch ID: **1261144**
Batch ID: **1261145**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	MS	Indeno(1,2,3-cd)pyrene	120	0.00	U	108	90	28-121
53-70-3	MS	Dibenzo(a,h)anthracene	120	0.00	U	113	94	26-124
191-24-2	MS	Benzo(ghi)perylene	120	0.00	U	106	88	25-122
123-91-1	MS	1,4-Dioxane	120	0.00	U	79.5	66	26-90
930-55-2	MS	N-Nitrosopyrrolidine	120	0.00	U	102	85	40-113
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	120	0.00	U	76.7	64	32-94
1912-24-9	MS	Atrazine	120	0.00	U	67.3	56	36-119
92-87-5	MS	Benzidine	241	0.00	U	120	50	10-125
91-94-1	MS	3,3'-Dichlorobenzidine	120	0.00	U	87.4	73	27-109
120-82-1	MS	1,2,4-Trichlorobenzene	120	0.00	U	80.1	66	23-90

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24279MSD** **Matrix:** **W**

Lab Sample ID: **1202774965**

Instrument: **MSD3.I** **Analysis Date:** **11/09/2012 00:35** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1261144**

Inj. Vol: **1 uL** **Batch ID:** **1261145**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
62-75-9	MSD	N-Methyl-N-nitrosomethylam	120	0.00	U	78.5	65	27-85	4	0-30
110-86-1	MSD	Pyridine	120	0.00	U	82.7	69	21-93	3	0-30
62-53-3	MSD	Aniline	120	0.00	U	104	86	28-108	5	0-30
108-95-2	MSD	Phenol	120	0.00	U	63.2	52	15-100	4	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	120	0.00	U	91.4	76	27-114	3	0-30
95-57-8	MSD	2-Chlorophenol	120	0.00	U	90.1	75	32-103	4	0-30
541-73-1	MSD	1,3-Dichlorobenzene	120	0.00	U	76.2	63	23-84	7	0-30
106-46-7	MSD	1,4-Dichlorobenzene	120	0.00	U	75.9	63	23-88	7	0-30
95-50-1	MSD	1,2-Dichlorobenzene	120	0.00	U	77.1	64	24-86	6	0-30
39638-32-9	MSD	bis(2-Chloroisopropyl)ether	120	0.00	U	87.1	72	19-122	3	0-30
100-51-6	MSD	Benzyl alcohol	120	0.00	U	88.7	74	34-98	4	0-30
95-48-7	MSD	o-Cresol	120	0.00	U	89.4	74	29-96	4	0-30
65794-96-9	MSD	m,p-Cresols	120	0.00	U	111	92	26-111	5	0-30
621-64-7	MSD	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	120	0.00	U	95.1	79	32-115	3	0-30
67-72-1	MSD	Hexachloroethane	120	0.00	U	72.5	60	25-82	9	0-30
98-95-3	MSD	Nitrobenzene	120	0.00	U	95.7	79	35-124	3	0-30
78-59-1	MSD	Isophorone	120	0.00	U	98.4	82	37-140	3	0-30
88-75-5	MSD	2-Nitrophenol	120	0.00	U	94.5	78	33-115	3	0-30
105-67-9	MSD	2,4-Dimethylphenol	120	0.00	U	83.1	69	31-106	2	0-30
111-91-1	MSD	bis(2-Chloroethoxy)methane	120	0.00	U	89.3	74	35-112	2	0-30
120-83-2	MSD	2,4-Dichlorophenol	120	0.00	U	92.1	76	36-110	4	0-30
65-85-0	MSD	Benzoic acid	241	0.00	U	134	55	12-108	10	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24279MSD** **Matrix:** **W**

Lab Sample ID: **1202774965**

Instrument: **MSD3.I** **Analysis Date:** **11/09/2012 00:35** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1261144**

Inj. Vol: **1 uL** **Batch ID:** **1261145**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
106-47-8	MSD	4-Chloroaniline	120	0.00	U	92.4	77	33-120	1	0-30
87-68-3	MSD	Hexachlorobutadiene	120	0.00	U	86.5	72	19-96	5	0-30
59-50-7	MSD	Parachlorometa cresol *4-Chloro-3-methylphenol*	120	0.00	U	93.2	77	36-116	3	0-30
91-57-6	MSD	2-Methylnaphthalene	120	0.00	U	73.9	61	27-103	3	0-30
91-20-3	MSD	Naphthalene	120	0.00	U	76.5	63	28-99	3	0-30
90-12-0	MSD	1-Methylnaphthalene	120	0.00	U	78.2	65	29-107	3	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	120	0.00	U	45.7	38	25-75	19	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	120	0.00	U	91.1	76	36-111	3	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	120	0.00	U	91.5	76	34-115	3	0-30
91-58-7	MSD	2-Chloronaphthalene	120	0.00	U	77.1	64	33-96	3	0-30
88-74-4	MSD	2-Nitroaniline *o-Nitroaniline*	120	0.00	U	84.0	70	31-120	6	0-30
99-09-2	MSD	3-Nitroaniline *m-Nitroaniline*	120	0.00	U	78.9	66	32-123	10	0-30
131-11-3	MSD	Dimethylphthalate	120	0.00	U	98.4	82	43-115	4	0-30
606-20-2	MSD	2,6-Dinitrotoluene	120	0.00	U	93.9	78	42-121	3	0-30
121-14-2	MSD	2,4-Dinitrotoluene	120	0.00	U	91.5	76	37-125	6	0-30
208-96-8	MSD	Acenaphthylene	120	0.00	U	78.2	65	34-103	3	0-30
83-32-9	MSD	Acenaphthene	120	0.00	U	76.9	64	31-104	4	0-30
51-28-5	MSD	2,4-Dinitrophenol	120	0.00	U	71.4	59	25-108	26	0-30
132-64-9	MSD	Dibenzofuran	120	0.00	U	86.5	72	38-106	3	0-30
58-90-2	MSD	2,3,4,6-Tetrachlorophenol	120	0.00	U	90.2	75	33-123	6	0-30
84-66-2	MSD	Diethylphthalate	120	0.00	U	95.2	79	43-116	3	0-30
100-02-7	MSD	4-Nitrophenol	120	0.00	U	44.4	37	26-72	18	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265** **Sample Type:** **Matrix Spike Duplicate**

Client ID: **CAMO-13-24279MSD** **Matrix:** **W**

Lab Sample ID: **1202774965**

Instrument: **MSD3.I** **Analysis Date:** **11/09/2012 00:35** **Dilution: 1**

Analyst: **JLD1** **Prep Batch ID:** **1261144**

Inj. Vol: **1 uL** **Batch ID:** **1261145**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
86-73-7	MSD	Fluorene	120	0.00	U	83.3	69	33-110	4	0-30
7005-72-3	MSD	4-Chlorophenylphenylether	120	0.00	U	93.0	77	30-112	3	0-30
100-01-6	MSD	4-Nitroaniline *p-Nitroaniline*	120	0.00	U	72.4	60	28-131	19	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	120	0.00	U	89.8	75	31-113	13	0-30
122-39-4	MSD	Diphenylamine	120	0.00	U	86.9	72	36-110	0	0-30
122-66-7	MSD	Azobenzene *1,2-Diphenylhydrazine*	120	0.00	U	91.4	76	33-110	0	0-30
101-55-3	MSD	4-Bromophenylphenylether	120	0.00	U	101	83	33-111	1	0-30
118-74-1	MSD	Hexachlorobenzene	120	0.00	U	87.7	73	36-113	1	0-30
87-86-5	MSD	Pentachlorophenol	120	0.00	U	67.6	56	25-110	11	0-30
85-01-8	MSD	Phenanthrene	120	0.00	U	86.2	72	36-111	3	0-30
120-12-7	MSD	Anthracene	120	0.00	U	82.5	69	36-107	4	0-30
84-74-2	MSD	Di-n-butylphthalate	120	0.00	U	95.1	79	38-116	1	0-30
206-44-0	MSD	Fluoranthene	120	0.00	U	79.4	66	35-116	7	0-30
129-00-0	MSD	Pyrene	120	0.00	U	104	86	28-126	2	0-30
85-68-7	MSD	Butylbenzylphthalate	120	0.00	U	100	83	32-120	1	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	120	0.00	U	97.0	81	30-121	2	0-30
56-55-3	MSD	Benzo(a)anthracene	120	0.00	U	91.5	76	38-110	6	0-30
218-01-9	MSD	Chrysene	120	0.00	U	89.1	74	35-115	7	0-30
117-84-0	MSD	Di-n-octylphthalate	120	0.00	U	82.4	68	30-115	5	0-30
205-99-2	MSD	Benzo(b)fluoranthene	120	0.00	U	93.5	78	37-115	4	0-30
207-08-9	MSD	Benzo(k)fluoranthene	120	0.00	U	95.5	79	36-118	1	0-30
50-32-8	MSD	Benzo(a)pyrene	120	0.00	U	87.4	73	36-109	5	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **CAMO-13-24279MSD**
Lab Sample ID: **1202774965**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **11/09/2012 00:35**
Prep Batch ID: **1261144**
Batch ID: **1261145**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
193-39-5	MSD	Indeno(1,2,3-cd)pyrene	120	0.00	U	86.8	72	28-121	22	0-30
53-70-3	MSD	Dibenzo(a,h)anthracene	120	0.00	U	90.1	75	26-124	22	0-30
191-24-2	MSD	Benzo(ghi)perylene	120	0.00	U	84.9	70	25-122	22	0-30
123-91-1	MSD	1,4-Dioxane	120	0.00	U	77.7	65	26-90	2	0-30
930-55-2	MSD	N-Nitrosopyrrolidine	120	0.00	U	98.7	82	40-113	3	0-30
95-94-3	MSD	1,2,4,5-Tetrachlorobenzene	120	0.00	U	74.7	62	32-94	3	0-30
1912-24-9	MSD	Atrazine	120	0.00	U	68.2	57	36-119	1	0-30
92-87-5	MSD	Benzidine	241	0.00	U	51.7	21	10-125	80 *	0-30
91-94-1	MSD	3,3'-Dichlorobenzidine	120	0.00	U	77.4	64	27-109	12	0-30
120-82-1	MSD	1,2,4-Trichlorobenzene	120	0.00	U	76.3	63	23-90	5	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **LCS for batch 1261144**
Lab Sample ID: **1202774966**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/08/2012 22:31**
Prep Batch ID: **1261144**
Batch ID: **1261145**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	LCS	N-Methyl-N-nitrosomethylam	50.0	0.0	24.4	49	29-86
110-86-1	LCS	Pyridine	50.0	0.0	15.6	31	25-96
62-53-3	LCS	Aniline	50.0	0.0	37.4	75	38-105
108-95-2	LCS	Phenol	50.0	0.0	14.3	29	13-137
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	34.8	70	37-110
95-57-8	LCS	2-Chlorophenol	50.0	0.0	35.0	70	41-98
541-73-1	LCS	1,3-Dichlorobenzene	50.0	0.0	29.7	59	33-86
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	29.8	60	33-87
95-50-1	LCS	1,2-Dichlorobenzene	50.0	0.0	30.2	60	34-86
39638-32-9	LCS	bis(2-Chloroisopropyl)ether	50.0	0.0	33.5	67	30-118
100-51-6	LCS	Benzyl alcohol	50.0	0.0	31.4	63	39-88
95-48-7	LCS	o-Cresol	50.0	0.0	31.2	62	37-89
65794-96-9	LCS	m,p-Cresols	50.0	0.0	35.8	72	33-99
621-64-7	LCS	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	50.0	0.0	35.8	72	40-112
67-72-1	LCS	Hexachloroethane	50.0	0.0	28.5	57	31-87
98-95-3	LCS	Nitrobenzene	50.0	0.0	36.7	73	42-118
78-59-1	LCS	Isophorone	50.0	0.0	38.4	77	50-132
88-75-5	LCS	2-Nitrophenol	50.0	0.0	36.4	73	45-109
105-67-9	LCS	2,4-Dimethylphenol	50.0	0.0	29.2	58	44-98
111-91-1	LCS	bis(2-Chloroethoxy)methane	50.0	0.0	34.0	68	45-109
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	36.0	72	46-106
65-85-0	LCS	Benzoic acid	100	0.0	34.2	34	4-134

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **LCS for batch 1261144**
Lab Sample ID: **1202774966**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/08/2012 22:31**
Prep Batch ID: **1261144**
Batch ID: **1261145**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
106-47-8	LCS	4-Chloroaniline	50.0	0.0	38.3	77	50-122
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	35.6	71	29-94
59-50-7	LCS	Parachlorometa cresol *4-Chloro-3-methylphenol*	50.0	0.0	37.3	75	47-110
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	32.0	64	37-100
91-20-3	LCS	Naphthalene	50.0	0.0	31.9	64	35-97
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	33.6	67	38-105
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	23.3	47	38-79
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	37.5	75	43-108
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	38.7	77	43-110
91-58-7	LCS	2-Chloronaphthalene	50.0	0.0	33.6	67	40-96
88-74-4	LCS	2-Nitroaniline *o-Nitroaniline*	50.0	0.0	37.0	74	45-116
99-09-2	LCS	3-Nitroaniline *m-Nitroaniline*	50.0	0.0	37.0	74	46-123
131-11-3	LCS	Dimethylphthalate	50.0	0.0	42.7	85	53-111
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	39.9	80	52-117
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	40.6	81	46-124
208-96-8	LCS	Acenaphthylene	50.0	0.0	33.7	67	42-105
83-32-9	LCS	Acenaphthene	50.0	0.0	33.6	67	42-103
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	37.3	75	33-105
132-64-9	LCS	Dibenzofuran	50.0	0.0	37.7	75	46-106
58-90-2	LCS	2,3,4,6-Tetrachlorophenol	50.0	0.0	39.5	79	46-119
84-66-2	LCS	Diethylphthalate	50.0	0.0	40.9	82	52-115
100-02-7	LCS	4-Nitrophenol	50.0	0.0	7.09	14	12-130

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **LCS for batch 1261144**
Lab Sample ID: **1202774966**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/08/2012 22:31**
Prep Batch ID: **1261144**
Batch ID: **1261145**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
86-73-7	LCS	Fluorene	50.0	0.0	35.9	72	44-110
7005-72-3	LCS	4-Chlorophenylphenylether	50.0	0.0	40.1	80	41-113
100-01-6	LCS	4-Nitroaniline *p-Nitroaniline*	50.0	0.0	36.1	72	39-132
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	43.1	86	39-111
122-39-4	LCS	Diphenylamine	50.0	0.0	37.7	75	47-111
122-66-7	LCS	Azobenzene *1,2-Diphenylhydrazine*	50.0	0.0	39.0	78	41-111
101-55-3	LCS	4-Bromophenylphenylether	50.0	0.0	42.8	86	42-113
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	36.9	74	44-115
87-86-5	LCS	Pentachlorophenol	50.0	0.0	32.0	64	36-99
85-01-8	LCS	Phenanthrene	50.0	0.0	37.9	76	47-111
120-12-7	LCS	Anthracene	50.0	0.0	36.4	73	46-109
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	39.6	79	49-115
206-44-0	LCS	Fluoranthene	50.0	0.0	35.7	71	45-118
129-00-0	LCS	Pyrene	50.0	0.0	47.7	95	39-126
85-68-7	LCS	Butylbenzylphthalate	50.0	0.0	44.6	89	41-121
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	42.2	84	38-124
56-55-3	LCS	Benzo(a)anthracene	50.0	0.0	40.4	81	49-110
218-01-9	LCS	Chrysene	50.0	0.0	39.6	79	45-117
117-84-0	LCS	Di-n-octylphthalate	50.0	0.0	35.3	71	34-121
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	42.2	84	47-116
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	44.2	88	47-119
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	39.8	80	48-109

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2013-265**
Client ID: **LCS for batch 1261144**
Lab Sample ID: **1202774966**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **11/08/2012 22:31**
Prep Batch ID: **1261144**
Batch ID: **1261145**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
193-39-5	LCS	Indeno(1,2,3-cd)pyrene	50.0	0.0	37.5	75	38-124
53-70-3	LCS	Dibenzo(a,h)anthracene	50.0	0.0	38.8	78	38-124
191-24-2	LCS	Benzo(ghi)perylene	50.0	0.0	36.2	72	36-124
123-91-1	LCS	1,4-Dioxane	50.0	0.0	24.2	48	41-69
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	37.1	74	42-105
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	33.2	66	40-93
1912-24-9	LCS	Atrazine	50.0	0.0	29.1	58	47-115
92-87-5	LCS	Benzidine	100	0.0	6.32	6 *	19-124
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	32.2	64	36-111
120-82-1	LCS	1,2,4-Trichlorobenzene	50.0	0.0	32.5	65	32-92

Method Blank Summary

SDG Number:	**2013-265**	**Client:**	**ARSL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1261144**	**Instrument ID:**	**MSD3.I**	**Data File:**	**S110812a.B\s3k0824.D**
Lab Sample ID:	**1202774963**	**Prep Date:**	**11/08/2012 07:25**	**Analyzed:**	**11/08/12 22:06**
Column:	**DB-5ms**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1261144	1202774966	S110812a.B\s3k0825.D	11/08/12	2231
02 CAMO-13-24279	314528001	S110812a.B\s3k0828.D	11/08/12	2345
03 CAMO-13-24279MS	1202774964	S110812a.B\s3k0829.D	11/09/12	0010
04 CAMO-13-24279MSD	1202774965	S110812a.B\s3k0830.D	11/09/12	0035

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202774963**				
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1261144**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/08/2012 22:06**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0824.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	10.0	ug/L	3.00	10.0
110-86-1	Pyridine	U	10.0	ug/L	3.00	10.0
62-53-3	Aniline	U	10.0	ug/L	3.00	10.0
108-95-2	Phenol	U	10.0	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	10.0	ug/L	3.00	10.0
95-57-8	2-Chlorophenol	U	10.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene	U	10.0	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether	U	10.0	ug/L	3.00	10.0
100-51-6	Benzyl alcohol	U	10.0	ug/L	3.00	10.0
95-48-7	o-Cresol	U	10.0	ug/L	3.00	10.0
65794-96-9	m,p-Cresols	U	10.0	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	10.0	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	10.0	ug/L	3.00	10.0
98-95-3	Nitrobenzene	U	10.0	ug/L	3.00	10.0
78-59-1	Isophorone	U	10.0	ug/L	3.00	10.0
88-75-5	2-Nitrophenol	U	10.0	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol	U	10.0	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane	U	10.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	10.0	ug/L	3.00	10.0
65-85-0	Benzoic acid	U	20.0	ug/L	6.00	20.0
106-47-8	4-Chloroaniline	U	10.0	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene	U	10.0	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	10.0	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene	U	1.00	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene	U	10.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	10.0	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol	U	10.0	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene	U	1.00	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	10.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	10.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate	U	10.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202774963**				
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1261144**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/08/2012 22:06**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0824.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	10.0	ug/L	3.00	10.0
208-96-8	Acenaphthylene	U	1.00	ug/L	0.300	1.00
83-32-9	Acenaphthene	U	1.00	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol	U	20.0	ug/L	5.00	20.0
132-64-9	Dibenzofuran	U	10.0	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol	U	10.0	ug/L	3.00	10.0
84-66-2	Diethylphthalate	U	10.0	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	U	10.0	ug/L	3.00	10.0
86-73-7	Fluorene	U	1.00	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether	U	10.0	ug/L	3.00	10.0
100-01-6	4-Nitroaniline	U	10.0	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol	U	10.0	ug/L	3.00	10.0
122-39-4	Diphenylamine	U	10.0	ug/L	3.00	10.0
122-66-7	Azobenzene	U	10.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether	U	10.0	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene	U	10.0	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	10.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	1.00	ug/L	0.300	1.00
120-12-7	Anthracene	U	1.00	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	10.0	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	1.00	ug/L	0.300	1.00
129-00-0	Pyrene	U	1.00	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate	U	10.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	10.0	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene	U	1.00	ug/L	0.300	1.00
218-01-9	Chrysene	U	1.00	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate	U	10.0	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene	U	1.00	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	1.00	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene	U	1.00	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.00	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene	U	1.00	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene	U	1.00	ug/L	0.300	1.00
123-91-1	1,4-Dioxane	U	10.0	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	10.0	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202774963**				
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**MB for batch 1261144**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/08/2012 22:06**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0824.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene	U	10.0	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine	U	10.0	ug/L	3.00	10.0
92-87-5	Benzidine	U	10.0	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine	U	10.0	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene	U	10.0	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	73.9	100	ug/L	73.9	(23%-130%)
2-Fluorobiphenyl	39.8	50.0	ug/L	79.7	(30%-104%)
2-Fluorophenol	55.7	100	ug/L	55.7	(14%-77%)
Nitrobenzene-d5	47.8	50.0	ug/L	95.7	(34%-125%)
Phenol-d5	34.5	100	ug/L	34.5	(10%-78%)
p-Terphenyl-d14	51.0	50.0	ug/L	102	(33%-136%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000067-66-3	Trichloromethane	1.895	7.24	ug/L	92	NJ
	unknown	2.068	63.7	ug/L	0	J
	unknown	2.105	6.46	ug/L	0	J
	unknown	2.159	22.1	ug/L	0	J
000110-83-8	Cyclohexene	2.193	26.5	ug/L	95	NJ
	unknown	2.972	5.24	ug/L	0	J

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202774964**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 00:10**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**415 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0829.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		81.8	ug/L	7.23	24.1
110-86-1	Pyridine		85.1	ug/L	7.23	24.1
62-53-3	Aniline		109	ug/L	7.23	24.1
108-95-2	Phenol		65.5	ug/L	7.23	24.1
111-44-4	bis(2-Chloroethyl) ether		94.5	ug/L	7.23	24.1
95-57-8	2-Chlorophenol		94.0	ug/L	7.23	24.1
541-73-1	1,3-Dichlorobenzene		81.7	ug/L	7.23	24.1
106-46-7	1,4-Dichlorobenzene		81.1	ug/L	7.23	24.1
95-50-1	1,2-Dichlorobenzene		82.0	ug/L	7.23	24.1
39638-32-9	bis(2-Chloroisopropyl)ether		89.7	ug/L	7.23	24.1
100-51-6	Benzyl alcohol		92.1	ug/L	7.23	24.1
95-48-7	o-Cresol		93.2	ug/L	7.23	24.1
65794-96-9	m,p-Cresols		116	ug/L	7.23	24.1
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		98.1	ug/L	7.23	24.1
67-72-1	Hexachloroethane		79.1	ug/L	7.23	24.1
98-95-3	Nitrobenzene		98.2	ug/L	7.23	24.1
78-59-1	Isophorone		101	ug/L	7.23	24.1
88-75-5	2-Nitrophenol		97.3	ug/L	7.23	24.1
105-67-9	2,4-Dimethylphenol		84.8	ug/L	7.23	24.1
111-91-1	bis(2-Chloroethoxy)methane		91.0	ug/L	7.23	24.1
120-83-2	2,4-Dichlorophenol		96.3	ug/L	7.23	24.1
65-85-0	Benzoic acid		147	ug/L	14.5	48.2
106-47-8	4-Chloroaniline		93.3	ug/L	7.95	24.1
87-68-3	Hexachlorobutadiene		90.8	ug/L	7.23	24.1
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		96.4	ug/L	7.23	24.1
91-57-6	2-Methylnaphthalene		75.9	ug/L	0.723	2.41
91-20-3	Naphthalene		78.8	ug/L	0.723	2.41
90-12-0	1-Methylnaphthalene		80.5	ug/L	0.723	2.41
77-47-4	Hexachlorocyclopentadiene		55.1	ug/L	7.23	24.1
88-06-2	2,4,6-Trichlorophenol		94.3	ug/L	7.23	24.1
95-95-4	2,4,5-Trichlorophenol		94.6	ug/L	7.23	24.1
91-58-7	2-Chloronaphthalene		79.3	ug/L	0.723	2.41
88-74-4	2-Nitroaniline *o-Nitroaniline*		89.5	ug/L	7.23	24.1
99-09-2	3-Nitroaniline *m-Nitroaniline*		87.4	ug/L	7.23	24.1
131-11-3	Dimethylphthalate		103	ug/L	7.23	24.1
606-20-2	2,6-Dinitrotoluene		96.8	ug/L	7.23	24.1

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202774964**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 00:10**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**415 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0829.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		97.6	ug/L	7.23	24.1
208-96-8	Acenaphthylene		80.6	ug/L	0.723	2.41
83-32-9	Acenaphthene		80.1	ug/L	0.723	2.41
51-28-5	2,4-Dinitrophenol		93.2	ug/L	12.0	48.2
132-64-9	Dibenzofuran		89.5	ug/L	7.23	24.1
58-90-2	2,3,4,6-Tetrachlorophenol		96.3	ug/L	7.23	24.1
84-66-2	Diethylphthalate		98.4	ug/L	7.23	24.1
100-02-7	4-Nitrophenol		53.3	ug/L	7.23	24.1
86-73-7	Fluorene		86.3	ug/L	0.723	2.41
7005-72-3	4-Chlorophenylphenylether		95.4	ug/L	7.23	24.1
100-01-6	4-Nitroaniline		87.6	ug/L	7.23	24.1
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		102	ug/L	7.23	24.1
122-39-4	Diphenylamine		86.8	ug/L	7.23	24.1
122-66-7	Azobenzene		91.1	ug/L	7.23	24.1
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		99.9	ug/L	7.23	24.1
118-74-1	Hexachlorobenzene		86.4	ug/L	7.23	24.1
87-86-5	Pentachlorophenol		75.6	ug/L	7.23	24.1
88-85-7	Dinoseb	U	24.1	ug/L	7.23	24.1
85-01-8	Phenanthrene		88.5	ug/L	0.723	2.41
120-12-7	Anthracene		85.5	ug/L	0.723	2.41
84-74-2	Di-n-butylphthalate		94.5	ug/L	7.23	24.1
206-44-0	Fluoranthene		84.9	ug/L	0.723	2.41
129-00-0	Pyrene		106	ug/L	0.723	2.41
85-68-7	Butylbenzylphthalate		101	ug/L	7.23	24.1
117-81-7	bis(2-Ethylhexyl)phthalate		98.7	ug/L	7.23	24.1
56-55-3	Benzo(a)anthracene		96.7	ug/L	0.723	2.41
218-01-9	Chrysene		95.3	ug/L	0.723	2.41
117-84-0	Di-n-octylphthalate		86.4	ug/L	7.23	24.1
205-99-2	Benzo(b)fluoranthene		96.9	ug/L	0.723	2.41
207-08-9	Benzo(k)fluoranthene		96.3	ug/L	0.723	2.41
50-32-8	Benzo(a)pyrene		92.3	ug/L	1.06	2.41
193-39-5	Indeno(1,2,3-cd)pyrene		108	ug/L	0.723	2.41
53-70-3	Dibenzo(a,h)anthracene		113	ug/L	0.723	2.41
191-24-2	Benzo(ghi)perylene		106	ug/L	0.723	2.41
123-91-1	1,4-Dioxane		79.5	ug/L	7.23	24.1
55-18-5	N-Nitrosodiethylamine	U	24.1	ug/L	7.23	24.1
930-55-2	N-Nitrosopyrrolidine		102	ug/L	7.23	24.1

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202774964**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279MS**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 00:10**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**415 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0829.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	24.1	ug/L	7.23	24.1
95-94-3	1,2,4,5-Tetrachlorobenzene		76.7	ug/L	7.23	24.1
608-93-5	Pentachlorobenzene	U	24.1	ug/L	7.23	24.1
1912-24-9	Atrazine		67.3	ug/L	7.23	24.1
92-87-5	Benzidine		120	ug/L	7.23	24.1
91-94-1	3,3'-Dichlorobenzidine		87.4	ug/L	7.23	24.1
120-82-1	1,2,4-Trichlorobenzene		80.1	ug/L	7.23	24.1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	152	241	ug/L	63.1	(23%-130%)
2-Fluorobiphenyl	74.9	120	ug/L	62.2	(30%-104%)
2-Fluorophenol	154	241	ug/L	63.8	(14%-77%)
Nitrobenzene-d5	90.7	120	ug/L	75.3	(34%-125%)
Phenol-d5	121	241	ug/L	50.0	(10%-78%)
p-Terphenyl-d14	88.8	120	ug/L	73.7	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202774965**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 00:35**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**415 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0830.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		78.5	ug/L	7.23	24.1
110-86-1	Pyridine		82.7	ug/L	7.23	24.1
62-53-3	Aniline		104	ug/L	7.23	24.1
108-95-2	Phenol		63.2	ug/L	7.23	24.1
111-44-4	bis(2-Chloroethyl) ether		91.4	ug/L	7.23	24.1
95-57-8	2-Chlorophenol		90.1	ug/L	7.23	24.1
541-73-1	1,3-Dichlorobenzene		76.2	ug/L	7.23	24.1
106-46-7	1,4-Dichlorobenzene		75.9	ug/L	7.23	24.1
95-50-1	1,2-Dichlorobenzene		77.1	ug/L	7.23	24.1
39638-32-9	bis(2-Chloroisopropyl)ether		87.1	ug/L	7.23	24.1
100-51-6	Benzyl alcohol		88.7	ug/L	7.23	24.1
95-48-7	o-Cresol		89.4	ug/L	7.23	24.1
65794-96-9	m,p-Cresols		111	ug/L	7.23	24.1
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		95.1	ug/L	7.23	24.1
67-72-1	Hexachloroethane		72.5	ug/L	7.23	24.1
98-95-3	Nitrobenzene		95.7	ug/L	7.23	24.1
78-59-1	Isophorone		98.4	ug/L	7.23	24.1
88-75-5	2-Nitrophenol		94.5	ug/L	7.23	24.1
105-67-9	2,4-Dimethylphenol		83.1	ug/L	7.23	24.1
111-91-1	bis(2-Chloroethoxy)methane		89.3	ug/L	7.23	24.1
120-83-2	2,4-Dichlorophenol		92.1	ug/L	7.23	24.1
65-85-0	Benzoic acid		134	ug/L	14.5	48.2
106-47-8	4-Chloroaniline		92.4	ug/L	7.95	24.1
87-68-3	Hexachlorobutadiene		86.5	ug/L	7.23	24.1
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		93.2	ug/L	7.23	24.1
91-57-6	2-Methylnaphthalene		73.9	ug/L	0.723	2.41
91-20-3	Naphthalene		76.5	ug/L	0.723	2.41
90-12-0	1-Methylnaphthalene		78.2	ug/L	0.723	2.41
77-47-4	Hexachlorocyclopentadiene		45.7	ug/L	7.23	24.1
88-06-2	2,4,6-Trichlorophenol		91.1	ug/L	7.23	24.1
95-95-4	2,4,5-Trichlorophenol		91.5	ug/L	7.23	24.1
91-58-7	2-Chloronaphthalene		77.1	ug/L	0.723	2.41
88-74-4	2-Nitroaniline *o-Nitroaniline*		84.0	ug/L	7.23	24.1
99-09-2	3-Nitroaniline *m-Nitroaniline*		78.9	ug/L	7.23	24.1
131-11-3	Dimethylphthalate		98.4	ug/L	7.23	24.1
606-20-2	2,6-Dinitrotoluene		93.9	ug/L	7.23	24.1

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202774965**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 00:35**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**415 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0830.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		91.5	ug/L	7.23	24.1
208-96-8	Acenaphthylene		78.2	ug/L	0.723	2.41
83-32-9	Acenaphthene		76.9	ug/L	0.723	2.41
51-28-5	2,4-Dinitrophenol		71.4	ug/L	12.0	48.2
132-64-9	Dibenzofuran		86.5	ug/L	7.23	24.1
58-90-2	2,3,4,6-Tetrachlorophenol		90.2	ug/L	7.23	24.1
84-66-2	Diethylphthalate		95.2	ug/L	7.23	24.1
100-02-7	4-Nitrophenol		44.4	ug/L	7.23	24.1
86-73-7	Fluorene		83.3	ug/L	0.723	2.41
7005-72-3	4-Chlorophenylphenylether		93.0	ug/L	7.23	24.1
100-01-6	4-Nitroaniline		72.4	ug/L	7.23	24.1
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		89.8	ug/L	7.23	24.1
122-39-4	Diphenylamine		86.9	ug/L	7.23	24.1
122-66-7	Azobenzene		91.4	ug/L	7.23	24.1
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		101	ug/L	7.23	24.1
118-74-1	Hexachlorobenzene		87.7	ug/L	7.23	24.1
87-86-5	Pentachlorophenol		67.6	ug/L	7.23	24.1
88-85-7	Dinoseb	U	24.1	ug/L	7.23	24.1
85-01-8	Phenanthrene		86.2	ug/L	0.723	2.41
120-12-7	Anthracene		82.5	ug/L	0.723	2.41
84-74-2	Di-n-butylphthalate		95.1	ug/L	7.23	24.1
206-44-0	Fluoranthene		79.4	ug/L	0.723	2.41
129-00-0	Pyrene		104	ug/L	0.723	2.41
85-68-7	Butylbenzylphthalate		100	ug/L	7.23	24.1
117-81-7	bis(2-Ethylhexyl)phthalate		97.0	ug/L	7.23	24.1
56-55-3	Benzo(a)anthracene		91.5	ug/L	0.723	2.41
218-01-9	Chrysene		89.1	ug/L	0.723	2.41
117-84-0	Di-n-octylphthalate		82.4	ug/L	7.23	24.1
205-99-2	Benzo(b)fluoranthene		93.5	ug/L	0.723	2.41
207-08-9	Benzo(k)fluoranthene		95.5	ug/L	0.723	2.41
50-32-8	Benzo(a)pyrene		87.4	ug/L	1.06	2.41
193-39-5	Indeno(1,2,3-cd)pyrene		86.8	ug/L	0.723	2.41
53-70-3	Dibenzo(a,h)anthracene		90.1	ug/L	0.723	2.41
191-24-2	Benzo(ghi)perylene		84.9	ug/L	0.723	2.41
123-91-1	1,4-Dioxane		77.7	ug/L	7.23	24.1
55-18-5	N-Nitrosodiethylamine	U	24.1	ug/L	7.23	24.1
930-55-2	N-Nitrosopyrrolidine		98.7	ug/L	7.23	24.1

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**	**Date Collected:**	**11/01/2012 11:34**	**Matrix:**	**W**
Lab Sample ID:	**1202774965**	**Date Received:**	**11/03/2012 09:30**		
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**CAMO-13-24279MSD**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/09/2012 00:35**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**415 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0830.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	24.1	ug/L	7.23	24.1
95-94-3	1,2,4,5-Tetrachlorobenzene		74.7	ug/L	7.23	24.1
608-93-5	Pentachlorobenzene	U	24.1	ug/L	7.23	24.1
1912-24-9	Atrazine		68.2	ug/L	7.23	24.1
92-87-5	Benzidine		51.7	ug/L	7.23	24.1
91-94-1	3,3'-Dichlorobenzidine		77.4	ug/L	7.23	24.1
120-82-1	1,2,4-Trichlorobenzene		76.3	ug/L	7.23	24.1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	141	241	ug/L	58.4	(23%-130%)
2-Fluorobiphenyl	76.8	120	ug/L	63.7	(30%-104%)
2-Fluorophenol	148	241	ug/L	61.6	(14%-77%)
Nitrobenzene-d5	88.4	120	ug/L	73.4	(34%-125%)
Phenol-d5	116	241	ug/L	48.2	(10%-78%)
p-Terphenyl-d14	87.6	120	ug/L	72.7	(33%-136%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202774966**				
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1261144**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/08/2012 22:31**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0825.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine		24.4	ug/L	3.00	10.0
110-86-1	Pyridine		15.6	ug/L	3.00	10.0
62-53-3	Aniline		37.4	ug/L	3.00	10.0
108-95-2	Phenol		14.3	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		34.8	ug/L	3.00	10.0
95-57-8	2-Chlorophenol		35.0	ug/L	3.00	10.0
541-73-1	1,3-Dichlorobenzene		29.7	ug/L	3.00	10.0
106-46-7	1,4-Dichlorobenzene		29.8	ug/L	3.00	10.0
95-50-1	1,2-Dichlorobenzene		30.2	ug/L	3.00	10.0
39638-32-9	bis(2-Chloroisopropyl)ether		33.5	ug/L	3.00	10.0
100-51-6	Benzyl alcohol		31.4	ug/L	3.00	10.0
95-48-7	o-Cresol		31.2	ug/L	3.00	10.0
65794-96-9	m,p-Cresols		35.8	ug/L	3.00	10.0
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*		35.8	ug/L	3.00	10.0
67-72-1	Hexachloroethane		28.5	ug/L	3.00	10.0
98-95-3	Nitrobenzene		36.7	ug/L	3.00	10.0
78-59-1	Isophorone		38.4	ug/L	3.00	10.0
88-75-5	2-Nitrophenol		36.4	ug/L	3.00	10.0
105-67-9	2,4-Dimethylphenol		29.2	ug/L	3.00	10.0
111-91-1	bis(2-Chloroethoxy)methane		34.0	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		36.0	ug/L	3.00	10.0
65-85-0	Benzoic acid		34.2	ug/L	6.00	20.0
106-47-8	4-Chloroaniline		38.3	ug/L	3.30	10.0
87-68-3	Hexachlorobutadiene		35.6	ug/L	3.00	10.0
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*		37.3	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		32.0	ug/L	0.300	1.00
91-20-3	Naphthalene		31.9	ug/L	0.300	1.00
90-12-0	1-Methylnaphthalene		33.6	ug/L	0.300	1.00
77-47-4	Hexachlorocyclopentadiene		23.3	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		37.5	ug/L	3.00	10.0
95-95-4	2,4,5-Trichlorophenol		38.7	ug/L	3.00	10.0
91-58-7	2-Chloronaphthalene		33.6	ug/L	0.300	1.00
88-74-4	2-Nitroaniline *o-Nitroaniline*		37.0	ug/L	3.00	10.0
99-09-2	3-Nitroaniline *m-Nitroaniline*		37.0	ug/L	3.00	10.0
131-11-3	Dimethylphthalate		42.7	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		39.9	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202774966**				
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1261144**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/08/2012 22:31**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0825.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene		40.6	ug/L	3.00	10.0
208-96-8	Acenaphthylene		33.7	ug/L	0.300	1.00
83-32-9	Acenaphthene		33.6	ug/L	0.300	1.00
51-28-5	2,4-Dinitrophenol		37.3	ug/L	5.00	20.0
132-64-9	Dibenzofuran		37.7	ug/L	3.00	10.0
58-90-2	2,3,4,6-Tetrachlorophenol		39.5	ug/L	3.00	10.0
84-66-2	Diethylphthalate		40.9	ug/L	3.00	10.0
100-02-7	4-Nitrophenol	J	7.09	ug/L	3.00	10.0
86-73-7	Fluorene		35.9	ug/L	0.300	1.00
7005-72-3	4-Chlorophenylphenylether		40.1	ug/L	3.00	10.0
100-01-6	4-Nitroaniline		36.1	ug/L	3.00	10.0
	p-Nitroaniline					
534-52-1	2-Methyl-4,6-dinitrophenol		43.1	ug/L	3.00	10.0
122-39-4	Diphenylamine		37.7	ug/L	3.00	10.0
122-66-7	Azobenzene		39.0	ug/L	3.00	10.0
	1,2-Diphenylhydrazine					
101-55-3	4-Bromophenylphenylether		42.8	ug/L	3.00	10.0
118-74-1	Hexachlorobenzene		36.9	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		32.0	ug/L	3.00	10.0
88-85-7	Dinoseb	U	10.0	ug/L	3.00	10.0
85-01-8	Phenanthrene		37.9	ug/L	0.300	1.00
120-12-7	Anthracene		36.4	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		39.6	ug/L	3.00	10.0
206-44-0	Fluoranthene		35.7	ug/L	0.300	1.00
129-00-0	Pyrene		47.7	ug/L	0.300	1.00
85-68-7	Butylbenzylphthalate		44.6	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		42.2	ug/L	3.00	10.0
56-55-3	Benzo(a)anthracene		40.4	ug/L	0.300	1.00
218-01-9	Chrysene		39.6	ug/L	0.300	1.00
117-84-0	Di-n-octylphthalate		35.3	ug/L	3.00	10.0
205-99-2	Benzo(b)fluoranthene		42.2	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		44.2	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		39.8	ug/L	0.440	1.00
193-39-5	Indeno(1,2,3-cd)pyrene		37.5	ug/L	0.300	1.00
53-70-3	Dibenzo(a,h)anthracene		38.8	ug/L	0.300	1.00
191-24-2	Benzo(ghi)perylene		36.2	ug/L	0.300	1.00
123-91-1	1,4-Dioxane		24.2	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	10.0	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		37.1	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2013-265**			**Matrix:**	**WATER**
Lab Sample ID:	**1202774966**				
Client Sample:	**QC for batch 1261144**	**Client:**	**ARSL001**	**Project:**	**QC**
Client ID:	**LCS for batch 1261144**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1261145**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**11/08/2012 22:31**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**11/08/2012 07:25**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**S110812a.B\s3k0825.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	10.0	ug/L	3.00	10.0
95-94-3	1,2,4,5-Tetrachlorobenzene		33.2	ug/L	3.00	10.0
608-93-5	Pentachlorobenzene	U	10.0	ug/L	3.00	10.0
1912-24-9	Atrazine		29.1	ug/L	3.00	10.0
92-87-5	Benzidine	J	6.32	ug/L	3.00	10.0
91-94-1	3,3'-Dichlorobenzidine		32.2	ug/L	3.00	10.0
120-82-1	1,2,4-Trichlorobenzene		32.5	ug/L	3.00	10.0

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	64.1	100	ug/L	64.1	(23%-130%)
2-Fluorobiphenyl	31.2	50.0	ug/L	62.4	(30%-104%)
2-Fluorophenol	44.2	100	ug/L	44.2	(14%-77%)
Nitrobenzene-d5	34.7	50.0	ug/L	69.4	(34%-125%)
Phenol-d5	26.6	100	ug/L	26.6	(10%-78%)
p-Terphenyl-d14	39.2	50.0	ug/L	78.4	(33%-136%)

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
09-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
SEMIVOA GC/MS	SW846 8270C	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1261145	See Below		

Potentially affected work order(s)(SDG): 314137(2013-235),314528(2013-265),314591(2013-267)

Application Issues:

Failed RPD for MS/MSD, or PS/PSD

Failed Recovery for LCS/LCSD

Specification and Requirements Exception Description:	DER Disposition:
1. The LCS(1202774966) recovered Benzidine at 6.32%. The limits are 19%-124%.	1. Benzidine is identified as poor responding analyte in the analytical method (EPA 8270) and is subject to oxidative loss during extraction. This may account for the low recovery of the analyte. The data results have been reported.
2. The MS(1202774964)/MSD(1202774965) RPD value for Benzidine was outside of the acceptance limits. Please see the QC Summary report for specific failure.	2. Since Benzidine was individually within the acceptance limits for the MS and MSD, the non-conformance had no adverse impact on the data and the results have been reported.

Originator's Name:

Jennifer Dunagan Jones 09-NOV-12

Data Validator/Group Leader:

Barbara Bailey 12-NOV-12

Metals Analysis

Case Narrative

Metals Fractional Narrative
ARS International (ARSL)
SDG 2013-265

Sample Analysis

Sample ID	Client ID
314528002	CAMO-13-24283
1202773560	Method Blank (MB) **ICP**
1202773561	Laboratory Control Sample (LCS)
1202773564	314528002(CAMO-13-24283L) Serial Dilution (SD)
1202773562	314528002(CAMO-13-24283D) Sample Duplicate (DUP)
1202773563	314528002(CAMO-13-24283S) Matrix Spike (MS)
1202773552	Method Blank (MB) **ICP-MS**
1202773553	Laboratory Control Sample (LCS)
1202773556	314528002(CAMO-13-24283L) Serial Dilution (SD)
1202773554	314528002(CAMO-13-24283D) Sample Duplicate (DUP)
1202773555	314528002(CAMO-13-24283S) Matrix Spike (MS)
1202783062	Method Blank (MB) **CVAA**
1202783069	Laboratory Control Sample (LCS)
1202783066	314445002(CAMO-13-24258L) Serial Dilution (SD)
1202783064	314445002(CAMO-13-24258D) Sample Duplicate (DUP)
1202783068	314445002(CAMO-13-24258S) Matrix Spike (MS)

Method/Analysis Information

Analytical Batch:	1260610, 1260607, 1264600 and 1266665
Prep Batch :	1260609, 1260605 and 1264596
Standard Operating Procedures:	GL-MA-E-013 REV# 21, GL-MA-E-006 REV# 9, GL-MA-E-014 REV# 24, GL-MA-E-010 REV# 25 and GL-GC-E-107 REV# 7
Analytical Method:	SW846 3005/6010B, SW846 3005/6020 DOE-AL, EPA 245.1/245.2 and SM 2340 B
Prep Method :	SW846 3005A and EPA 245.1/245.2 Prep

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Hardness as CaCO3 is calculated from Calcium and Magnesium results.

The Metals analysis-ICP was performed on a P E 5300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum. Operating conditions are set at 1400W power and combined argon pressures of 360+/-7 kPa for the plasma and auxiliary gases, and 0.85 L/min carrier gas flow, and an initial lens voltage of 5.2.

The Metals analysis-Mercury was performed on a Perkin-Elmer Flow Injection Mercury System (FIMS-100) automated mercury analyzer. The instrument consists of a cold vapor atomic absorption spectrometer set to detect mercury at a wavelength of 253.7 nm. Sample introduction through the flow injection system is performed via a peristaltic pump at 9 mL/min and nitrogen carrier gas rate of 80 mL/min.

Calibration Information

Instrument Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL Requirements
All CRDL standards met the advisory control limits with the exception of potassium that recovered outside the advisory control limits.

ICSA/ICSAB Statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria for all applicable analytes with the exception of sodium. The CCB recovered high for sodium but samples were 10x greater than the PQL.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this SDG: 314528002 (CAMO-13-24283)-ICP and ICP-MS and 314445002 (CAMO-13-24258)-CVAA.

Matrix Spike (MS) Recovery Statement
The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations 25x the IDL/MDL for CVAA, 50X the IDL/MDL for ICP and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the established criteria of less than 10% difference (%D) with the exceptions of sodium and strontium.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date

and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

Preparation Information
The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.
Total Hardness by Calculation is determined using the results of Total Calcium (Ca) and Total Magnesium (Mg) determined by ICP or ICP-MS.

Hardness = 2.497 (Ca) + 4.118 (Mg)

Please refer to the Total Ca and Total Mg data to validate results appearing on the

Hardness Summary sheet. Both results are in the Inorganic/metals section of the package. There is no Batch QC for calculated results, and thus no QC Summary for the Hardness by Calculation Batch. The MDLs and PQLs are calculated using the higher of the two calculated values of Ca or Mg.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 11/29/12

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-265 GEL Work Order: 314528

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____ 11/29/12

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-265 **CONTRACT:** ESHL00210 **METHOD TYPE:** EPA

SAMPLE ID: 314528002 **BASIS:** As Received **DATE COLLECTED** 01-NOV-12

CLIENT ID: CAMO-13-24283 **LEVEL:** Low **DATE RECEIVED** 03-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439-97-6	Mercury	0.20	ug/L	U	0.067	0.2	0.2	1	AV	BYV1	11/20/12 09:47	112012W1-8	1264600

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-265 **CONTRACT:** ESHL00210 **METHOD TYPE:** SW846

SAMPLE ID: 314528002 **BASIS:** As Received **DATE COLLECTED** 01-NOV-12

CLIENT ID: CAMO-13-24283 **LEVEL:** Low **DATE RECEIVED** 03-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429-90-5	Aluminum	200	ug/L	U	68	200	200	1	P	HSC	11/15/12 23:29	111512-1	1260610
7440-36-0	Antimony	3	ug/L	U	1	3	3	1	MS	BAJ	11/15/12 19:33	121115-2	1260607
7440-38-2	Arsenic	5	ug/L	U	1.7	5	5	1	MS	BAJ	11/15/12 19:33	121115-2	1260607
7440-39-3	Barium	25.8	ug/L		1	5	5	1	P	HSC	11/15/12 23:29	111512-1	1260610
7440-41-7	Beryllium	5	ug/L	U	1	5	5	1	P	HSC	11/15/12 23:29	111512-1	1260610
7440-42-8	Boron	50	ug/L	U	15	50	50	1	P	HSC	11/15/12 23:29	111512-1	1260610
7440-43-9	Cadmium	1	ug/L	U	0.11	1	1	1	MS	BAJ	11/16/12 09:19	121115-7	1260607
7440-70-2	Calcium	11000	ug/L		50	200	200	1	P	HSC	11/15/12 23:29	111512-1	1260610
7440-47-3	Chromium	5.44	ug/L	J	2	10	10	1	MS	BAJ	11/16/12 09:19	121115-7	1260607
7440-48-4	Cobalt	5	ug/L	U	1	5	5	1	P	HSC	11/15/12 23:29	111512-1	1260610
7440-50-8	Copper	10	ug/L	U	3	10	10	1	P	HSC	11/15/12 23:29	111512-1	1260610
7439-89-6	Iron	100	ug/L	U	30	100	100	1	P	HSC	11/15/12 23:29	111512-1	1260610
7439-92-1	Lead	2	ug/L	U	0.5	2	2	1	MS	BAJ	11/16/12 09:19	121115-7	1260607
7439-95-4	Magnesium	3840	ug/L		110	300	300	1	P	HSC	11/15/12 23:29	111512-1	1260610
7439-96-5	Manganese	10	ug/L	U	2	10	10	1	P	HSC	11/15/12 23:29	111512-1	1260610
7439-98-7	Molybdenum	1.2	ug/L		0.165	0.5	0.5	1	MS	BAJ	11/16/12 09:19	121115-7	1260607
7440-02-0	Nickel	1.11	ug/L	J	0.5	2	2	1	MS	BAJ	11/16/12 09:19	121115-7	1260607
7440-09-7	Potassium	1690	ug/L		50	150	150	1	P	HSC	11/15/12 23:29	111512-1	1260610
7782-49-2	Selenium	5	ug/L	U	1.5	5	5	1	MS	BAJ	11/15/12 19:33	121115-2	1260607
7631-86-9	Silica	74500	ug/L		53	213	213	1	P	HSC	11/15/12 23:29	111512-1	1260610
7440-22-4	Silver	1	ug/L	U	0.2	1	1	1	MS	BAJ	11/16/12 09:19	121115-7	1260607
7440-23-5	Sodium	9960	ug/L	E	100	300	300	1	P	HSC	11/15/12 23:29	111512-1	1260610
7440-24-6	Strontium	50.3	ug/L	E	1	5	5	1	P	HSC	11/15/12 23:29	111512-1	1260610
7440-28-0	Thallium	2	ug/L	U	0.45	2	2	1	MS	BAJ	11/15/12 19:33	121115-2	1260607
7440-31-5	Tin	10	ug/L	U	2.5	10	10	1	P	HSC	11/15/12 23:29	111512-1	1260610
7440-61-1	Uranium	0.582	ug/L		0.067	0.2	0.2	1	MS	BAJ	11/16/12 09:19	121115-7	1260607
7440-62-2	Vanadium	8.72	ug/L		1	5	5	1	P	HSC	11/15/12 23:29	111512-1	1260610
7440-66-6	Zinc	10	ug/L	U	3.3	10	10	1	P	HSC	11/15/12 23:29	111512-1	1260610

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2013-265 **CONTRACT:** ESHL00210 **METHOD TYPE:**

SAMPLE ID: 314528002 **BASIS:** As Received **DATE COLLECTED** 01-NOV-12

CLIENT ID: CAMO-13-24283 **LEVEL:** Low **DATE RECEIVED** 03-NOV-12

MATRIX: W **%SOLIDS:** 0

CAS No.	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
	Hardness as CaCO3	43.2	mg/L		0.453	1.24	1.24	1		JJ2	11/28/12 14:20		1266665

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1260607	1260605	SW846 3005A	50	mL	50	mL	11/09/12	MTM1
1260610	1260609	SW846 3005A	50	mL	50	mL	11/09/12	MTM1
1264600	1264596	EPA 245.1/245.2 Prep	20	mL	20	mL	11/19/12	AXS5

***Analytical Methods:**

MS **SW846 3005/6020 DOE-AL**

P **SW846 3005/6010B**

AV **EPA 245.1/245.2**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2013−265

Contract: ESHL00210

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1202773552								
	Antimony	1	ug/L	+/−3	U	MS	1	3
	Arsenic	1.7	ug/L	+/−5	U	MS	1.7	5
	Cadmium	0.11	ug/L	+/−1	U	MS	0.11	1
	Chromium	2	ug/L	+/−10	U	MS	2	10
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.165	ug/L	+/−0.5	U	MS	0.165	0.5
	Nickel	0.5	ug/L	+/−2	U	MS	0.5	2
	Selenium	1.5	ug/L	+/−5	U	MS	1.5	5
	Silver	0.2	ug/L	+/−1	U	MS	0.2	1
	Thallium	0.45	ug/L	+/−2	U	MS	0.45	2
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1202773560								
	Aluminum	68	ug/L	+/−200	U	P	68	200
	Barium	1	ug/L	+/−5	U	P	1	5
	Beryllium	1	ug/L	+/−5	U	P	1	5
	Boron	15	ug/L	+/−50	U	P	15	50
	Calcium	50	ug/L	+/−200	U	P	50	200
	Cobalt	1	ug/L	+/−5	U	P	1	5
	Tin	2.5	ug/L	+/−10	U	P	2.5	10
	Copper	3	ug/L	+/−10	U	P	3	10
	Iron	30	ug/L	+/−100	U	P	30	100
	Magnesium	110	ug/L	+/−300	U	P	110	300
	Manganese	2	ug/L	+/−10	U	P	2	10
	Potassium	50	ug/L	+/−150	U	P	50	150
	Silica	53	ug/L	+/−213	U	P	53	213
	Sodium	236	ug/L	+/−300	J	P	100	300
	Strontium	1.55	ug/L	+/−5	J	P	1	5
	Vanadium	1	ug/L	+/−5	U	P	1	5
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1202783062								
	Mercury	0.067	ug/L	+/−0.2	U	AV	0.067	0.2

***Analytical Methods:**

MS	**SW846 3005/6020 DOE−AL**
P	**SW846 3005/6010B**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−265 **Client ID** CAMO−13−24283S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314528002 **Spike ID:** 1202773555

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Antimony	ug/L	75−125	223		1	U	200	111		MS
Arsenic	ug/L	75−125	77.7		1.7	U	80	95.8		MS
Cadmium	ug/L	75−125	9.86		0.11	U	10	98.6		MS
Chromium	ug/L	75−125	50.1		5.44	J	50	89.3		MS
Lead	ug/L	75−125	38.7		0.5	U	40	96.8		MS
Molybdenum	ug/L	75−125	54.6		1.2		50	107		MS
Nickel	ug/L	75−125	45.7		1.11	J	50	89.2		MS
Selenium	ug/L	75−125	20.1		1.5	U	20	99.1		MS
Silver	ug/L	75−125	55.2		0.2	U	50	110		MS
Thallium	ug/L	75−125	100		0.45	U	100	99.8		MS
Uranium	ug/L	75−125	51.9		0.582		50	103		MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−265 **Client ID** CAMO−13−24283S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314528002 **Spike ID:** 1202773563

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	4970		68	U	5000	99		P
Barium	ug/L	75−125	513		25.8		500	97.5		P
Beryllium	ug/L	75−125	504		1	U	500	101		P
Boron	ug/L	75−125	502		15	U	500	98.4		P
Calcium	ug/L	75−125	15800		11000		5000	97.2		P
Cobalt	ug/L	75−125	493		1	U	500	98.4		P
Copper	ug/L	75−125	512		3	U	500	102		P
Iron	ug/L	75−125	5020		30	U	5000	100		P
Magnesium	ug/L	75−125	8870		3840		5000	101		P
Manganese	ug/L	75−125	495		2	U	500	99		P
Potassium	ug/L	75−125	6340		1690		5000	93		P
Silica	ug/L		85700		74500		10700	105	N/A	P
Sodium	ug/L	75−125	14900		9960		5000	99.5		P
Strontium	ug/L	75−125	529		50.3		500	95.7		P
Tin	ug/L	75−125	498		2.5	U	500	99.6		P
Vanadium	ug/L	75−125	517		8.72		500	102		P
Zinc	ug/L	75−125	492		3.3	U	500	98.2		P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2013−265 **Client ID** CAMO−13−24258S

Contract: ESHL00210 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 314445002 **Spike ID:** 1202783068

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	1.95		0.067	U	2	97.3		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−265 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24283D

Matrix: LIQUID **Level:** Low

Sample ID: 314528002 **Duplicate ID:** 1202773554 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Antimony	ug/L		1	U	1	U			MS
Arsenic	ug/L		1.7	U	1.7	U			MS
Cadmium	ug/L		0.11	U	0.11	U			MS
Chromium	ug/L	+/−10	5.44	J	4.83	J	11.8		MS
Lead	ug/L		0.5	U	0.5	U			MS
Molybdenum	ug/L	+/−.5	1.2		1.1		9.23		MS
Nickel	ug/L	+/−2	1.11	J	1.06	J	4.15		MS
Selenium	ug/L		1.5	U	1.5	U			MS
Silver	ug/L		0.2	U	0.2	U			MS
Thallium	ug/L		0.45	U	0.45	U			MS
Uranium	ug/L	+/−.2	0.582		0.576		1.04		MS

***Analytical Methods:**

MS SW846 3005/6020 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−265 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24283D

Matrix: LIQUID **Level:** Low

Sample ID: 314528002 **Duplicate ID:** 1202773562 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		68	U	68	U			P
Barium	ug/L	+/−20%	25.8		25		3.09		P
Beryllium	ug/L		1	U	1	U			P
Boron	ug/L		15	U	15	U			P
Calcium	ug/L	+/−20%	11000		10600		3.28		P
Cobalt	ug/L		1	U	1	U			P
Copper	ug/L		3	U	3	U			P
Iron	ug/L		30	U	30	U			P
Magnesium	ug/L	+/−20%	3840		3560		7.62		P
Manganese	ug/L		2	U	2	U			P
Potassium	ug/L	+/−20%	1690		1660		2.19		P
Silica	ug/L	+/−20%	74500		71900		3.46		P
Sodium	ug/L	+/−20%	9960		9630		3.31		P
Strontium	ug/L	+/−20%	50.3		48.6		3.27		P
Tin	ug/L		2.5	U	2.5	U			P
Vanadium	ug/L	+/−5	8.72		8.25		5.44		P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**

P SW846 3005/6010B

Metals
−6−
Duplicate Sample Summary

SDG No.: 2013−265 **Lab Code:** GEL

Contract: ESHL00210 **Client ID:** CAMO−13−24258D

Matrix: LIQUID **Level:** Low

Sample ID: 314445002 **Duplicate ID:** 1202783064 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−265

Contract: ESHL00210

Aqueous LCS Source: O2si **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202773553								
	Antimony	ug/L	50	58.9		118	80−120	MS
	Arsenic	ug/L	50	58.2		116	80−120	MS
	Cadmium	ug/L	50	54.8		110	80−120	MS
	Chromium	ug/L	50	54.8		110	80−120	MS
	Lead	ug/L	50	55.8		112	80−120	MS
	Molybdenum	ug/L	50	54.3		109	80−120	MS
	Nickel	ug/L	50	56.5		113	80−120	MS
	Selenium	ug/L	50	58.8		118	80−120	MS
	Silver	ug/L	50	57.7		115	80−120	MS
	Thallium	ug/L	50	59.7		119	80−120	MS
	Uranium	ug/L	50	56.3		113	80−120	MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−265

Contract: ESHL00210

Aqueous LCS Source: OS2I **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202773561								
	Aluminum	ug/L	5000	4910		98.1	80−120	P
	Barium	ug/L	500	479		95.8	80−120	P
	Beryllium	ug/L	500	487		97.5	80−120	P
	Boron	ug/L	500	476		95.2	80−120	P
	Calcium	ug/L	5000	4900		98.1	80−120	P
	Cobalt	ug/L	500	486		97.3	80−120	P
	Copper	ug/L	500	488		97.7	80−120	P
	Iron	ug/L	5000	4910		98.2	80−120	P
	Magnesium	ug/L	5000	5030		101	80−120	P
	Manganese	ug/L	500	488		97.6	80−120	P
	Potassium	ug/L	5000	4640		92.8	80−120	P
	Silica	ug/L	10700	10300		96.5	80−120	P
	Sodium	ug/L	5000	5070		101	80−120	P
	Strontium	ug/L	500	476		95.1	80−120	P
	Tin	ug/L	500	496		99.3	80−120	P
	Vanadium	ug/L	500	496		99.2	80−120	P
	Zinc	ug/L	500	477		95.5	80−120	P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2013−265

Contract: ESHL00210

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1202783069								
	Mercury	ug/L	2	2.08		104	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−265 **Client ID** CAMO−13−24283L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314528002 **Serial Dilution ID:** 1202773556

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Antimony	1	U	5	U				MS
Arsenic	1.7	U	8.5	U				MS
Cadmium	.11	U	.55	U				MS
Chromium	5.44	J	10	U	100			MS
Lead	.5	U	2.5	U				MS
Molybdenum	1.2		1.29	J	6.99			MS
Nickel	1.11	J	2.5	U	100			MS
Selenium	1.5	U	7.5	U				MS
Silver	.2	U	1	U				MS
Thallium	.45	U	2.25	U				MS
Uranium	.582		.535	J	8.08			MS

***Analytical Methods:**

MS **SW846 3005/6020 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−265 **Client ID** CAMO−13−24283L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314528002 **Serial Dilution ID:** 1202773564

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	68	U	340	U				P
Barium	25.8		27.5		6.33			P
Beryllium	1	U	5	U				P
Boron	15	U	75	U				P
Calcium	11000		11100		.743		10	P
Cobalt	1	U	5	U				P
Copper	3	U	15	U				P
Iron	30	U	150	U				P
Magnesium	3840		3840		.095			P
Manganese	2	U	10	U				P
Potassium	1690		1740		2.67			P
Silica	74500		76100		2.23		10	P
Sodium	9960		11100		11.2	E	10	P
Strontium	50.3		57		13.5	E	10	P
Tin	2.5	U	12.5	U				P
Vanadium	8.72		11	J	26.5			P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **SW846 3005/6010B**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2013−265 **Client ID** CAMO−13−24258L

Contract: ESHL00210

Matrix: LIQUID **Level:** Low

Sample ID: 314445002 **Serial Dilution ID:** 1202783066

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry Narrative
ARS International (ARSL)
SDG 2013-265

Method/Analysis Information

Product: **Carbon, Total Organic**

Analytical Batch: 1260735 **Method:** SW 9060 Total Organic Carbon

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
314528001	CAMO-13-24279
1202773871	Method Blank (MB)
1202773872	314445001(CAMO-13-24241) Sample Duplicate (DUP)
1202773874	314445001(CAMO-13-24241) Post Spike (PS)
1202773876	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Carbon analysis was performed on a O-I Analytical Model 1010 Total Organic Carbon Analyzer.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314445001 (CAMO-13-24241).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following sample was re-analyzed due to CCV failure: 314528001 (CAMO-13-24279).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Specific Conductivity**		
Analytical Batch:	1265081	**Method:**	EPA120.1 Specific Conductivity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 120.1:

Sample ID	Client ID
314528002	CAMO-13-24283
1202784135	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202784136	314445002(CAMO-13-24258) Sample Duplicate (DUP)
1202784137	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-009 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Conductivity analysis was performed on a Orion 160 Conductivity Meter.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314340002 (CAMO-13-24255) and 314445002 (CAMO-13-24258).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **pH**

Analytical Batch: 1260327 **Method:** EPA 150.1 pH

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 150.1:

Sample ID	Client ID
314528002	CAMO-13-24283
1202772818	314445002(CAMO-13-24258) Sample Duplicate (DUP)
1202772819	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-008 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Electrode analysis was performed on a PerpHect pH Meter Orion 370.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

The following sample was selected for QC analysis: 314445002 (CAMO-13-24258).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following sample from this sample group was received by the lab outside of the method specified holding time: 314528002 (CAMO-13-24283).

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1140480 314528002 (CAMO-13-24283).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ion Chromatography**		
Analytical Batch:	1259659	**Method:**	EPA 300.0 Anions Liquid 28 day

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
314528002	CAMO-13-24283
1202771231	Method Blank (MB)
1202771232	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202771233	314340002(CAMO-13-24255) Post Spike (PS)
1202771234	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 21.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following samples were re-analyzed due to CCV failure: 1202771231 (MB), 1202771232 (CAMO-13-24255), 1202771233 (CAMO-13-24255), 1202771234 (LCS) and 314528002 (CAMO-13-24283).

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integrations
The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1202771232 (CAMO-13-24255), 1202771233 (CAMO-13-24255) and 314528002 (CAMO-13-24283).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Ammonia Nitrogen**		
Analytical Batch:	1260275	**Method:**	EPA 350.1 Nitrogen and Ammonia L
Prep Batch :	1260272	**Method:**	EEPA 350.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 350.1:

Sample ID	Client ID
314528002	CAMO-13-24283
1202772676	Method Blank (MB)
1202772677	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202772678	314341002(CAMO-13-24257) Sample Duplicate (DUP)
1202772679	314340002(CAMO-13-24255) Matrix Spike (MS)
1202772680	314341002(CAMO-13-24257) Matrix Spike (MS)
1202772681	314340002(CAMO-13-24255) Matrix Spike Duplicate (MSD)
1202772682	314341002(CAMO-13-24257) Matrix Spike Duplicate (MSD)
1202772683	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-106 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Initial Calibration
All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314340002 (CAMO-13-24255) and 314341002 (CAMO-13-24257).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recoveries for this sample set were within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recoveries for this sample set were within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPDs between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202772677 (CAMO-13-24255).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Kjeldahl Nitrogen**		
Analytical Batch:	1260284	**Method:**	Nitrogen and Total Kjeldahl (TKN)
Prep Batch :	1260283	**Method:**	EEPA 351.2 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 351.2:

Sample ID	Client ID
314528001	CAMO-13-24279
1202772707	Method Blank (MB)
1202772708	314340001(CAMO-13-24238) Sample Duplicate (DUP)
1202772709	314340001(CAMO-13-24238) Matrix Spike (MS)
1202772710	314340001(CAMO-13-24238) Matrix Spike Duplicate (MSD)
1202772711	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-104 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340001 (CAMO-13-24238).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1202772709 (CAMO-13-24238).

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The values for the sample and duplicate are less than the Practical Quantitation Limit (PQL); therefore, the RPD is not applicable. 1202772708 (CAMO-13-24238).

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The following sample was re-analyzed due to CCV failure: 314528001 (CAMO-13-24279).

Miscellaneous Information

Data Exception (DER) Documentation
The following DER was generated for this SDG: 1137073 1202772709 (CAMO-13-24238).

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Nitrate Nitrite by Cadmium Reduction**		
Analytical Batch:	1260242	**Method:**	EPA 353.2 Nitrogen and Nitrate/Nitrite

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 353.2:

Sample ID	Client ID
314528002	CAMO-13-24283
1202772621	Method Blank (MB)
1202772623	314528002(CAMO-13-24283) Sample Duplicate (DUP)
1202772625	314528002(CAMO-13-24283) Post Spike (PS)
1202772626	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-128 REV# 7.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8500 Series.

Calibration Verification Information
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within

acceptance limits.

Y Intercept Rule
The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314528002 (CAMO-13-24283).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an

effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Total Phosphorus**		
Analytical Batch:	1260281	**Method:**	EPA 365.4 Phosphorus and Total in
Prep Batch :	1260280	**Method:**	EEPA 365.4 Prep

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 365.4:

Sample ID	Client ID
314528002	CAMO-13-24283
1202772694	Method Blank (MB)
1202772696	314340002(CAMO-13-24255) Sample Duplicate (DUP)
1202772698	314340002(CAMO-13-24255) Matrix Spike (MS)
1202772700	314340002(CAMO-13-24255) Matrix Spike Duplicate (MSD)
1202772701	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-103 REV# 8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Nutrient analysis was performed on a Lachat QuickChem FIA+ 8000 Series.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314340002 (CAMO-13-24255).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The MS/PS recovery for this sample set was within the required acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement
The MSD recovery for this sample set was within the required acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the spike and spike duplicate met the acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Preservation/Integrity
All the samples from this sample group met the preservation and integrity requirements of the method.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product:	**Solids, Total Dissolved**		
Analytical Batch:	1260149	**Method:**	EPA 160.1 Solids and Dissolved-F

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 160.1:

Sample ID	Client ID
314528002	CAMO-13-24283
1202772396	Method Blank (MB)
1202772397	314445004(CAMO-13-24260) Sample Duplicate (DUP)
1202772398	314529002(CASA-13-24223) Sample Duplicate (DUP)
1202772399	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-001 REV# 12.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Solids analysis was performed on a Sartorius Balance BAL216. Solids lab

Initial Calibration
All initial calibration requirements have been met for this SDG.

Quality Control (QC) Information

Method Blank (MB) Statement
The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following samples were selected for QC analysis: 314445004 (CAMO-13-24260) and 314529002 (CASA-13-24223).

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Sample Aliquot
A sufficient amount of sample was provided by the client for analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: **Alkalinity**

Analytical Batch: 1262945 **Method:** EPA 310.1 Total Alkalinity

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 310.1:

Sample ID	Client ID
314528002	CAMO-13-24283
1202779299	Laboratory Control Sample (LCS)
1202779306	314591002(CAMO-13-24256) Sample Duplicate (DUP)
1202779307	314591002(CAMO-13-24256) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 10.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration analysis was performed on a manually operated buret.

Initial Standardization
The titrant was properly standardized

Quality Control (QC) Information

Laboratory Control Sample (LCS) Recovery
The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation
The following sample was selected for QC analysis: 314591002 (CAMO-13-24256).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement
The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples in this SDG met the specified holding time.

Sample Re-analysis
The samples in this SDG did not require re-analysis.

Miscellaneous Information

Data Exception (DER) Documentation
Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this SDG.

Electronic Packaging Comment
This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:
Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:**_____29Nov12_____

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-265 GEL Work Order: 314528

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.

H Analytical holding time was exceeded

J Value is estimated

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545
Contact:	Keith Greene
Project:	LANL-WQH Water Samples

Client SDG: 2013-265

Client Sample ID:	CAMO-13-24279	Project:	ESHL00210
Sample ID:	314528001	Client ID:	ARSL001
Matrix:	W		
Collect Date:	01-NOV-12 11:34		
Receive Date:	03-NOV-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis											
SW 9060 Total Organic Carbon "As Received"											
Total Organic Carbon Average	U	ND	0.330	1.00	mg/L	1	TSM	11/09/12	1004	1260735	1
Nutrient Analysis											
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl	J	0.0882	0.035	0.100	mg/L	1	KLP1	11/06/12	1440	1260284	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	11/05/12	1700	1260283

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 351.2	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: LANL-WQH Water Samples
Client SDG: 2013-265

Client Sample ID: CAMO-13-24283
Sample ID: 314528002
Matrix: W
Collect Date: 01-NOV-12 11:34
Receive Date: 03-NOV-12
Collector: Client
Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Conductivity Analysis											
EPA120.1 Specific Conductivity "As Received"											
Conductivity		129	1.00	1.00	umhos/cm	1	TXT1	11/20/12	1127	1265081	1
Electrode Analysis											
EPA 150.1 pH "As Received"											
pH at Temp 15.1C	H	8.15	0.010	0.100	SU	1	LXA1	11/06/12	0840	1260327	2
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Chloride		1.89	0.067	0.200	mg/L	1	MAR1	11/13/12	0349	1259659	3
Fluoride		0.177	0.033	0.100	mg/L	1					
Sulfate		2.20	0.133	0.400	mg/L	1					
Bromide	U	ND	0.067	0.200	mg/L	1	MAR1	11/14/12	0043	1259659	4
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia	U	ND	0.017	0.050	mg/L	1	KLP1	11/06/12	0948	1260275	5
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite		0.394	0.017	0.050	mg/L	1	AXH3	11/05/12	1417	1260242	6
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P	J	0.0274	0.017	0.050	mg/L	1	KLP1	11/06/12	1644	1260281	7
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		123	3.40	14.3	mg/L		LYG1	11/05/12	0758	1260149	8
Titration Analysis											
EPA 310.1 Total Alkalinity "As Received"											
Alkalinity, Total as CaCO3		60.1	0.725	1.00	mg/L		LXA1	11/14/12	1516	1262945	9
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L						

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	11/05/12	1600	1260272
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	11/05/12	1700	1260280

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 28, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	2013-265
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAMO-13-24283	Project:	ESHL00210
Sample ID:	314528002	Client ID:	ARSL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 120.1	
2	EPA 150.1	
3	EPA 300.0	
4	EPA 300.0	
5	EPA 350.1	
6	EPA 353.2	
7	EPA 365.4	
8	EPA 160.1	
9	EPA 310.1	

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 28, 2012

Los Alamos National Laboratory
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico

Contact: **Keith Greene**

Workorder: **314528**

Parmname	NOM		Sample	Qual	QC	Units	RPD%		REC%	Range	Anlst	Date Time
Carbon Analysis												
Batch 1260735												
QC1202773872 314445001 DUP												
Total Organic Carbon Average		J	0.680	J	0.815	mg/L	18.1	^		(+/-1.00)	TSM	11/08/12 23:32
QC1202773876 LCS												
Total Organic Carbon Average	10.0				9.75	mg/L			97.5	(85%-115%)		11/08/12 18:41
QC1202773871 MB												
Total Organic Carbon Average				J	0.488	mg/L						11/08/12 18:32
QC1202773874 314445001 PS												
Total Organic Carbon Average	10.0	J	0.680		10.4	mg/L			97.7	(65%-120%)		11/08/12 23:52
Conductivity Analysis												
Batch 1265081												
QC1202784135 314340002 DUP												
Conductivity			195		196	umhos/cm	0.307			(0%-10%)	TXT1	11/20/12 11:15
QC1202784136 314445002 DUP												
Conductivity			141		140	umhos/cm	0.142			(0%-10%)		11/20/12 11:23
QC1202784137 LCS												
Conductivity	1410				1420	umhos/cm			101	(95%-105%)		11/20/12 10:55
Electrode Analysis												
Batch 1260327												
QC1202772818 314445002 DUP												
pH		H	8.06	H	8.04	SU	0.248			(0%-10%)	LXA1	11/06/12 08:30
QC1202772819 LCS												
pH	7.00				7.03	SU			100	(99%-101%)		11/06/12 08:15
Ion Chromatography												
Batch 1259659												
QC1202771232 314340002 DUP												
Bromide		J	0.143	J	0.143	mg/L	0.00	^		(+/-0.200)	MAR1	11/13/12 18:56
Chloride			7.86		7.94	mg/L	1.03			(0%-20%)		11/12/12 23:00
Fluoride			0.224		0.220	mg/L	1.44	^		(+/-0.100)		
Sulfate			13.3		13.2	mg/L	0.107			(0%-20%)		
QC1202771234 LCS												
Bromide	2.50				2.47	mg/L			98.8	(90%-110%)		11/13/12 17:58
Chloride	10.0				9.24	mg/L			92.4	(90%-110%)		11/12/12 22:02
Fluoride	5.00				4.82	mg/L			96.5	(90%-110%)		
Sulfate	20.0				18.9	mg/L			94.7	(90%-110%)		
QC1202771231 MB												
Bromide				U	ND	mg/L						11/13/12 17:29
Chloride				U	ND	mg/L						11/12/12 21:33
Fluoride				U	ND	mg/L						
Sulfate				U	ND	mg/L						
QC1202771233 314340002 PS												

QC Summary

Workorder: 314528

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1259659											
Bromide	2.50	J	0.143		2.68	mg/L		101	(90%-110%)		11/13/12 19:25
Chloride	10.0		7.86		18.5	mg/L		107	(90%-110%)	MAR1	11/12/12 23:29
Fluoride	5.00		0.224		5.11	mg/L		97.7	(90%-110%)		
Sulfate	20.0		13.3		34.1	mg/L		104	(90%-110%)		
Nutrient Analysis											
Batch 1260242											
QC1202772623 314528002 DUP											
Nitrogen, Nitrate/Nitrite			0.394		0.389	mg/L	1.28		(0%-20%)	AXH3	11/05/12 14:18
QC1202772626 LCS											
Nitrogen, Nitrate/Nitrite	1.00				1.02	mg/L		102	(90%-110%)		11/05/12 13:50
QC1202772621 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					11/05/12 13:48
QC1202772625 314528002 PS											
Nitrogen, Nitrate/Nitrite	1.00		0.394		1.42	mg/L		103	(90%-110%)		11/05/12 14:19
Batch 1260275											
QC1202772677 314340002 DUP											
Nitrogen, Ammonia		U	ND	U	ND	mg/L	N/A			KLP1	11/06/12 09:34
QC1202772678 314341002 DUP											
Nitrogen, Ammonia		U	ND	U	ND	mg/L	N/A				11/06/12 09:37
QC1202772683 LCS											
Nitrogen, Ammonia	1.00				1.06	mg/L		106	(90%-110%)		11/06/12 09:30
QC1202772676 MB											
Nitrogen, Ammonia				U	ND	mg/L					11/06/12 09:29
QC1202772679 314340002 MS											
Nitrogen, Ammonia	1.00	U	ND		1.09	mg/L		108	(90%-110%)		11/06/12 09:34
QC1202772680 314341002 MS											
Nitrogen, Ammonia	1.00	U	ND		1.02	mg/L		101	(90%-110%)		11/06/12 09:42
QC1202772681 314340002 MSD											
Nitrogen, Ammonia	1.00	U	ND		1.08	mg/L	0.922	107	(0%-15%)		11/06/12 09:35
QC1202772682 314341002 MSD											
Nitrogen, Ammonia	1.00	U	ND		0.980	mg/L	4.00	97.4	(0%-15%)		11/06/12 09:43
Batch 1260281											
QC1202772696 314340002 DUP											
Phosphorus, Total as P			0.327		0.331	mg/L	1.22		(0%-31%)	KLP1	11/06/12 16:31
QC1202772701 LCS											
Phosphorus, Total as P	1.00				1.07	mg/L		107	(76%-120%)		11/06/12 16:21
QC1202772694 MB											
Phosphorus, Total as P				J	0.0459	mg/L					11/06/12 16:20
QC1202772698 314340002 MS											
Phosphorus, Total as P	1.00		0.327		1.20	mg/L		87.3	(62%-139%)		11/06/12 16:32
QC1202772700 314340002 MSD											
Phosphorus, Total as P	1.00		0.327		1.18	mg/L	1.68	85.3	(0%-20%)		11/06/12 16:33
Batch 1260284											
QC1202772708 314340001 DUP											
Nitrogen, Total Kjeldahl		J	0.0596	J	0.0894	mg/L	40.0 ^		(+/-0.100)	KLP1	11/06/12 14:13
QC1202772711 LCS											

QC Summary

Workorder: 314528

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis											
Batch 1260284											
Nitrogen, Total Kjeldahl	1.00				0.942	mg/L		94.2	(90%-110%)		11/06/12 14:12
QC1202772707 MB											
Nitrogen, Total Kjeldahl				J	0.0602	mg/L				KLP1	11/06/12 14:11
QC1202772709 314340001 MS											
Nitrogen, Total Kjeldahl	1.00	J	0.0596		0.908	mg/L		84.8 *	(90%-110%)		11/06/12 14:14
QC1202772710 314340001 MSD											
Nitrogen, Total Kjeldahl	1.00	J	0.0596		1.02	mg/L	11.6	96	(0%-20%)		11/06/12 14:15
Solids Analysis											
Batch 1260149											
QC1202772397 314445004 DUP											
Total Dissolved Solids			303		317	mg/L	4.61		(0%-10%)	LYG1	11/05/12 07:58
QC1202772398 314529002 DUP											
Total Dissolved Solids			456		439	mg/L	3.83		(0%-10%)		11/05/12 07:58
QC1202772399 LCS											
Total Dissolved Solids	300				287	mg/L		95.7	(95%-105%)		11/05/12 07:58
QC1202772396 MB											
Total Dissolved Solids				U	ND	mg/L					11/05/12 07:58
Titration Analysis											
Batch 1262945											
QC1202779306 314591002 DUP											
Alkalinity, Total as CaCO3			96.0		97.1	mg/L	1.11		(0%-20%)	LXA1	11/14/12 15:32
Carbonate alkalinity (CaCO3)		U	ND	U	ND	mg/L	N/A				
QC1202779299 LCS											
Alkalinity, Total as CaCO3	50.0				52.6	mg/L		105	(90%-110%)		11/14/12 10:29
QC1202779307 314591002 MS											
Alkalinity, Total as CaCO3	50.0		96.0		145	mg/L		98.7	(80%-120%)		11/14/12 15:37

Notes:
RER is calculated at the 95% confidence level (2-sigma).
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- E Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- E Organics--Concentration of the target analyte exceeds the instrument calibration range
- F Estimated Value
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed

QC Summary

Workorder: 314528

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

	invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
06-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
LACHAT Flow Injection Analyzer	EPA 351.2	Liquid	ESHL
Batch ID:	**Sample Numbers:**		
1260284	See Below		

Potentially affected work order(s)(SDG): **314340(2013-246),314341(2013-247),314443(2013-259),314445(2013-258),314528(2013-265),314529(2013-264)**

Application Issues:

Failed Recovery for MS/PS

Specification and Requirements Exception Description:	DER Disposition:
1. Failed Recovery for MS/PS: QC 1202772709MS	1. The spike recovery falls outside of the GEL acceptance limits but within the client specified limits.

Originator's Name:

Kristen Parson 06-NOV-12

Data Validator/Group Leader:

Thomas Lewis 27-NOV-12

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
15-NOV-12	Industrial	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
ELECTRODE	EPA 150.1	Liquid	ESHL, FBWP, TRIA
Batch ID:	**Sample Numbers:**		
1260327	See below.		

Potentially affected work order(s)(SDG): **314440(2013-263),314443(2013-259),314445(2013-258),314506,314519,314528(2013-265),314529(2013-264)**

Application Issues:

Sample received out of holding

Specification and Requirements Exception Description:	DER Disposition:
1. Sample received out of holding: 314440 001 314443 002,005,007 314445 002,004 314506 001 314519 006,013 314528 002 314529 002	1. Samples were received out of holding.

Originator's Name:
Lisa Gregory 15-NOV-12

Data Validator/Group Leader:
Julia Hamilton 15-NOV-12

Radiological Analysis

Radiochemistry Case Narrative
ARS International (ARSL)
SDG 2013-265
Work Order 314528

Method/Analysis Information

Product:	**Alphaspec U, Liquid**
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	1259850

Sample ID	Client ID
314528001	CAMO-13-24279
1202771681	Method Blank (MB)
1202771682	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202771683	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202771681 (MB) and 1202771683 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314443005 (CAMO-13-24225). The QC was from ARSL work order 314443.

QC Information

All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Pu, Liquid**
Analytical Method:	DOE EML HASL-300, Pu-11-RC Modified
Analytical Batch Number:	1259851

Sample ID	Client ID
314528001	CAMO-13-24279
1202771684	Method Blank (MB)
1202771686	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202771688	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202771684 (MB) and 1202771688 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314443005 (CAMO-13-24225). The QC was from ARSL work order 314443.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 314528001 (CAMO-13-24279) was recounted due to low carrier/tracer yield. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Alphaspec Am241 Liquid**
Analytical Method:	DOE EML HASL-300, Am-05-RC Modified
Analytical Batch Number:	1259852

Sample ID	Client ID
314528001	CAMO-13-24279
1202771689	Method Blank (MB)
1202771691	314443005(CAMO-13-24225) Sample Duplicate (DUP)
1202771693	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 22.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202771689 (MB) and 1202771693 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314443005 (CAMO-13-24225). The QC was from ARSL work order 314443.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration
No manual integrations were performed on data in this batch.

Additional Comments
The MDCs are calculated using a blank population.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec**
Analytical Method:	EPA 901.1
Analytical Batch Number:	1260199

Sample ID	Client ID
314528001	CAMO-13-24279
1202772494	Method Blank (MB)
1202772495	314528001(CAMO-13-24279) Sample Duplicate (DUP)
1202772496	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 24.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibrations were performed in June 2012, July 2012 and August 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

Designated QC
The following sample was used for QC: 314528001 (CAMO-13-24279). The QC was from ARSL work order 314528.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank 1202772494 (MB) result is greater than 1.65 times the CSU but less than the MDC for Co-60.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
Additional comments were not required for this sample set.

Blank Decision Level
The blank 1202772494 (MB) result is greater than the decision level but less than the MDC for Co-60.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**GFPC, Sr90, liquid**
Analytical Method:	EPA 905.0 Modified
Analytical Batch Number:	1260884

Sample ID	Client ID
314528001	CAMO-13-24279
1202774230	Method Blank (MB)
1202774231	314445001(CAMO-13-24241) Sample Duplicate (DUP)
1202774232	314445001(CAMO-13-24241) Matrix Spike (MS)
1202774233	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 16.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in April 2012.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202774230 (MB) and 1202774233 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314445001 (CAMO-13-24241). The QC was from ARSL work order 314445.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202774231 (CAMO-13-24241) was recounted due to high MDC. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike, 1202774232 (CAMO-13-24241), aliquot was reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**WSP-GrossA/B**
Analytical Method:	EPA 900.0/SW846 9310
Analytical Batch Number:	1260898

Sample ID	Client ID
314528001	CAMO-13-24279
1202774275	Method Blank (MB)
1202774276	314136001(CAPA-12-23808) Sample Duplicate (DUP)
1202774277	314136001(CAPA-12-23808) Matrix Spike (MS)
1202774278	314136001(CAPA-12-23808) Matrix Spike Duplicate (MSD)
1202774279	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 15.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met. The initial Calibration was performed in September 2011. The discrimination settings are calibrated in beta discriminating mode to reduce beta to alpha

crosstalk.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
Aliquots for samples 1202774275 (MB) and 1202774279 (LCS) were changed to 1.0 per client request.

Designated QC
The following sample was used for QC: 314136001 (CAPA-12-23808). The QC was from ARSL work order 314136.

QC Information
All of the QC samples met the required acceptance limits.

CSU
The blank result is less than 1.65 times the CSU.

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
Sample 1202774276 (CAPA-12-23808) was recounted due to high MDC. The recount is reported.

Chemical Recoveries
All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating, especially to a dull red heat. For this sample set, the prepared planchet was counted for beta activity before being flamed. After flaming, the planchet was counted for alpha activity.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments
The matrix spike and matrix spike duplicate, 1202774277 (CAPA-12-23808) and 1202774278 (CAPA-12-23808), aliquots were reduced to conserve sample volume.

Blank Decision Level
The blank result is less than the decision level.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL001 ARS International (63641-10)

Client SDG: 2013-265 GEL Work Order: 314528

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Theresa L. Austin **Name: Theresa Austin**

Date: 27 NOV 2012 **Title: Group Leader**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 27, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24279
Sample ID: 314528001
Matrix: W
Collect Date: 01-NOV-12
Receive Date: 03-NOV-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Alpha Spec Analysis													
Alphaspec Am241 Liquid "As Received"													
Americium-241	U	0.0104	+/-0.00737	0.0297	+/-0.00738	0.050	pCi/L		LYS1	11/12/12	1058	1259852	1
Alphaspec Pu, Liquid "As Received"													
Plutonium-238	U	0.0085	+/-0.00637	0.0237	+/-0.00638	0.050	pCi/L		LYS1	11/16/12	1536	1259851	2
Plutonium-239/240	U	0.00637	+/-0.00601	0.0402	+/-0.00601	0.050	pCi/L						
Alphaspec U, Liquid "As Received"													
Uranium-234		0.331	+/-0.0349	0.0679	+/-0.0414	1.00	pCi/L		LYS1	11/12/12	1050	1259850	3
Uranium-235/236	U	0.00362	+/-0.00627	0.0424	+/-0.00627	1.00	pCi/L						
Uranium-238		0.158	+/-0.0219	0.0461	+/-0.0242	0.500	pCi/L						
Rad Gamma Spec Analysis													
Gammaspec "As Received"													
Cesium-137	U	1.76	+/-1.34	5.07	+/-1.34	8.00	pCi/L		KXG3	11/07/12	1058	1260199	4
Cobalt-60	U	0.442	+/-1.30	4.89	+/-1.30	8.00	pCi/L						
Neptunium-237	U	-0.20	+/-2.48	8.69	+/-2.48	10.0	pCi/L						
Potassium-40	U	-29.9	+/-16.8	61.6	+/-16.8	10.0	pCi/L						
Sodium-22	U	-1.35	+/-1.46	4.96	+/-1.46	10.0	pCi/L						
Rad Gas Flow Proportional Counting													
GFPC, Sr90, liquid "As Received"													
Strontium-90	U	0.285	+/-0.150	0.484	+/-0.152	0.500	pCi/L		VXC2	11/21/12	1702	1260884	5
WSP-GrossA/B "As Received"													
Beta		17.4	+/-1.55	2.86	+/-2.24	3.00	pCi/L		BXF1	11/15/12	1312	1260898	6
Alpha		62.8	+/-3.67	2.41	+/-6.46	3.00	pCi/L		BXF1	11/17/12	1640	1260898	7

The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	EPA 901.1
5	EPA 905.0 Modified
6	EPA 900.0/SW846 9310
7	EPA 900.0/SW846 9310

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Americium-243 Tracer	Alphaspec Am241 Liquid "As Received"	1259852	94.5	(50%-105%)
Plutonium-242 Tracer	Alphaspec Pu, Liquid "As Received"	1259851	51.8	(50%-105%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"	1259850	80.6	(50%-105%)
Strontium Carrier	GFPC, Sr90, liquid "As Received"	1260884	83.7	(50%-105%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: November 27, 2012

Contact: Keith Greene

Project: LANL-WQH Water Samples

Client Sample ID: CAMO-13-24279
Sample ID: 314528001

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).

Quality Control Data

QC Summary

Report Date: November 27, 2012

Client : **Los Alamos National Laboratory**
PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm
Los Alamos, New Mexico
Contact: **Keith Greene**

Workorder: **314528**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1259850										
QC1202771682 314443005 DUP										
Uranium-234	U	-0.0173	U	-0.00844	pCi/L	0.187		(0-1)	LYS1	11/12/1210:50
	Uncert:	+/-0.00984		+/-0.0139						
	TPU:	+/-0.00984		+/-0.0139						
Uranium-235/236	U	0.00733	U	0.00735	pCi/L	0.000488		(0-1)		
	Uncert:	+/-0.00733		+/-0.009						
	TPU:	+/-0.00735		+/-0.00901						
Uranium-238	U	0.00	U	0.00	pCi/L	0.00		(0-1)		
	Uncert:	+/-0.00593		+/-0.00841						
	TPU:	+/-0.00594		+/-0.00841						
**Uranium-232 Tracer	2.73	2.06		1.93	pCi/L		70.8	(50%-105%)		
	Uncert:	+/-0.0913		+/-0.0907						
	TPU:	+/-0.201		+/-0.201						
QC1202771683 LCS										
Uranium-234				2.73	pCi/L				LYS1	11/12/1210:50
	Uncert:			+/-0.0831						
	TPU:			+/-0.199						
Uranium-235/236				0.117	pCi/L					
	Uncert:			+/-0.0204						
	TPU:			+/-0.0218						
Uranium-238	2.70			2.80	pCi/L		103	(80%-120%)		
	Uncert:			+/-0.0836						
	TPU:			+/-0.202						
**Uranium-232 Tracer	2.19			1.49	pCi/L		68.4	(50%-105%)		
	Uncert:			+/-0.0746						
	TPU:			+/-0.162						
QC1202771681 MB										
Uranium-234			U	-0.0191	pCi/L				LYS1	11/12/1210:50
	Uncert:			+/-0.00958						
	TPU:			+/-0.00958						
Uranium-235/236			U	0.00611	pCi/L					
	Uncert:			+/-0.00611						
	TPU:			+/-0.00613						
Uranium-238			U	0.00	pCi/L					
	Uncert:			+/-0.00606						
	TPU:			+/-0.00606						
**Uranium-232 Tracer	2.19			1.56	pCi/L		71.4	(50%-105%)		
	Uncert:			+/-0.0742						
	TPU:			+/-0.162						
Batch 1259851										
QC1202771686 314443005 DUP										
Plutonium-238	U	0.00497	U	-0.00289	pCi/L	0.344		(0-1)	LYS1	11/12/1210:59
	Uncert:	+/-0.00497		+/-0.00647						

QC Summary

Workorder: 314528

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Alpha Spec										
Batch 1259851										
	TPU:	+/-0.00497		+/-0.00647						
Plutonium-239/240	U	-0.00248	U	0.00868	pCi/L	0.464		(0-1)		
	Uncert:	+/-0.00555		+/-0.00647						
	TPU:	+/-0.00556		+/-0.00648						
**Plutonium-242 Tracer	2.43	2.16		1.87	pCi/L		77.1	(50%-105%)		
	Uncert:	+/-0.0779		+/-0.0843						
	TPU:	+/-0.130		+/-0.138						
QC1202771688 LCS										
Plutonium-238			U	0.00506	pCi/L			(80%-120%)	LYS1	11/12/1210:59
	Uncert:			+/-0.0062						
	TPU:			+/-0.0062						
Plutonium-239/240	2.03			2.27	pCi/L		112	(80%-120%)		
	Uncert:			+/-0.0759						
	TPU:			+/-0.130						
**Plutonium-242 Tracer	1.94			1.36	pCi/L		70.1	(50%-105%)		
	Uncert:			+/-0.0705						
	TPU:			+/-0.114						
QC1202771684 MB										
Plutonium-238			U	-0.00491	pCi/L				LYS1	11/12/1210:59
	Uncert:			+/-0.00491						
	TPU:			+/-0.00491						
Plutonium-239/240			U	-0.00245	pCi/L					
	Uncert:			+/-0.00425						
	TPU:			+/-0.00425						
**Plutonium-242 Tracer	1.94			1.41	pCi/L		72.3	(50%-105%)		
	Uncert:			+/-0.0692						
	TPU:			+/-0.113						
Batch 1259852										
QC1202771691 314443005 DUP										
Americium-241	U	0.00252	U	-0.00298	pCi/L	0.255		(0-1)	LYS1	11/12/1210:59
	Uncert:	+/-0.00564		+/-0.00516						
	TPU:	+/-0.00564		+/-0.00517						
**Americium-243 Tracer	2.60	2.42		1.96	pCi/L		75.3	(50%-105%)		
	Uncert:	+/-0.0808		+/-0.0877						
	TPU:	+/-0.138		+/-0.146						
QC1202771693 LCS										
Americium-241	1.41			1.49	pCi/L		106	(80%-120%)	LYS1	11/12/1210:59
	Uncert:			+/-0.0544						
	TPU:			+/-0.0833						
**Americium-243 Tracer	2.08			1.83	pCi/L		88.1	(50%-105%)		
	Uncert:			+/-0.0638						
	TPU:			+/-0.109						
QC1202771689 MB										
Americium-241			U	0.00	pCi/L				LYS1	11/12/1210:59
	Uncert:			+/-0.00561						
	TPU:			+/-0.00561						
**Americium-243 Tracer	2.08			1.84	pCi/L		88.5	(50%-105%)		
	Uncert:			+/-0.0639						
	TPU:			+/-0.109						

QC Summary

Workorder: 314528

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1260199										
QC1202772495 314528001 DUP										
Cesium-137	U	1.76	U	-0.106	pCi/L	0.378		(0-1)	KXG3	11/08/1208:59
	Uncert:	+/-1.34		+/-1.13						
	TPU:	+/-1.34		+/-1.13						
Cobalt-60	U	0.442	U	-1.04	pCi/L	0.293		(0-1)		
	Uncert:	+/-1.30		+/-1.24						
	TPU:	+/-1.30		+/-1.24						
Neptunium-237	U	-0.20	U	1.91	pCi/L	0.217		(0-1)		
	Uncert:	+/-2.48		+/-2.37						
	TPU:	+/-2.48		+/-2.37						
Potassium-40	U	-29.9	U	-1.61	pCi/L	0.459		(0-1)		
	Uncert:	+/-16.8		+/-14.0						
	TPU:	+/-16.8		+/-14.0						
Sodium-22	U	-1.35	U	-1.23	pCi/L	0.0237		(0-1)		
	Uncert:	+/-1.46		+/-0.974						
	TPU:	+/-1.46		+/-0.974						
QC1202772496 LCS										
Americium-241	2780			2920	pCi/L		105	(80%-120%)	KXG3	11/08/1212:19
	Uncert:			+/-163						
	TPU:			+/-163						
Cesium-137	6090			6310	pCi/L		104	(80%-120%)		
	Uncert:			+/-264						
	TPU:			+/-264						
Cobalt-60	5670			5730	pCi/L		101	(80%-120%)		
	Uncert:			+/-241						
	TPU:			+/-241						
Neptunium-237			U	32.7	pCi/L					
	Uncert:			+/-21.0						
	TPU:			+/-21.0						
Potassium-40			U	-60.9	pCi/L					
	Uncert:			+/-46.6						
	TPU:			+/-46.6						
Sodium-22			U	-0.12	pCi/L					
	Uncert:			+/-6.61						
	TPU:			+/-6.61						
QC1202772494 MB										
Cesium-137			U	-0.192	pCi/L				KXG3	11/07/1210:58
	Uncert:			+/-1.11						
	TPU:			+/-1.11						
Cobalt-60			U	2.16	pCi/L					
	Uncert:			+/-1.07						
	TPU:			+/-1.07						
Neptunium-237			U	-0.975	pCi/L					
	Uncert:			+/-2.08						
	TPU:			+/-2.08						
Potassium-40			U	-6.92	pCi/L					
	Uncert:			+/-13.7						
	TPU:			+/-13.7						
Sodium-22			U	0.849	pCi/L					

QC Summary

Workorder: 314528

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1260199										
Uncert:				+/-0.975						
TPU:				+/-0.975						
Rad Gas Flow										
Batch 1260884										
QC1202774231 314445001 DUP										
Strontium-90	U	0.224	U	-0.222	pCi/L	0.800		(0-1)	VXC2	11/24/1211:55
Uncert:		+/-0.147		+/-0.130						
TPU:		+/-0.148		+/-0.130						
**Strontium Carrier	7.17	6.40		6.20	mg		86.5	(50%-105%)		
QC1202774233 LCS										
Strontium-90	24.8			24.1	pCi/L		96.9	(80%-120%)	VXC2	11/21/1217:03
Uncert:				+/-0.597						
TPU:				+/-2.04						
**Strontium Carrier	7.17			6.00	mg		83.7	(50%-105%)		
QC1202774230 MB										
Strontium-90			U	-0.0606	pCi/L				VXC2	11/21/1217:02
Uncert:				+/-0.0614						
TPU:				+/-0.0614						
**Strontium Carrier	7.17			6.60	mg		92.1	(50%-105%)		
QC1202774232 314445001 MS										
Strontium-90	124 U	0.224		126	pCi/L		101	(75%-125%)	VXC2	11/21/1217:03
Uncert:		+/-0.147		+/-2.95						
TPU:		+/-0.148		+/-10.4						
**Strontium Carrier	7.17	6.40		6.40	mg		89.3	(50%-105%)		
Batch 1260898										
QC1202774276 314136001 DUP										
Alpha	U	0.899	U	0.189	pCi/L	0.288		(0-1)	BXF1	11/17/1216:40
Uncert:		+/-0.682		+/-0.545						
TPU:		+/-0.686		+/-0.545						
Beta	U	0.924	U	-1.31	pCi/L	0.667		(0-1)		11/16/1208:56
Uncert:		+/-0.855		+/-0.816						
TPU:		+/-0.859		+/-0.816						
QC1202774279 LCS										
Alpha	12.0			11.5	pCi/L		96	(80%-120%)	BXF1	11/18/1219:49
Uncert:				+/-0.620						
TPU:				+/-1.15						
Beta	49.7			45.8	pCi/L		92.2	(80%-120%)		11/15/1213:21
Uncert:				+/-0.882						
TPU:				+/-3.90						
QC1202774275 MB										
Alpha			U	0.00668	pCi/L				BXF1	11/17/1216:41
Uncert:				+/-0.0924						
TPU:				+/-0.0925						
Beta			U	0.0423	pCi/L					11/15/1213:19
Uncert:				+/-0.096						
TPU:				+/-0.0961						
QC1202774277 314136001 MS										
Alpha	481 U	0.899		408	pCi/L		84.7	(75%-125%)	BXF1	11/17/1216:40

QC Summary

Workorder: 314528

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1260898										
	Uncert:	+/-0.682		+/-23.0						
	TPU:	+/-0.686		+/-41.4						
Beta	1990	0.924	U	1730	pCi/L		87.2	(75%-125%)		11/15/1213:20
	Uncert:	+/-0.855		+/-34.2						
	TPU:	+/-0.859		+/-151						
QC1202774278 314136001 MSD										
Alpha	481	0.899	U	370	pCi/L	0.236	76.9	(0-1)	BXF1	11/17/1216:40
	Uncert:	+/-0.682		+/-21.5						
	TPU:	+/-0.686		+/-37.6						
Beta	1990	0.924	U	1850	pCi/L	0.193	93.2	(0-1)		11/15/1213:21
	Uncert:	+/-0.855		+/-36.3						
	TPU:	+/-0.859		+/-158						

Notes:
The Qualifiers in this report are defined as follows:

**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
A	The TIC is a suspected aldol-condensation product
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
E	Metals--%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
E	Organics--Concentration of the target analyte exceeds the instrument calibration range
F	Estimated Value
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	Value is estimated
JNX	Non Calibrated Compound
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	Matrix Related Failure
N	Metals--The Matrix spike sample recovery is not within specified control limits
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

QC Summary

Workorder: **314528**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Compound cannot be extracted
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

~~General Engineering Laboratories, Inc.~~
~~2040 Savage Road~~
~~Charleston SC 29407~~
ARS

Chain of Custody/Analysis Request

COC/Lab Request #: 2013-265

Client Contact:

Lab Agreement # : 126310011
Project Number :
Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	~~WSP-8260B-VOA~~	~~WSP-8270C-SVOA~~	~~WSP-GENINORG~~	~~WSP-GrossA/B~~	WSP-LL-H-3	~~WSP-Met+B+CN+SR+U~~	~~WSP-NH3+NO3/NO2+PO4~~	~~WSP-RAD~~	~~WSP-TKN+TOC~~
CAMO-13-24279	Nov 1 2012	11:34	W	2	3	1	1	1	1	1	1	1
~~CAMO-13-24283~~	~~Nov 1 2012~~	~~11:34~~	~~W~~									
~~CAMO-13-24274~~	~~Nov 1 2012~~	~~11:34~~	~~W~~	2								

Special Instructions:

Relinquished by: S. Sherwood	S. Sherwood	Date/Time: 11/8/12 3pm	Received by:
Relinquished by: Melissa Martyn		Date/Time: 11/8/12 3:00	Received by:
Relinquished by:		Date/Time:	Received by:

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4031 **EVENT NAME:** Mortandad/Sandia (MDA C and GS Monitoring) Q1 Watershed Sampling_MORTANDAD

SAMPLE ID: CAMO-13-24279 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		ow 11/01/12 ~~11/01/12~~ 2012	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1134	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSI
LOCATION ID:	R-60		FIELD PREP:	UF	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE		
	WSP-GrossA/B	1 LITER POLY	1	NONE		
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-RAD	1 GAL POLY	1	HNO3		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Samples taken within 50 feet of a running diesel generator

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 5.85 mg/L Oxidation-Reduction Potential 132.2 MV pH 8.30 SU

Specific Conductance 116 uS/cm Temperature 23.72 deg C Turbidity 1.49 NTU

COLLECTED BY (PRINT) D Fellenz

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	11/01/12 1230	(Printed Name) (Signature)	11/01/12 1230
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 10/24/2012

Data Validation Report

Chain Of Custody No. 2013-265ARS

1. Distribution Of Samples In EDD.

SDG	Analytical Method	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks
ARS1-12-02261	Generic:Low_Level_Tritium	1				

SDG	Analytical Method	Analysis Lot ID	Prep Lot ID	Regular Samples	Field Duplicates	Trip Blanks	Field Blanks	Equipment Blanks	Method Blanks	Matrix Spikes	Matrix Spike Dups
ARS1-12-02261	Generic:Low_Level_Tritium	ARS1-B12-02721	ARS1-B12-02721	1					1		

2. Distribution Of Analytes In EDD.

Analytical Method	Method Category	Field Sample ID	Lab Sample ID	Sample Purpose	Target Analytes	Surrogates	Spikes	TICS
Generic:Low_Level_Tritium	RAD							
LCS	ARS1-B12-02721-01	LCS	0	0	1	0		
Generic:Low_Level_Tritium	RAD	CAMO-13-24279	ARS1-B12-02721-04	REG	1	0	0	0
Generic:Low_Level_Tritium	RAD	LCSD	ARS1-B12-02721-02	LCSD	0	0	1	0
Generic:Low_Level_Tritium	RAD	MB	ARS1-B12-02721-03	MB	1	0	0	0

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

No.

Any samples affected by the presence of contaminants in blanks?

No.

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

No.

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

Data Validation Report for:

Chain Of Custody No. 2013-265ARS

Analytical Spikes	Post-Digestion Spikes	Lab Control Samples	Lab Control Sample Dups	Blank Spikes	Blank Spike Dups	Lab Duplicates	Storage Blanks	Preparation Blanks	Reagent Blanks
		1	1						

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Coments.

None.

13. Display Flagged Data.

Location ID	Chain Of Custody No	Field Sample ID	Sample Purpose	Analysis Type Code	Analytical Suite	Analytical Method	Parameter Name	Lab Qualifier	Validation Qualifier	Validation Reason Codes	Detected
R-60	2013-265ARS	CAMO-13-24279	REG	INIT	RAD	Generic:Low_Level_Tritium	Tritium	U	U	RS	N

Reason Code	Description
RS	Analyte is not detected because the amount reported is less than the MDC.

14. Useable Result Count.

Field Sample ID	Location ID	Sample Purpose	Analytical Method	No. Unuseable Records	Total No. Of Records
CAMO-13-24279	R-60	REG	Generic:Low_Level_Tritium	0	1

Lab Result	Lab Units	Report Result	Report Units	Report MDA	Report Uncertainty	Lab Matrix	Sample Date	Percent Moisture	Analysis Lot ID	Validation Status Code	Use Flag
-0.213	pCi/L	-0.213	pCi/L	2.247	0.655	W	11/1/2012		ARS1-B12-02721	VAL	Y

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Request Number: 2013-265 ARS

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-265 ARS

Original COC

~~General Engineering Laboratories, Inc.~~
~~2040 Savage Road~~
~~Charleston SC 29407~~
ARS

Chain of Custody/Analysis Request

63641-001-10 SDL 11-9-12

Per KG,

COC/Lab Request #: ~~2013-265~~ 2013-265 ARS
Page 1 of 1

SDL 11-29-12

Client Contact:

Lab Agreement # : ~~126310011~~

Project Number :

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Day - ☐
14 Day - ☐
21 Day - ☐
28 Day - ☒

Site Name: Los Alamos National Laboratory

Rad Screening Info: Yes, Below Background

Field Sample ID	Sample Date	Sample Time	Sample Matrix	~~WSP-8260B-VOA~~	~~WSP-8270C-SVOA~~	~~WSP-GENINORG~~	~~WSP-Gross A/B~~	WSP-LL-H-3	~~WSP-Met+B+SN+SR+U~~	~~WSP-NH3+NO3/NO2+PO4~~	~~WSP-RAD~~	~~WSP-TKN+TOC~~	Special Instructions:
CAMO-13-24279	Nov 1 2012	11:34	W	2	3	1	1	1	1	1	1	1	
~~CAMO-13-24283~~	~~Nov 1 2012~~	~~11:34~~	~~W~~										
~~CAMO-13-24274~~	~~Nov 1 2012~~	~~11:34~~	~~W~~	2									

Special Instructions:

Relinquished by: S. Sherwood	S. Sherwood	Date/Time: 11/8/12 3pm	Received by:
Relinquished by: Lisa Martyn		Date/Time: 11/8/12 3:00	Received by: [illegible] 11/9/12 1030
Relinquished by:		Date/Time:	Received by:

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory Request: 2013-265 ARS

Case Narrative

ARS INTERNATIONAL

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

December 7, 2012

LANL
Keith Greene
PO Box 1663 MS M992
Los Alamos, NM 87545

Request Number: **2013-265ARS**
LANL Sample ID: **CAMO-13-24279**

Dear Mr. Greene;

On November 9, 2012, ARS International received one (1) water sample to be analyzed for Low Level Tritium.

The sample underwent enrichment and was counted using the appropriate counting equipment and QA/QC for this type of analysis. Results of the analysis and QA/QC are attached in the data package.

The client and QA/QC samples were counted with a count time sufficient to meet quality control parameters for counting equipment and were within acceptance criteria and statistical sound detection limits.

If you have any questions please do not hesitate to call at 225.381.2991 or email LANL@amrad.com.

Sincerely,

James D. [illegible]

Laboratory Management
ARS International

ARS INTERNATIONAL
2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

COVER PAGE

PROJECT SAMPLE IDENTIFICATION
CROSS-REFERENCE
TO ARS SAMPLE LABORATORY IDs
Subcontract (LANL Agreement Number) 63641-001-10

Request Number	LANL PROJECT SAMPLE ID NUMBER	American Radiation Services SAMPLE ID NUMBER(S)
2013-265ARS	CAMO-13-24279	ARS1-12-02261-001

ANALYTICAL METHODS
Tritium analyses were performed using **ARS-040 Tritium Assay in Water Samples Using Electrolytic Enrichment.**

ANALYTICAL RESULTS
The result data that are flagged with "U" indicate that the activity is below the MDC.

American Radiation Services Project Manager/Laboratory Director's Comments:
"I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this sample data package and the computer-readable EDD, as applicable, submitted on diskette or by modem, has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

"I certify that this electronic image and all hardcopies produced from this image accurately represent the data and is in compliance with the LANL specific requirements, both technically and for completeness, other than the conditions detailed above or in the sample data package narrative. Release, by submission through email, the data contained in this electronic image and the computer-readable EDD (as applicable), has been authorized by the laboratory Manager/Technical Director or the Manager's designee."

Signature	Title	Date
James D. [illegible]	Laboratory Management, ARS International	12-10-12

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

AMRAD
AMERICAN RADIATION SERVICES, LLC

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

ARS Sample Delivery Group:	ARS1-12-02261	**Request or PO Number:**	2013-265ARS
Client Sample ID:	CAMO-13-24279	**ARS Sample ID:**	ARS1-12-02261-001
Sample Collection Date:	11/01/12	**Date Received:**	11/09/12
Sample Matrix:	Aqueous	**Report Date:**	12/10/12

Analysis Description	Analysis Results	Analysis Error +/- 1 s	MDC	DLC	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Tracer/Chem Recovery
Enriched H-3	-0.213	0.655	2.247	1.085	U	pCi/L	ARS-040	12/05/12 09:30	RJU	NA

NOTES: Lab Agreement 63641-001-10

Project Manager Review

Notes: *American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of the American Radiation Services, Inc.*

LELAP Certificate# 01949

2609 North River Road, Port Allen, Louisiana 70767
1 (800) 401-4277 FAX (225) 381-2996

QC Results Report

Sample Delivery Group: ARS1-12-02261
Date Received: 11/9/2012

Laboratory Control Sample Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	Percent Recovery (%)	LCS Acceptance Range
ARS1-B12-02721	LCS	H3	25.875	4.032	2.269	25.703		pCi/L	ARS-040	12/4/12 18:56	RJU	101	80%-120%

Blank Evaluation

Analysis Batch	QC Type	Analyte	Analysis Results	CSU 1 (1s)	MDC	Expected Value	Qual	Report Units	Analysis Test Method	Analysis Date/Time	Analysis Technician
ARS1-B12-02721	MBL	H3	-0.085	0.625	2.135	NA	U	pCi/L	ARS-040	12/4/12 18:56	RJU

Sample RER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	RER	RER AcceptanceRange
ARS1-B12-02721	LCSD	H3	25.875	4.032	24.604	3.836		pCi/L	ARS-040	12/4/12 18:56	RJU	0.16	< 1

Sample DER Duplicate Evaluation

Analysis Batch	QC Type	Analysis Description	Result 1	CSU 1 (1s)	Result 2	CSU 2 (1s)	Qual	Analysis Units	Analysis Test Method	Analysis Date/Time	Analysis Technician	DER	DER AcceptanceRange
ARS1-B12-02721	LCSD	H3	25.875	4.032	24.604	3.836		pCi/L	ARS-040	12/4/12 18:56	RJU	0.46	< 3

Project Manager Review

Notes: American Radiation Services, Inc. assumes no liability for the use or interpretation of any analytical results provided other than the cost of the analysis itself. Reproduction of this report in less than full requires the written consent of ARS International.

LELAP Certificate# 01949 NELAP Certificate # E87558

QC Evaluation

EPA Method: ARS-040
Batch ID: ARS1-B12-02721
SDG's: ARS1-12-02261;2262;2263;2264;2305;2306;2307;2309

LCS	25.8750	**CSU (2s)**	7.9020
LCSD	24.6040	**CSU-D (2s)**	7.5190

DER = $\frac{\text{abs(LSC-LSCD)}}{\text{sqr((2s CSU/2)^2)+((2s CSU-D/2)^2)}}$ = **< 3**

at 1 sigma

DER $\frac{1.271}{5.453828}$ = 0.233047 **< 3**

% RPD= $\frac{\text{ABS(LCS - LSCD)}}{\text{(LCS+LCSD)/2}}$ * 100 = **< 25%**

%RPD $\frac{1.271}{25.2395}$ *100 = 5.035757 **< 25%**

The *RPD* shall be less than 25% or other client-applied criteria

RER= $\frac{\text{abs((LCS-LCSD))}}{\text{(CSU)+(CSD)}}$ = **<1** ***<--LANL Requirement***

at 2 sigma

RER = $\frac{1.271}{15.4210}$ 0.082420077 **<1**

Blank Information

	Act	CSU(2s)	MDA	Act>MDA
AM-241				
U-234				
U-235				
U-238				
Pu-238				
Pu-239/240				
Th-228				
Th-230				
Th-232				
H3	-0.085	1.225	2.135	
Ra-226				
Ra-228				
Total U				
Pb-210				
Po-209				
Sr-90				
TC-99				
NI-63				

*MDA should be below RDL
*Blank activity must be below MDA
*Blank activity must be < 1.65*CSU (DOE only)

ACT = -0.085
CSU = 1.225
Is ACT<1.65*CSU? YES

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Laboratory Records

Analysis Batch Report

ARS INTERNATIONAL

Analysis Batch ID **ARS1-B12-02721**

Method	ARS-040	Analysis	LSC-A-022	Matrix	AQ
Description	Low Level Tritium by Electrolytic Enrichment				

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02721-01	LCS	B-14793								
ARS1-B12-02721-02	LCSD	B-14794								
ARS1-B12-02721-03	MBL									
ARS1-B12-02721-04	TRG				**ARS1-12-02261**	001	1	CAMO-13-24279	STD	11/29/12
ARS1-B12-02721-05	TRG				**ARS1-12-02262**	001	1	CAMO-13-24241	STD	12/06/12
ARS1-B12-02721-06	TRG				**ARS1-12-02262**	002	1	CAMO-13-24242	STD	12/06/12
ARS1-B12-02721-07	TRG				**ARS1-12-02262**	003	1	CAMO-13-24225	STD	12/06/12
ARS1-B12-02721-08	TRG				**ARS1-12-02262**	004	1	CAMO-13-24247	STD	12/06/12
ARS1-B12-02721-09	TRG				**ARS1-12-02262**	005	1	CAMO-13-24248	STD	12/06/12
ARS1-B12-02721-10	TRG				**ARS1-12-02263**	001	1	CAMO-13-24276	STD	12/06/12
ARS1-B12-02721-11	TRG				**ARS1-12-02264**	001	1	CASA-13-24209	STD	12/06/12
ARS1-B12-02721-12	TRG				**ARS1-12-02264**	002	1	CASA-13-24213	STD	12/06/12
ARS1-B12-02721-13	TRG				**ARS1-12-02264**	003	1	CASA-13-24214	STD	12/06/12
ARS1-B12-02721-14	TRG				**ARS1-12-02305**	001	1	CASA-13-24210	STD	12/12/12
ARS1-B12-02721-15	TRG				**ARS1-12-02306**	001	1	CAMO-13-24245	STD	12/12/12
ARS1-B12-02721-16	TRG				**ARS1-12-02306**	002	1	CAMO-13-24246	STD	12/12/12
ARS1-B12-02721-17	TRG				**ARS1-12-02306**	003	1	CAMO-13-24249	STD	12/12/12
ARS1-B12-02721-18	TRG				**ARS1-12-02306**	004	1	CAMO-13-24250	STD	12/12/12
ARS1-B12-02721-19	TRG				**ARS1-12-02307**	001	1	CAMO-13-24253	STD	12/12/12
ARS1-B12-02721-20	TRG				**ARS1-12-02307**	002	1	CAMO-13-24228	STD	12/12/12
ARS1-B12-02721-21	TRG				**ARS1-12-02309**	001	1	CASA-13-24211	STD	12/12/12

127700 12-02261-001-1 **WRAD**

127702 12-02262-001-1 **WRAD**

127704 12-02262-002-1 **WRAD**

127706 12-02262-003-1 **WRAD**

127708 12-02262-004-1 **WRAD**

127710 12-02262-005-1 **WRAD**

127712 12-02263-001-1 **WRAD**

127714 12-02264-001-1 **WRAD**

127716 12-02264-002-1 **WRAD**

127718 12-02264-003-1 **WRAD**

127720 12-02305-001-1 **WRAD**

127722 12-02306-001-1 **WRAD**

127724 12-02306-002-1 **WRAD**

127726 12-02306-003-1 **WRAD**

127728 12-02306-004-1 **WRAD**

127730 12-02307-001-1 **WRAD**

127732 12-02307-002-1 **WRAD**

127734 12-02309-001-1 **WRAD**

American Radiation Services
Baton Rouge Laboratory

LCS Report
Analytical Batch: ARS1-B12-02721

BlindID	ABatch	ABatchSampleID	BlindGroup	StdID	Isotope	ExpectedAddition	ExpectedValue	EmptyWt	GrossWt	NetWt	UserID	ModDate	ExpectedValue_CT	MidPointCountDate	KnownValue
B-14793	ARS1-B12-02721	ARS1-B12-02721-01	B-H3	S-0279	H-3	5	2.552560129	13.098	18.151	5.053	AMRAD\BSTEFFENS	11/13/2012			
B-14794	ARS1-B12-02721	ARS1-B12-02721-02	B-H3	S-0279	H-3	5	2.552560129	13.14	18.192	5.052	AMRAD\BSTEFFENS	11/13/2012			

ID_31001_040	ABatch	AnalysisCode	ABatchSampleID	ClientID	IC_ID	S01_1_EnrichCellNo	S01_2_TareCell	S01_3_TareResv	S02_GrossWtResv	S03_1_WtNa2O2	C_GrossSampleAdded
444	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-01			4	327.7	200.9	701.14	2.07	500.24
445	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-02			33	336.25	215.3	718.8	2.08	503.5
446	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-03			74	328.56	197.95	701.97	2.06	504.02
447	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-04	CAMO-13-24279		61	335.51	213.55	714.87	2	501.32
448	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-05	CAMO-13-24241		64	331.04	209.03	714.77	2.01	505.74
449	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-06	CAMO-13-24242		68	334.63	204.08	706.25	2.02	502.17
450	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-07	CAMO-13-24225		29	335.72	206.2	707.31	2.06	501.11
451	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-08	CAMO-13-24247		55	331.14	208.66	711.99	2.02	503.33
452	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-09	CAMO-13-24248		84	336.66	197.55	700.94	2.05	503.39
453	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-10	CAMO-13-24276		89	340.12	203.22	707.98	2.08	504.76
454	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-11	CASA-13-24209		97	332.94	202.132	708.3	2	506.168
455	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-12	CASA-13-24213		3	332.17	214.84	717.62	2.03	502.78
456	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-13	CASA-13-24214		16	329.44	217.7	718.25	2.09	500.55
457	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-14	CASA-13-24210		26	337.76	213.12	716.43	2	503.31
458	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-15	CAMO-13-24245		44	331.35	214.173	718.93	2.08	504.757
459	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-16	CAMO-13-24246		50	329.91	216.33	717.493	2.07	501.163
460	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-17	CAMO-13-24249		31	334.66	204.09	709.85	2.08	505.76
461	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-18	CAMO-13-24250		8	332.1	204.54	705.56	2	501.02
462	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-19	CAMO-13-24253		87	334.14	207.46	710.88	2.01	503.42
463	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-20	CAMO-13-24228		94	337.21	197.78	700.71	2.05	502.93
464	ARS1-B12-02721	LSC-A-022	ARS1-B12-02721-21	CASA-13-24211		99	336.65	206.9	709.24	2.06	502.34

12-4-12

S04_1_ElectrolSD	S04_2_StartAmp	S04_3_StartBathC	S05_1_ElectrolED	S05_2_EndBathC	S05_3_EndCellWt	C_GrossSmplRec	C_EnrichmentF	S06_TareWt	S07_GrossWt	C_RecoveredWa
11/16/2012 15:00:00	5	1.8	11/30/2012 14:58:00	2	545.34	16.74	29.88291517	117.45	130.16	12.71
11/16/2012 15:00:00	5	1.8	11/30/2012 15:00:00	2	567.84	16.29	30.90853284	117.71	129.56	11.85
11/16/2012 15:00:00	5	1.8	11/29/2012 07:51:00	1.8	543.45	16.94	29.75324675	101.5	114.12	12.62
11/16/2012 15:00:00	5	1.8	11/29/2012 07:53:00	1.8	565.75	16.69	30.03714799	108.55	121.28	12.73
11/16/2012 15:00:00	5	1.8	11/30/2012 15:01:00	2	555.66	15.59	32.44002566	104.53	115.28	10.75
11/16/2012 15:00:00	5	1.8	12/03/2012 12:24:00	1.9	553.86	15.15	33.14653465	102.66	112.87	10.21
11/16/2012 15:00:00	5	1.8	11/29/2012 13:10:00	2	558.94	17.02	29.44242068	116.99	128.81	11.82
11/16/2012 15:00:00	5	1.8	11/30/2012 15:03:00	2	555.09	15.29	32.91890124	110.03	121.82	11.79
11/16/2012 15:00:00	5	1.8	11/30/2012 15:05:00	2	549.5	15.29	32.92282538	109.95	120.14	10.19
11/16/2012 15:00:00	5	1.8	11/30/2012 15:06:00	2	560.19	16.85	29.95608309	96.23	110.02	13.79
11/16/2012 15:00:00	5	1.8	11/30/2012 15:07:00	2	552.49	17.418	29.06005282	107.55	120.29	12.74
11/16/2012 15:00:00	5	1.8	11/29/2012 13:08:00	2	563.52	16.51	30.45305875	117.92	129.06	11.14
11/16/2012 15:00:00	5	1.8	12/04/2012 07:37:00	2.1	564.03	16.89	29.63587922	105.46	120.29	14.83
11/16/2012 15:00:00	5	1.8	12/04/2012 07:39:00	2.1	565.2	14.32	35.14734637	101.94	114.75	12.81
11/16/2012 15:00:00	5	1.8	12/04/2012 07:42:00	2.1	563.27	17.747	28.44182115	116.81	128.38	11.57
11/16/2012 15:00:00	5	1.8	12/04/2012 07:45:00	2.1	563.14	16.9	29.65461538	109.51	121.45	11.94
11/16/2012 15:00:00	5	1.8	12/04/2012 11:41:00	2.1	555.31	16.56	30.5410628	111.9	124.2	12.3
11/16/2012 15:00:00	5	1.8	11/29/2012 07:56:00	1.8	553.44	16.8	29.82261905	105.48	117.84	12.36
11/16/2012 15:00:00	5	1.8	11/29/2012 07:58:00	1.8	558.66	17.06	29.5087925	112	125.02	13.02
11/16/2012 15:00:00	5	1.8	11/29/2012 13:05:00	1.9	551.09	16.1	31.2378882	115.1	127.71	12.61
11/16/2012 15:00:00	5	1.8	11/29/2012 13:03:00	1.9	560.98	17.43	28.82042456	104.78	117.5	12.72

12-4-12

S08_TearWtLSCVial	S09_VialPlusSmpl	C_NetSample	S10_1_WtVislSmplDrWatFill	C_NetDeadWaterAdded	C_TareWtBFCocktail	S10_2_GrossWtVSC	C_NetWtCocktailAdded	UserID	ModDate
6.44	16.44	10	0	0	16.44	27.34	10.9	AMRAD\RUSEY	12/03/2012 12:16:52
6.44	16.45	10.01	0	0	16.45	27.43	10.98	AMRAD\RUSEY	12/03/2012 12:18:50
6.51	16.53	10.02	0	0	16.53	27.02	10.49	AMRAD\RUSEY	11/29/2012 14:42:42
6.53	16.54	10.01	0	0	16.54	26.83	10.29	AMRAD\RUSEY	11/29/2012 14:44:17
6.45	16.5	10.05	0	0	16.5	26.92	10.42	AMRAD\RUSEY	12/03/2012 12:20:31
6.53	16.54	10.01	0	0	16.54	26.86	10.32	AMRAD\RUSEY	12/03/2012 14:37:15
6.38	16.42	10.04	0	0	16.42	27.17	10.75	AMRAD\RUSEY	11/29/2012 15:39:24
6.59	16.64	10.05	0	0	16.64	26.96	10.32	AMRAD\RUSEY	12/03/2012 12:23:43
6.47	16.53	10.06	0	0	16.53	26.85	10.32	AMRAD\RUSEY	12/03/2012 14:39:07
6.54	16.54	10	0	0	16.54	26.89	10.35	AMRAD\RUSEY	12/03/2012 14:41:26
6.68	16.69	10.01	0	0	16.69	26.99	10.3	AMRAD\RUSEY	12/03/2012 14:43:02
6.52	16.56	10.04	0	0	16.56	26.84	10.28	AMRAD\RUSEY	11/29/2012 15:42:09
6.64	16.69	10.05	0	0	16.69	26.89	10.2	AMRAD\RUSEY	12/04/2012 10:57:08
6.38	16.39	10.01	0	0	16.39	26.6	10.21	AMRAD\RUSEY	12/04/2012 10:59:05
6.61	16.64	10.03	0	0	16.64	26.99	10.35	AMRAD\RUSEY	12/04/2012 11:01:07
6.49	16.54	10.05	0	0	16.54	26.84	10.3	AMRAD\RUSEY	12/04/2012 11:02:49
6.46	16.53	10.07	0	0	16.53	26.79	10.26	AMRAD\RUSEY	12/04/2012 13:55:27
6.5	16.58	10.08	0	0	16.58	26.89	10.31	AMRAD\RUSEY	11/29/2012 14:45:59
6.56	16.58	10.02	0	0	16.58	26.94	10.36	AMRAD\RUSEY	11/29/2012 14:47:45
6.46	16.49	10.03	0	0	16.49	26.79	10.3	AMRAD\RUSEY	11/29/2012 15:43:57
6.57	16.59	10.02	0	0	16.59	26.89	10.3	AMRAD\RUSEY	11/29/2012 15:45:48

12-4-12

AMRAD
AMERICAN RADIATION SERVICES, LLC

LSC Instrument Data Transfer Report

\\Packard3170\Results\H3 Low Level\Low Level H3_3\

Batch Sample ID	Non-BKG Samples Transferred	Samples Eligible To Save	
ARS1-B12-02721	21	21	LSC 1

LIMS Batch Sample ID	LSC P#	LSC PID	LSC S#	LSC SMPL_ID	LSC Count Date	LSC CPMA	LSC tSIE	LSC EFF	LSC Count Dur	Analysis Batch	LIMS SDG	LIMS Run
BKG	10		1	BACKGROUND	12/04/12 14:45	1.11	395.29	25.3300	240.00	ARS1-B12-02721		
ARS1-B12-02721-01	10		2	B12-02721-01	12/04/12 18:56	4.84	378.07	24.5900	240.00	ARS1-B12-02721		
ARS1-B12-02721-02	10		3	B12-02721-02	12/04/12 23:07	4.79	377.91	24.5800	240.00	ARS1-B12-02721		
ARS1-B12-02721-03	10		4	B12-02721-03	12/05/12 03:18	1.09	407.72	25.9200	240.00	ARS1-B12-02721		
ARS1-B12-02721-04	10		5	B12-02721-04	12/05/12 07:29	1.08	378.13	24.5900	240.00	ARS1-B12-02721	ARS1-12-02261	1
ARS1-B12-02721-05	10		6	B12-02721-05	12/05/12 11:40	1.28	395.32	25.3300	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-06	2		1	B12-02721-06	12/06/12 16:58	3.80	401.27	25.6100	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-07	2		2	B12-02721-07	12/06/12 21:09	1.32	410.59	26.0600	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-08	2		3	B12-02721-08	12/07/12 01:20	1.47	395.87	25.3500	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-09	2		4	B12-02721-09	12/07/12 05:31	1.35	351.17	23.5500	240.00	ARS1-B12-02721	ARS1-12-02262	1
ARS1-B12-02721-10	2		5	B12-02721-10	12/07/12 09:42	1.06	286.28	20.1600	240.00	ARS1-B12-02721	ARS1-12-02263	1
ARS1-B12-02721-11	2		6	B12-02721-11	12/07/12 13:53	1.82	354.31	23.6700	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-12	10		13	B12-02721-12	12/05/12 15:52	1.03	220.99	15.6400	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-13	10		14	B12-02721-13	12/05/12 20:03	1.28	402.67	25.6800	240.00	ARS1-B12-02721	ARS1-12-02264	1
ARS1-B12-02721-14	10		15	B12-02721-14	12/06/12 00:14	1.00	286.72	20.1900	240.00	ARS1-B12-02721	ARS1-12-02305	1
ARS1-B12-02721-15	10		16	B12-02721-15	12/06/12 04:24	1.16	290.87	20.4700	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-16	10		17	B12-02721-16	12/06/12 08:35	1.17	258.02	18.2400	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-17	10		18	B12-02721-17	12/06/12 12:46	3.55	251.93	17.8300	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-18	10		1	B12-02721-18	12/07/12 18:04	1.08	258.29	18.2500	240.00	ARS1-B12-02721	ARS1-12-02306	1
ARS1-B12-02721-19	10		2	B12-02721-19	12/07/12 22:15	1.85	308.77	21.6900	240.00	ARS1-B12-02721	ARS1-12-02307	1
ARS1-B12-02721-20	10		3	B12-02721-20	12/08/12 02:26	1.39	304.39	21.3900	240.00	ARS1-B12-02721	ARS1-12-02307	1
ARS1-B12-02721-21	10		4	B12-02721-21	12/08/12 06:37	1.07	280.53	19.7700	240.00	ARS1-B12-02721	ARS1-12-02309	1

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Total_Bkg_Count_Duration_min	DF	Sample_Activity_Conc	Standard_Counting_Uncertainty	CU_1	CSU_1	CU_1_96	CSU_1_96	MDC	DLC	ActivityReportUnits
LSC-A-022	ARS1-B12-02721-01	240.000	0.98654	25.875	1.091	1.091	4.032	2.139	7.902	2.269	1.095	pCi
LSC-A-022	ARS1-B12-02721-02	240.000	0.98638	24.604	1.047	1.047	3.836	2.052	7.519	2.186	1.055	pCi
LSC-A-022	ARS1-B12-02721-03	240.000	0.99908	-0.085	0.625	0.625	0.625	1.225	1.225	2.135	1.031	pCi
LSC-A-022	ARS1-B12-02721-04	240.000	0.99478	-0.213	0.655	0.655	0.655	1.283	1.285	2.247	1.085	pCi
LSC-A-022	ARS1-B12-02721-05	240.000	0.99462	1.037	0.608	0.608	0.628	1.192	1.230	1.997	0.964	pCi
LSC-A-022	ARS1-B12-02721-06	240.000	0.99447	15.912	0.845	0.845	2.532	1.656	4.963	1.933	0.933	pCi
LSC-A-022	ARS1-B12-02721-07	240.000	0.99432	1.394	0.661	0.661	0.694	1.296	1.359	2.153	1.039	pCi
LSC-A-022	ARS1-B12-02721-08	240.000	0.99524	2.149	0.620	0.620	0.699	1.215	1.369	1.959	0.946	pCi
LSC-A-022	ARS1-B12-02721-09	240.000	0.99524	1.567	0.650	0.650	0.691	1.274	1.355	2.102	1.015	pCi
LSC-A-022	ARS1-B12-02721-10	240.000	0.99508	-0.376	0.795	0.795	0.797	1.559	1.563	2.738	1.322	pCi
LSC-A-022	ARS1-B12-02721-11	240.000	0.99508	5.262	0.817	0.817	1.136	1.601	2.227	2.422	1.169	pCi
LSC-A-022	ARS1-B12-02721-12	240.000	0.99570	-0.793	0.998	0.998	1.005	1.956	1.970	3.460	1.670	pCi
LSC-A-022	ARS1-B12-02721-13	240.000	0.99554	1.108	0.657	0.657	0.678	1.288	1.329	2.159	1.042	pCi
LSC-A-022	ARS1-B12-02721-14	240.000	0.99646	-0.723	0.658	0.658	0.667	1.290	1.307	2.296	1.109	pCi
LSC-A-022	ARS1-B12-02721-15	240.000	0.99631	0.469	0.844	0.844	0.847	1.655	1.661	2.843	1.372	pCi
LSC-A-022	ARS1-B12-02721-16	240.000	0.99631	0.613	0.905	0.905	0.910	1.775	1.784	3.040	1.468	pCi
LSC-A-022	ARS1-B12-02721-17	240.000	0.99585	22.455	1.280	1.280	3.603	2.510	7.063	3.008	1.452	pCi
LSC-A-022	ARS1-B12-02721-18	240.000	0.99570	-0.287	0.882	0.882	0.883	1.729	1.731	3.027	1.461	pCi
LSC-A-022	ARS1-B12-02721-19	240.000	0.99539	5.878	0.879	0.879	1.245	1.723	2.440	2.593	1.252	pCi
LSC-A-022	ARS1-B12-02721-20	240.000	0.99539	2.120	0.766	0.766	0.830	1.502	1.626	2.460	1.188	pCi
LSC-A-022	ARS1-B12-02721-21	240.000	0.99631	-0.311	0.846	0.846	0.847	1.658	1.661	2.906	1.403	pCi

19
35
65

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Initial_Mass_sample_g	Mass_Na2O2_added_g	Final_mass_electrolyzed_sample_NaOH_g	Mass_equivalent_NaOH_g	Final_Mass_Electrolyzed_sample_g	VolumeFactor_X	Enrichment_Factor_Y
LSC-A-022	ARS1-B12-02721-01	500.240	2.070	16.740	2.124	14.616	0.029	26.782
LSC-A-022	ARS1-B12-02721-02	503.500	2.080	16.290	2.134	14.156	0.028	27.791
LSC-A-022	ARS1-B12-02721-03	504.020	2.060	16.940	2.114	14.826	0.029	26.608
LSC-A-022	ARS1-B12-02721-04	501.320	2.000	16.690	2.052	14.638	0.029	26.799
LSC-A-022	ARS1-B12-02721-05	505.740	2.010	15.590	2.062	13.528	0.027	29.154
LSC-A-022	ARS1-B12-02721-06	502.170	2.020	15.150	2.073	13.077	0.026	29.914
LSC-A-022	ARS1-B12-02721-07	501.110	2.060	17.020	2.114	14.906	0.030	26.324
LSC-A-022	ARS1-B12-02721-08	503.330	2.020	15.290	2.073	13.217	0.026	29.675
LSC-A-022	ARS1-B12-02721-09	503.390	2.050	15.290	2.103	13.187	0.026	29.745
LSC-A-022	ARS1-B12-02721-10	504.760	2.080	16.850	2.134	14.716	0.029	26.838
LSC-A-022	ARS1-B12-02721-11	506.168	2.000	17.418	2.052	15.366	0.030	25.815
LSC-A-022	ARS1-B12-02721-12	502.780	2.030	16.510	2.083	14.427	0.029	27.251
LSC-A-022	ARS1-B12-02721-13	500.550	2.090	16.890	2.144	14.746	0.029	26.571
LSC-A-022	ARS1-B12-02721-14	503.310	2.000	14.320	2.052	12.268	0.024	31.878
LSC-A-022	ARS1-B12-02721-15	504.757	2.080	17.747	2.134	15.613	0.031	25.354
LSC-A-022	ARS1-B12-02721-16	501.163	2.070	16.900	2.124	14.776	0.029	26.550
LSC-A-022	ARS1-B12-02721-17	505.760	2.080	16.560	2.134	14.426	0.029	27.409
LSC-A-022	ARS1-B12-02721-18	501.020	2.000	16.800	2.052	14.748	0.029	26.591
LSC-A-022	ARS1-B12-02721-19	503.420	2.010	17.060	2.062	14.998	0.030	26.286
LSC-A-022	ARS1-B12-02721-20	502.930	2.050	16.100	2.103	13.997	0.028	28.064
LSC-A-022	ARS1-B12-02721-21	502.340	2.060	17.430	2.114	15.316	0.030	25.707

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	Average_Sample_CPM	Bkg_CPM	tSIE	Detector_Eff_decimal	Aliquot	AliqUnits	Activity_reference_date	Start_Date_of_Count	Sample_Count_Duration_min
LSC-A-022	ARS1-B12-02721-01	4.839	1.107	378.070	0.246	0.01000	L	9/7/2012	12/4/2012	240.000
LSC-A-022	ARS1-B12-02721-02	4.791	1.107	377.910	0.246	0.01001	L	9/7/2012	12/4/2012	240.000
LSC-A-022	ARS1-B12-02721-03	1.094	1.107	407.720	0.259	0.01002	L	11/29/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-04	1.076	1.107	378.130	0.246	0.01001	L	11/1/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-05	1.277	1.107	395.320	0.253	0.01005	L	10/31/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-06	3.801	1.107	401.270	0.256	0.01001	L	10/31/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-07	1.319	1.107	410.590	0.261	0.01004	L	10/31/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-08	1.466	1.107	395.870	0.254	0.01005	L	11/6/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-09	1.351	1.107	351.170	0.236	0.01006	L	11/6/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-10	1.062	1.107	286.280	0.202	0.01000	L	11/5/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-11	1.818	1.107	354.310	0.237	0.01001	L	11/5/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-12	1.032	1.107	220.990	0.156	0.01004	L	11/7/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-13	1.275	1.107	402.670	0.257	0.01005	L	11/7/2012	12/5/2012	240.000
LSC-A-022	ARS1-B12-02721-14	1.004	1.107	286.720	0.202	0.01001	L	11/13/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-15	1.161	1.107	290.870	0.205	0.01003	L	11/12/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-16	1.173	1.107	258.020	0.182	0.01005	L	11/12/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-17	3.550	1.107	251.930	0.178	0.01007	L	11/9/2012	12/6/2012	240.000
LSC-A-022	ARS1-B12-02721-18	1.076	1.107	258.290	0.183	0.01008	L	11/9/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-19	1.849	1.107	308.770	0.217	0.01002	L	11/8/2012	12/7/2012	240.000
LSC-A-022	ARS1-B12-02721-20	1.389	1.107	304.390	0.214	0.01003	L	11/8/2012	12/8/2012	240.000
LSC-A-022	ARS1-B12-02721-21	1.072	1.107	280.530	0.198	0.01002	L	11/14/2012	12/8/2012	240.000

ARS-040 Calculation Results

ARS1-B12-02721

ACF	1
UCF	2.22
Sys Error	0.15

AnalysisCode	ABatchSampleID	AliquotReportUnits	UserID	ModDate
LSC-A-022	ARS1-B12-02721-01	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-02	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-03	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-04	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-05	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-06	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-07	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-08	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-09	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-10	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-11	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-12	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-13	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-14	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-15	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-16	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-17	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-18	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-19	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-20	L	AMRAD\RUSEY	12/10/2012
LSC-A-022	ARS1-B12-02721-21	L	AMRAD\RUSEY	12/10/2012

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\20121204_1437.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121204_1437\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

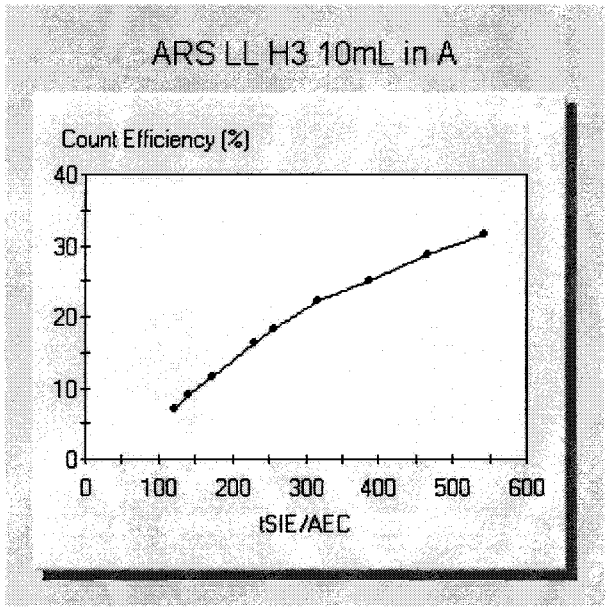
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
10	1	BACKGROUND	1.107	4.37	395.29	25.33	240.00	12/4/2012	2:45:58 PM	
10	2	B12-02721-01	4.839	19.68	378.07	24.59	240.00	12/4/2012	6:56:59 PM	
10	3	B12-02721-02	4.791	19.49	377.91	24.58	240.00	12/4/2012	11:07:59 PM	
10	4	B12-02721-03	1.094	4.22	407.72	25.92	240.00	12/5/2012	3:18:59 AM	
10	5	B12-02721-04	1.076	4.37	378.13	24.59	240.00	12/5/2012	7:29:54 AM	
10	6	B12-02721-05	1.277	5.04	395.32	25.33	240.00	12/5/2012	11:40:51 AM	
Missing vial 7.										
Missing vial 8.										
Missing vial 9.										
Missing vial 10.										
Missing vial 11.										
Missing vial 12.										
10	13	B12-02721-12	1.032	6.60	220.99	15.64	240.00	12/5/2012	3:52:07 PM	
10	14	B12-02721-13	1.275	4.96	402.67	25.68	240.00	12/5/2012	8:03:04 PM	
10	15	B12-02721-14	1.004	4.97	286.72	20.19	240.00	12/6/2012	12:14:02 AM	
10	16	B12-02721-15	1.161	5.67	290.87	20.47	240.00	12/6/2012	4:24:59 AM	
10	17	B12-02721-16	1.173	6.43	258.02	18.24	240.00	12/6/2012	8:35:55 AM	
10	18	B12-02721-17	3.550	19.91	251.93	17.83	240.00	12/6/2012	12:46:52 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\20121206_1649.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121206_1649\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

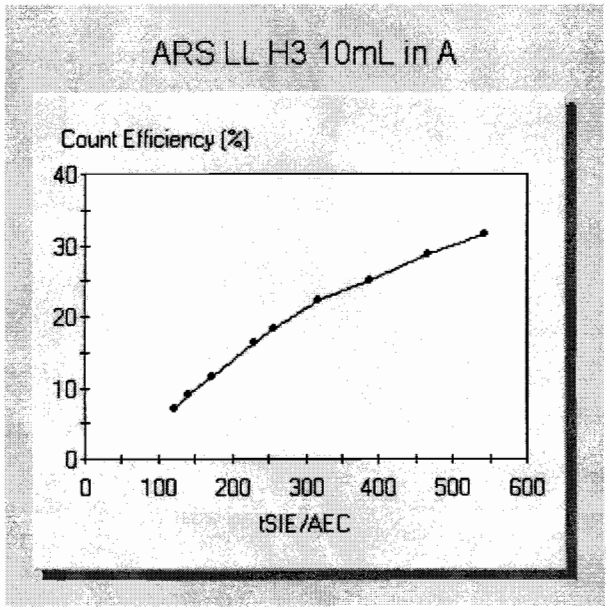
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	B12-02721-06	3.801	14.84	401.27	25.61	240.00	12/6/2012	4:58:25 PM	
2	2	B12-02721-07	1.319	5.06	410.59	26.06	240.00	12/6/2012	9:09:28 PM	
2	3	B12-02721-08	1.466	5.78	395.87	25.35	240.00	12/7/2012	1:20:23 AM	
2	4	B12-02721-09	1.351	5.73	351.17	23.55	240.00	12/7/2012	5:31:20 AM	
2	5	B12-02721-10	1.062	5.27	286.28	20.16	240.00	12/7/2012	9:42:17 AM	
2	6	B12-02721-11	1.818	7.68	354.31	23.67	240.00	12/7/2012	1:53:14 PM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\20121207_1755.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3_3\20121207_1755\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3_3.lsa

Count Conditions-

Nuclide: Low Level H3
   Quench Indicator: tSIE/AEC
   External Std Terminator (sec): 0.5 2s%
   Pre-Count Delay (min): 0.00
Quench Set:
   Low Energy: ARS LL H3 10mL
Count Time (min): 240.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

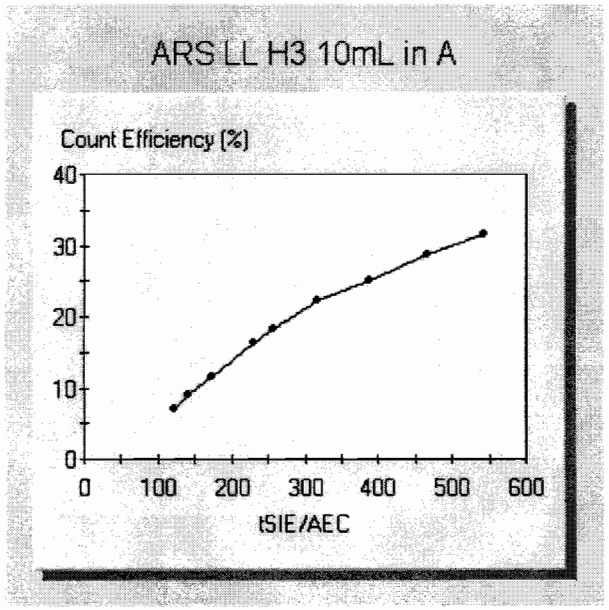
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/20/2012
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
543.57	31.51
466.44	28.74
387.42	24.95
316.48	22.21
257.14	18.18
229.94	16.37
172.56	11.68
142.07	9.08
121.26	7.13

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
10	1	B12-02721-18	1.076	5.89	258.29	18.25	240.00	12/7/2012	6:04:50 PM	
10	2	B12-02721-19	1.849	8.53	308.77	21.69	240.00	12/7/2012	10:15:50 PM	
10	3	B12-02721-20	1.389	6.50	304.39	21.39	240.00	12/8/2012	2:26:47 AM	
10	4	B12-02721-21	1.072	5.42	280.53	19.77	240.00	12/8/2012	6:37:44 AM	

ARS Batch Number: ARS1-B12 - 02721

Enter these Values for LCS

		Report Name	Field Name on the Report
Current ACT	5.6490	Standards Report	ACT at Date Above (dpm/g)
NetWt	5.0530	LCS Report	NetWt
Aliquot	0.5002	Tritium Enrichment Data	Gross Sample Added/1000

Enter these Values for LCSD

		Report Name	Field Name on the Report
Current ACT	5.6490	Standards Report	ACT at Date Above (dpm/g)
NetWt	5.0520	LCS Report	NetWt
Aliquot	0.5035	Tritium Enrichment Data	Gross Sample Added/1000

Expected Value Calculations

ARS Batch Number: ARS1-B11 - 02721

LCS **CALCULATED EXPECTED VALUE** = 25.703

Range 20.563 – 30.844

LCSD **CALCULATED EXPECTED VALUE** = 25.532

Range 20.425 – 30.638

EXIT Exit

AMRAD AMERICAN RADIATION SERVICES, LLC

Standards Activity as of: 12/03/12 12:16

Active	Std ID	Isotope	PSCLT	Verification Date	Exp Date	Status	Ref Date	Ref ACT (dpm)	ACT at Date Above (dpm/g)	Halflife (days)	Parent ID	Expended Date	Comments
A	**S-0279**	H-3	**SL**	09/10/12	09/10/13	OK	09/07/12	5.7255E+00	**5.6493**	4.500E+03	**S-0237**		H3 LCS standard. Dilution performed as stated above by B Steffens. -B

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
11-21-12	0702	SNC-16	QA	QA	[illegible]
11-21-12	1136	Background	B12-02616	1417	[illegible]
↓	↓	B12-02616-01	↓	↓	[illegible]
↓	↓	B12-02616-02	↓	↓	[illegible]
↓	↓	B12-02616-03	↓	↓	[illegible]
↓	↓	B12-02616-04	↓	↓	[illegible]
↓	↓	B12-02616-05	↓	↓	[illegible]
↓	↓	B12-02616-06	↓	↓	[illegible]
↓	↓	B12-02616-07	↓	↓	[illegible]
↓	↓	B12-02616-08	↓	↓	[illegible]
↓	↓	B12-02616-09	↓	↓	[illegible]
↓	↓	B12-02616-10	↓	↓	[illegible]
11-21-12	1200	SNC-16	QA	QA	[illegible]
12-4-12	0732	SNC-16	QA	QA	[illegible]
12-4-12	1434	Background	B12-02721	1437	[illegible]
↓	↓	B12-02721-01	↓	↓	[illegible]
↓	↓	B12-02721-02	↓	↓	[illegible]
↓	↓	B12-02721-03	↓	↓	[illegible]
↓	↓	B12-02721-04	↓	↓	[illegible]
↓	↓	B12-02721-05	↓	↓	[illegible]

Reviewed By: [illegible] Date: 12-10-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-4-12	1434	B12-02721-06	B12-02721	1437	[illegible]
↓	↓	B12-02721-07	↓	↓	[illegible]
↓	↓	B12-02721-08	↓	↓	[illegible]
↓	↓	B12-02721-09	↓	↓	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
↓	↓	B12-02721-12	↓	↓	[illegible]
↓	↓	B12-02721-13	↓	↓	[illegible]
↓	↓	B12-02721-14	↓	↓	[illegible]
↓	↓	B12-02721-15	↓	↓	[illegible]
↓	↓	B12-02721-16	↓	↓	[illegible]
↓	↓	B12-02721-17	↓	↓	[illegible]
↓	↓	B12-02721-18	↓	↓	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]
12-4-12	1437	SNC-16	QA	QA	[illegible]
* 12-5-12	1604	B12-02721-06	B12-02721	1649	[illegible]
↓	↓	B12-02721-07	↓	↓	[illegible]
↓	↓	B12-02721-08	↓	↓	[illegible]

* will count before SNC. [illegible] 12-5-12

Reviewed By: [illegible] Date: 12-10-12
Initials

Beta Liquid Scintillation Counter Log Book

Date	Time	ARS Sample I.D. Number	Batch Number	Liquid Scintillation File Number	Technician Initials
12-5-12	1604	B12-02721-09	B12-02721	1649	[illegible]
↓	↓	B12-02721-10	↓	↓	[illegible]
↓	↓	B12-02721-11	↓	↓	[illegible]
12-7-12	1026	B12-02721-18	B12-02721	1755	[illegible]
↓	↓	B12-02721-19	↓	↓	[illegible]
↓	↓	B12-02721-20	↓	↓	[illegible]
↓	↓	B12-02721-21	↓	↓	[illegible]

12-10-12

Reviewed By: SDR Date: 12-10-12
Initials

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

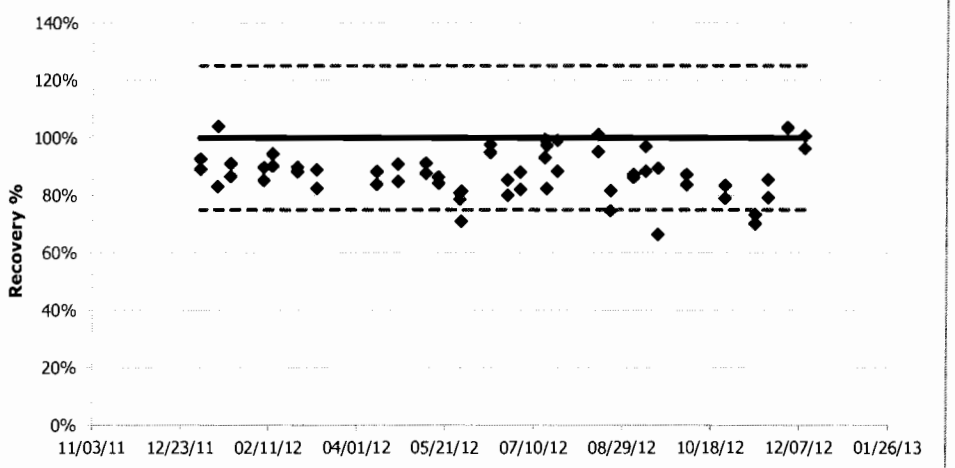
Los Alamos National Laboratory

Low Level Tritium by Low Level Liquid Scintillation Counting

Control Charts

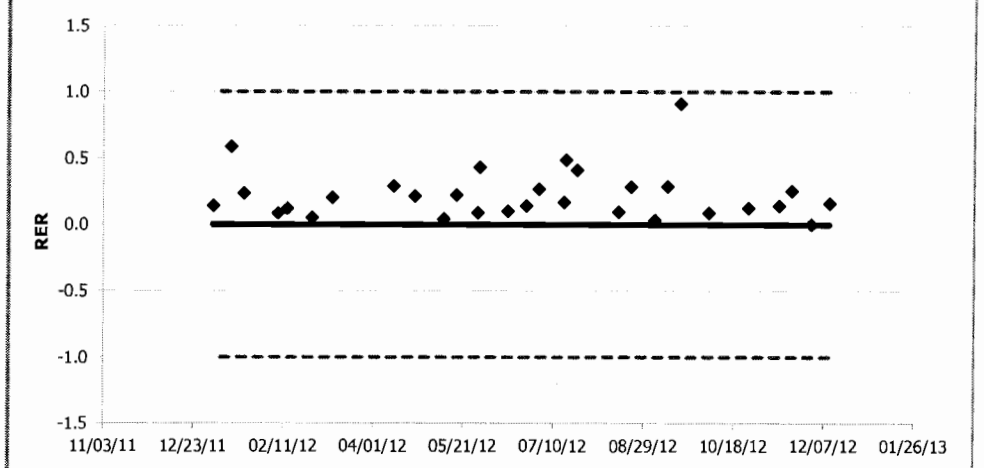
QC Chart

LLH-3 LCS



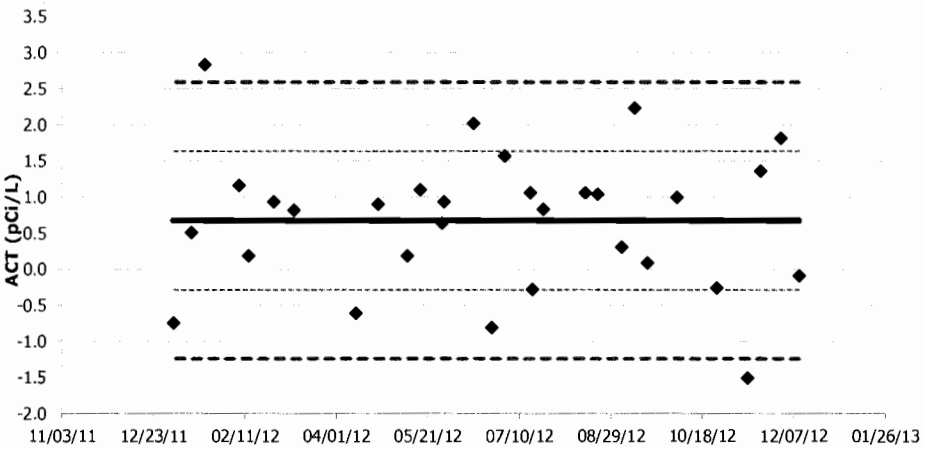
Average	STDEV	n	UCL	LCL
0.8778	0.0828	30	1.2500	0.7500

LLH-3 RER



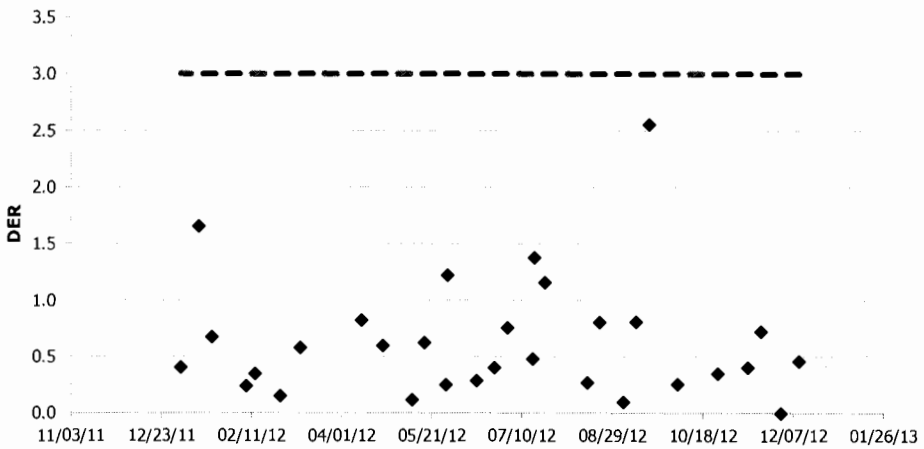
		n	UCL	LCL
		30	1.0000	-1.0000

LLH-3 Blank



Average	STDEV	n	UCL	LCL
0.6761	0.9576	30	2.5912	-1.2390

LLH-3 DER



		n	UCL	
		30	3.0000	

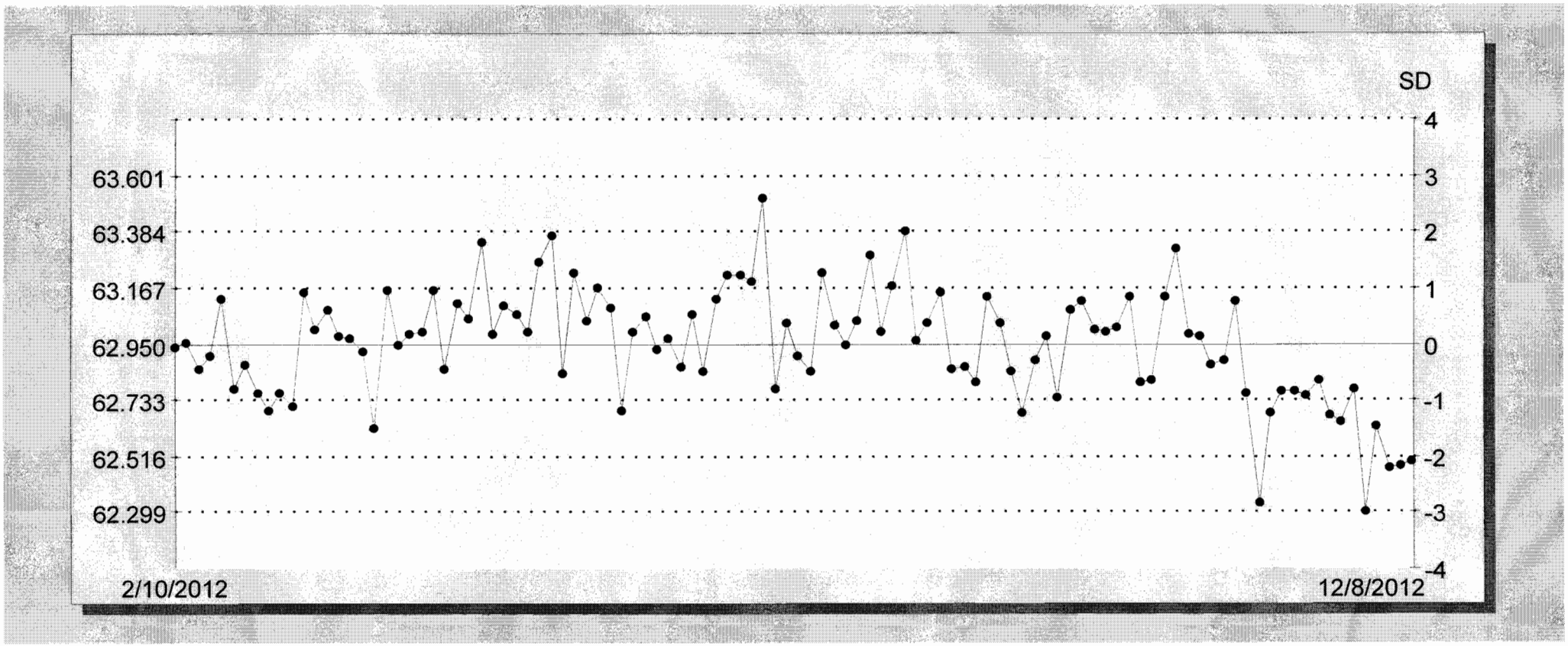
3H Efficiency
Total # pts : 5553
Valid # pts : 106
Mean : 62.95
SD : 0.22

Date	Value	Valid Pt
Feb 10, 2012	62.94	X
Feb 15, 2012	62.96	X
Feb 16, 2012	62.86	X
Feb 17, 2012	62.90	X
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X

Jun 30, 2012	62.97	X
Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X
Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 22, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X

Nov 13, 2012	62.76	X
Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X
Nov 18, 2012	62.68	X
Nov 19, 2012	62.65	X
Nov 19, 2012	62.78	X
Nov 20, 2012	62.30	X
Nov 21, 2012	62.63	X
Nov 23, 2012	62.47	X
Dec 04, 2012	62.48	X
Dec 08, 2012	62.49	X

3H Efficiency
Total # pts : 5553
Valid # pts : 106
Mean : 62.95
SD : 0.22



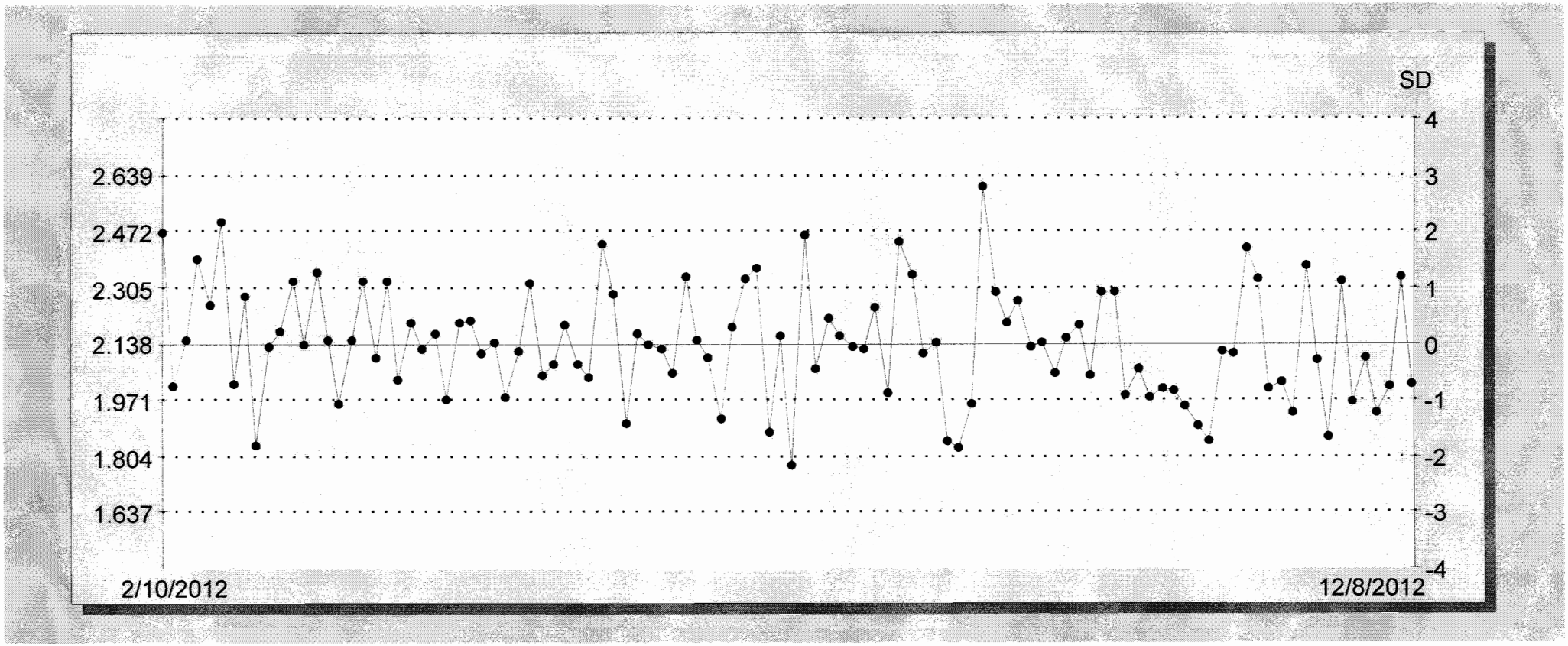
3H Background
Total # pts : 5479
Valid # pts : 106
Mean : 2.14
SD : 0.17

Date	Value	Valid Pt
Feb 10, 2012	2.47	X
Feb 15, 2012	2.01	X
Feb 16, 2012	2.15	X
Feb 17, 2012	2.39	X
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X

Jun 30, 2012	2.12	X
Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X
Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 22, 2012	2.19	X
Jul 26, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 09, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X

Nov 13, 2012	1.93	X
Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X
Nov 18, 2012	1.86	X
Nov 19, 2012	2.32	X
Nov 19, 2012	1.96	X
Nov 20, 2012	2.09	X
Nov 21, 2012	1.93	X
Nov 23, 2012	2.01	X
Dec 04, 2012	2.34	X
Dec 08, 2012	2.02	X

3H Background
Total # pts : 5479
Valid # pts : 106
Mean : 2.14
SD : 0.17



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium- Screening by Low Level Liquid Scintillation Counting

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting Samples

Procedures: **ARS-060** **ARS-040** *Section 14.1 Tritium Screen in Clean Water without Distillation*

ARS File ID Numbers: ARS1-12-02261; 2262; 2263; 2264

ARS Batch ID: ARS1-B12-02676

	Sample ID:	COUNT TIME	CPMA	Background CPMA	Eff Nucl In A	Aliquot (grams)	ACTIVITY	units	MDA	Sample Must be analyzed as LSC-A-001
1	B12-02676-04	120	1.295	1.161	26.74	10.00	22.573	pCi/L	98.37195	NO
2	B12-02676-05	120	1.175	1.161	26.28	10.00	2.400	pCi/L	100.0938	NO
3	B12-02676-06	120	1.362	1.237	27.42	10.00	20.535	pCi/L	98.90302	NO
4	B12-02676-07	120	1.543	1.161	26.41	10.00	65.154	pCi/L	99.60114	NO
5	B12-02676-08	120	1.396	1.161	26.38	10.00	40.127	pCi/L	99.71441	NO
6	B12-02676-09	120	1.678	1.237	27.9	10.00	71.200	pCi/L	97.20146	NO
7	B12-02676-10	120	1.596	1.237	27.66	10.00	58.464	pCi/L	98.04486	NO
8	B12-02676-11	120	1.250	1.237	27.44	10.00	2.134	pCi/L	98.83093	NO
9	B12-02676-12	120	1.420	1.237	27.33	10.00	30.162	pCi/L	99.22872	NO
10	B12-02676-13	120	1.206	1.237	27.82	10.00	-5.019	pCi/L	97.48098	NO
11							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
12							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
13							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
14							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
15							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
16							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
17							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
18							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
19							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
20							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
21							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
22							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!
23							#DIV/0!	pCi/L	#DIV/0!	#DIV/0!

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Laboratory Records

American Radiation Services, Inc.
Baton Rouge Laboratory

Analysis Batch Report

ARS INTERNATIONAL

Analysis Batch ID **ARS1-B12-02676**

Method	ARS-054	Analysis	LSC-A-021	Matrix	AQ
Description	Low Level Tritium Screening				

ABatch Sample ID	Type	Blind Iso1	Blind Iso2	Blind Iso3	SDG	FR	Run	Client ID	Isotope Group	Lab Deadline
ARS1-B12-02676-01	LCS									
ARS1-B12-02676-02	LCSD									
ARS1-B12-02676-03	MBL									
ARS1-B12-02676-04	TRG				**ARS1-12-02261**	001	1	CAMO-13-24279	STD	11/29/12
ARS1-B12-02676-05	TRG				**ARS1-12-02262**	001	1	CAMO-13-24241	STD	12/06/12
ARS1-B12-02676-06	TRG				**ARS1-12-02262**	002	1	CAMO-13-24242	STD	12/06/12
ARS1-B12-02676-07	TRG				**ARS1-12-02262**	003	1	CAMO-13-24225	STD	12/06/12
ARS1-B12-02676-08	TRG				**ARS1-12-02262**	004	1	CAMO-13-24247	STD	12/06/12
ARS1-B12-02676-09	TRG				**ARS1-12-02262**	005	1	CAMO-13-24248	STD	12/06/12
ARS1-B12-02676-10	TRG				**ARS1-12-02263**	001	1	CAMO-13-24276	STD	12/06/12
ARS1-B12-02676-11	TRG				**ARS1-12-02264**	001	1	CASA-13-24209	STD	12/06/12
ARS1-B12-02676-12	TRG				**ARS1-12-02264**	002	1	CASA-13-24213	STD	12/06/12
ARS1-B12-02676-13	TRG				**ARS1-12-02264**	003	1	CASA-13-24214	STD	12/06/12

126503
12-02261-001-1
WRAD

126506
12-02262-001-1
WRAD

126507
12-02262-002-1
WRAD

126508
12-02262-003-1
WRAD

126509
12-02262-004-1
WRAD

126510
12-02262-005-1
WRAD

126511
12-02263-001-1
WRAD

126512
12-02264-001-1
WRAD

126513
12-02264-002-1
WRAD

126514
12-02264-003-1
WRAD

American Radiation Services
Baton Rouge Laboratory

ARS-054

ID_31001_054	ABatch	ABatchSampleID	ClientID	Aliquot1	AliquotUnits1	IC_ID1	Aliquot2	AliquotUnits2	IC_ID2	UserID	ModDate
11960	ARS1-B12-02676	ARS1-B12-02676-01		1	g					AMRAD\RUSEY	11/12/2012 14:02:14
11961	ARS1-B12-02676	ARS1-B12-02676-02		1	g					AMRAD\RUSEY	11/12/2012 14:02:14
11962	ARS1-B12-02676	ARS1-B12-02676-03		1	g					AMRAD\RUSEY	11/12/2012 14:02:14
11963	ARS1-B12-02676	ARS1-B12-02676-04	CAMO-13-24279	10	g	126503				AMRAD\RUSEY	11/12/2012 14:02:14
11964	ARS1-B12-02676	ARS1-B12-02676-05	CAMO-13-24241	10	g	126506				AMRAD\RUSEY	11/12/2012 14:02:14
11965	ARS1-B12-02676	ARS1-B12-02676-06	CAMO-13-24242	10	g	126507				AMRAD\RUSEY	11/12/2012 14:02:14
11966	ARS1-B12-02676	ARS1-B12-02676-07	CAMO-13-24225	10	g	126508				AMRAD\RUSEY	11/12/2012 14:02:14
11967	ARS1-B12-02676	ARS1-B12-02676-08	CAMO-13-24247	10	g	126509				AMRAD\RUSEY	11/12/2012 14:02:15
11968	ARS1-B12-02676	ARS1-B12-02676-09	CAMO-13-24248	10	g	126510				AMRAD\RUSEY	11/12/2012 14:02:15
11969	ARS1-B12-02676	ARS1-B12-02676-10	CAMO-13-24276	10	g	126511				AMRAD\RUSEY	11/12/2012 14:02:15
11970	ARS1-B12-02676	ARS1-B12-02676-11	CASA-13-24209	10	g	126512				AMRAD\RUSEY	11/12/2012 14:02:15
11971	ARS1-B12-02676	ARS1-B12-02676-12	CASA-13-24213	10	g	126513				AMRAD\RUSEY	11/12/2012 14:02:15
11972	ARS1-B12-02676	ARS1-B12-02676-13	CASA-13-24214	10	g	126514				AMRAD\RUSEY	11/12/2012 14:02:16

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121113_1339
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121113_1339\20121113_1339.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121113_1339\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121113_1339\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: ARS LL H3 10mL
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

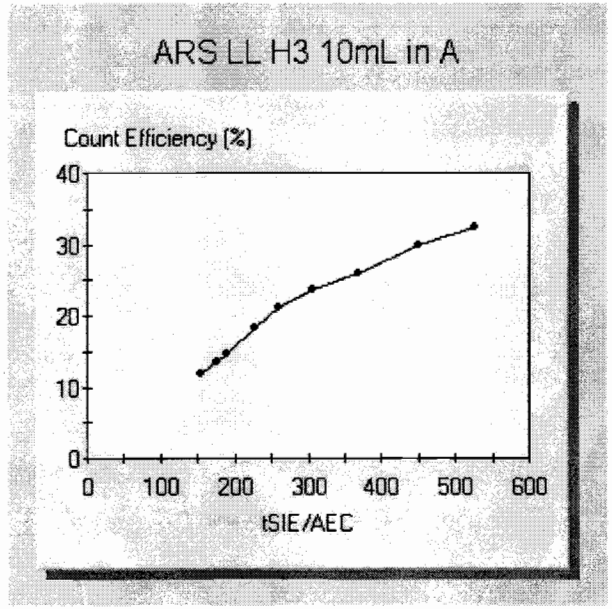
Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/18/2011
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
526.29	32.47
450.16	29.90
370.15	25.92
306.68	23.60
260.68	20.99
228.69	18.21
189.46	14.53
177.14	13.64
155.73	11.73

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	BACKGROUND	1.161	4.63	346.75	25.07	120.00	11/13/2012	1:48:10 PM	
2	2	B12-02676-04	1.295	4.84	386.58	26.74	120.00	11/13/2012	3:58:07 PM	
2	3	B12-02676-05	1.175	4.47	377.35	26.28	120.00	11/13/2012	6:08:00 PM	
2	4	B12-02676-06	2.297	8.70	379.47	26.39	120.00	11/13/2012	8:17:56 PM	
2	5	B12-02676-07	1.543	5.84	379.91	26.41	120.00	11/13/2012	10:27:52 PM	
2	6	B12-02676-08	1.396	5.29	379.25	26.38	120.00	11/14/2012	12:37:45 AM	

Assay Definition-

Assay Description:
LLH3 Assay in DPM Mode

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121114_0812
Raw Results Path: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121114_0812\20121114_0812.results
RTF File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121114_0812\LLH3.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\H3 Low Level\Low Level H3\20121114_0812\LLH3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\Low Level H3.lsa

Count Conditions-

Nuclide: Low Level H3
  Quench Indicator: tSIE/AEC
  External Std Terminator (sec): 0.5 2s%
  Pre-Count Delay (min): 0.00
Quench Set:
  Low Energy: ARS LL H3 10mL
Count Time (min): 120.00
Count Mode: Low Level
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

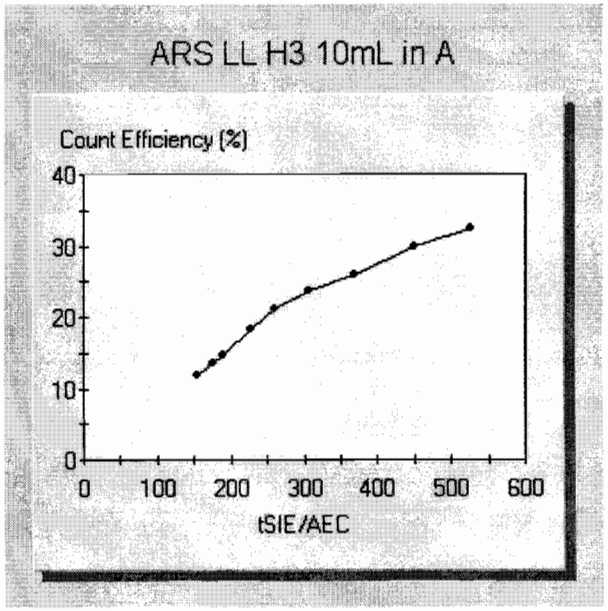
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 11/18/2011
Date Modified:
ARS LL H3 10mL in A

tSIE/AEC	Count Efficiency (%)
526.29	32.47
450.16	29.90
370.15	25.92
306.68	23.60
260.68	20.99
228.69	18.21
189.46	14.53
177.14	13.64
155.73	11.73

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
2	1	BACKGROUND	1.237	4.79	366.64	25.80	120.00	11/14/2012	8:21:32 AM	
2	2	B12-02676-06	1.362	4.97	400.26	27.42	120.00	11/14/2012	10:31:28 AM	
2	3	B12-02676-09	1.678	6.01	409.90	27.90	120.00	11/14/2012	12:41:23 PM	
2	4	B12-02676-10	1.596	5.77	405.21	27.66	120.00	11/14/2012	2:51:17 PM	
2	5	B12-02676-11	1.250	4.56	400.64	27.44	120.00	11/14/2012	5:01:10 PM	
2	6	B12-02676-12	1.420	5.19	398.45	27.33	120.00	11/14/2012	7:11:07 PM	
2	7	B12-02676-13	1.206	4.34	408.26	27.82	120.00	11/14/2012	9:21:01 PM	

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Tritium-Screening by Low Level Liquid Scintillation Counting

Control Charts

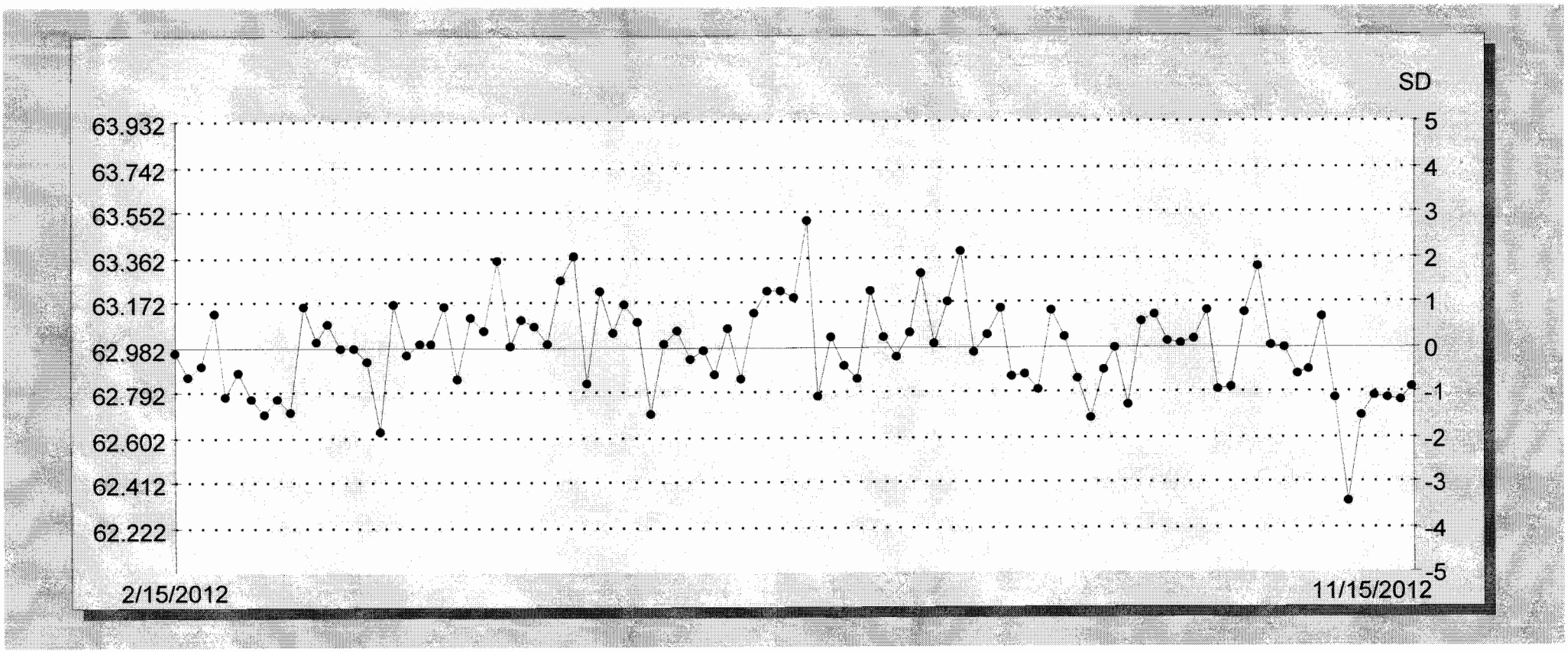
3H Efficiency
Total # pts : 5545
Valid # pts : 97
Mean : 62.98
SD : 0.19

Date	Value	Valid Pt
Feb 15, 2012	62.96	X
Feb 16, 2012	62.86	X
Feb 17, 2012	62.90	X
Feb 20, 2012	63.13	X
Feb 23, 2012	62.77	X
Feb 24, 2012	62.87	X
Mar 05, 2012	62.76	X
Mar 07, 2012	62.70	X
Mar 12, 2012	62.76	X
Mar 15, 2012	62.71	X
Mar 22, 2012	63.15	X
Mar 23, 2012	63.01	X
Mar 28, 2012	63.08	X
Apr 05, 2012	62.98	X
Apr 10, 2012	62.97	X
Apr 12, 2012	62.92	X
Apr 13, 2012	62.63	X
Apr 20, 2012	63.16	X
Apr 23, 2012	62.95	X
Apr 26, 2012	62.99	X
Apr 27, 2012	62.99	X
Apr 30, 2012	63.16	X
May 01, 2012	62.85	X
May 03, 2012	63.11	X
May 07, 2012	63.05	X
May 09, 2012	63.34	X
May 14, 2012	62.99	X
May 17, 2012	63.10	X
May 17, 2012	63.07	X
May 23, 2012	62.99	X
May 30, 2012	63.26	X
May 31, 2012	63.37	X
Jun 06, 2012	62.83	X
Jun 13, 2012	63.22	X
Jun 21, 2012	63.04	X
Jun 22, 2012	63.16	X
Jun 25, 2012	63.09	X
Jun 27, 2012	62.70	X
Jun 27, 2012	62.99	X
Jun 28, 2012	63.05	X
Jun 29, 2012	62.93	X
Jun 30, 2012	62.97	X

Jul 05, 2012	62.86	X
Jul 11, 2012	63.07	X
Jul 12, 2012	62.85	X
Jul 16, 2012	63.12	X
Jul 20, 2012	63.22	X
Jul 22, 2012	63.22	X
Jul 26, 2012	63.19	X
Jul 27, 2012	63.52	X
Aug 09, 2012	62.77	X
Aug 13, 2012	63.03	X
Aug 14, 2012	62.90	X
Aug 16, 2012	62.85	X
Aug 17, 2012	63.22	X
Aug 18, 2012	63.03	X
Aug 21, 2012	62.94	X
Aug 22, 2012	63.04	X
Aug 26, 2012	63.29	X
Aug 27, 2012	62.99	X
Aug 27, 2012	63.17	X
Sep 05, 2012	63.39	X
Sep 09, 2012	62.96	X
Sep 11, 2012	63.03	X
Sep 17, 2012	63.15	X
Sep 18, 2012	62.86	X
Sep 20, 2012	62.86	X
Sep 20, 2012	62.80	X
Sep 24, 2012	63.14	X
Sep 28, 2012	63.03	X
Oct 01, 2012	62.85	X
Oct 04, 2012	62.68	X
Oct 05, 2012	62.88	X
Oct 06, 2012	62.98	X
Oct 11, 2012	62.74	X
Oct 12, 2012	63.08	X
Oct 13, 2012	63.12	X
Oct 17, 2012	63.00	X
Oct 19, 2012	63.00	X
Oct 22, 2012	63.02	X
Oct 23, 2012	63.13	X
Oct 23, 2012	62.80	X
Oct 23, 2012	62.81	X
Oct 23, 2012	63.13	X
Oct 25, 2012	63.32	X
Oct 27, 2012	62.99	X
Oct 31, 2012	62.98	X
Nov 02, 2012	62.87	X
Nov 02, 2012	62.89	X
Nov 04, 2012	63.11	X
Nov 05, 2012	62.76	X
Nov 10, 2012	62.33	X
Nov 12, 2012	62.69	X
Nov 12, 2012	62.77	X

Nov 14, 2012	62.75	X
Nov 15, 2012	62.81	X

3H Efficiency
Total # pts : 5545
Valid # pts : 97
Mean : 62.98
SD : 0.19



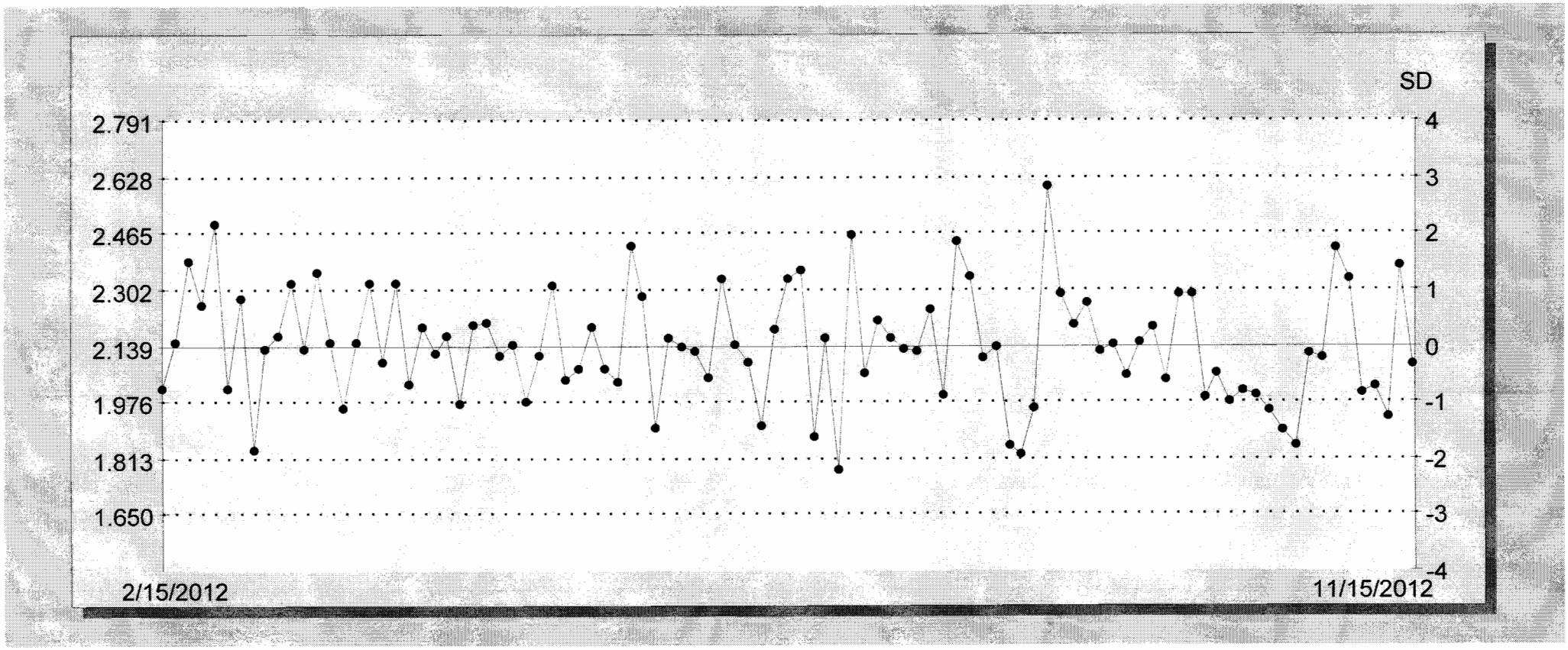
3H Background
Total # pts : 5471
Valid # pts : 97
Mean : 2.14
SD : 0.16

Date	Value	Valid Pt
Feb 15, 2012	2.01	X
Feb 16, 2012	2.15	X
Feb 17, 2012	2.39	X
Feb 20, 2012	2.25	X
Feb 23, 2012	2.50	X
Feb 24, 2012	2.01	X
Mar 05, 2012	2.28	X
Mar 07, 2012	1.84	X
Mar 12, 2012	2.13	X
Mar 15, 2012	2.17	X
Mar 22, 2012	2.32	X
Mar 23, 2012	2.13	X
Mar 28, 2012	2.35	X
Apr 05, 2012	2.15	X
Apr 10, 2012	1.96	X
Apr 12, 2012	2.15	X
Apr 13, 2012	2.32	X
Apr 20, 2012	2.09	X
Apr 23, 2012	2.32	X
Apr 26, 2012	2.03	X
Apr 27, 2012	2.20	X
Apr 30, 2012	2.12	X
May 01, 2012	2.17	X
May 03, 2012	1.97	X
May 07, 2012	2.20	X
May 09, 2012	2.20	X
May 14, 2012	2.11	X
May 17, 2012	2.14	X
May 17, 2012	1.98	X
May 23, 2012	2.11	X
May 30, 2012	2.31	X
May 31, 2012	2.04	X
Jun 06, 2012	2.07	X
Jun 13, 2012	2.19	X
Jun 21, 2012	2.08	X
Jun 22, 2012	2.04	X
Jun 25, 2012	2.43	X
Jun 27, 2012	2.28	X
Jun 27, 2012	1.90	X
Jun 28, 2012	2.16	X
Jun 29, 2012	2.13	X
Jun 30, 2012	2.12	X

Jul 05, 2012	2.05	X
Jul 11, 2012	2.33	X
Jul 12, 2012	2.15	X
Jul 16, 2012	2.09	X
Jul 20, 2012	1.91	X
Jul 22, 2012	2.19	X
Jul 26, 2012	2.33	X
Jul 27, 2012	2.36	X
Aug 09, 2012	1.88	X
Aug 13, 2012	2.16	X
Aug 14, 2012	1.78	X
Aug 16, 2012	2.46	X
Aug 17, 2012	2.06	X
Aug 18, 2012	2.21	X
Aug 21, 2012	2.16	X
Aug 22, 2012	2.13	X
Aug 26, 2012	2.12	X
Aug 27, 2012	2.25	X
Aug 27, 2012	1.99	X
Sep 05, 2012	2.44	X
Sep 09, 2012	2.34	X
Sep 11, 2012	2.11	X
Sep 17, 2012	2.14	X
Sep 18, 2012	1.85	X
Sep 20, 2012	1.83	X
Sep 20, 2012	1.96	X
Sep 24, 2012	2.60	X
Sep 28, 2012	2.29	X
Oct 01, 2012	2.20	X
Oct 04, 2012	2.26	X
Oct 05, 2012	2.13	X
Oct 06, 2012	2.14	X
Oct 11, 2012	2.05	X
Oct 12, 2012	2.15	X
Oct 13, 2012	2.19	X
Oct 17, 2012	2.04	X
Oct 19, 2012	2.29	X
Oct 22, 2012	2.29	X
Oct 23, 2012	1.99	X
Oct 23, 2012	2.06	X
Oct 23, 2012	1.98	X
Oct 23, 2012	2.01	X
Oct 25, 2012	2.00	X
Oct 27, 2012	1.95	X
Oct 31, 2012	1.89	X
Nov 02, 2012	1.85	X
Nov 02, 2012	2.11	X
Nov 04, 2012	2.11	X
Nov 05, 2012	2.42	X
Nov 10, 2012	2.33	X
Nov 12, 2012	2.00	X
Nov 12, 2012	2.02	X

Nov 14, 2012	2.37	X
Nov 15, 2012	2.09	X

3H Background
Total # pts : 5471
Valid # pts : 97
Mean : 2.14
SD : 0.16



2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Low Level Liquid Scintillation Counting

Calibration Information

ARS INTERNATIONAL

QUALITY CONTROL PROGRAM

AMERICAN RADIATION SERVICES
RADIOACTIVE REFERENCE SOLUTIONS

ANNUAL ACTIVITY VERIFICATION

VERIFICATION DATE: 9/10/2012 20:16 *date counted*
STANDARD REFERENCE #: S-0279

Principal Radionuclide		Half Life, Years		Half Life, Days
H-3	*ENTER -->*		*OR -->*	4.4998E+03
		1.232E+01		4.4998E+03

Radionuclide: H-3 Dilution Reference Date: 9/7/2012 10:40

Dilution Activity	2.58	pCi per gram ===> dpm/g	5.73
Verif. Date Decay Corrected	2.58	pCi per gram ===> dpm/g	5.72

Minimum of 3 Required

Trial ID	Sample Counts	Count Time (min)	Detector	Efficiency	Bkg. (cpm)	Net Weight	Decay Corrected Activity Result (dpm/g)	Decay Corrected Activity Result (pCi/g)
S-0279-V1	15.91	1	LSC	0.3302	6.49	5.019	5.68	2.56
S-0279-V2	16.21	1	LSC	0.3291	6.49	5.018	5.89	2.65
S-0279-V3	15.76	1	LSC	0.3290	6.49	5.018	5.62	2.53
S-0279-V4	15.62	1	LSC	0.3293	6.49	5.008	5.54	2.49
S-0279-V5	15.76	1	LSC	0.3280	6.49	5.018	5.63	2.54

	Average	5.67	2.55
	Two Sigma Uncertainty	0.26	0.12
10% Max *PASS*	Standard Deviation percent of known concentration	2.30%	2.30%
	Target Activity	5.72	2.58
5% Max *PASS*	% Diff	-0.91%	-0.91%

Verification Expiration Date: ##############

Prepared & Counted By: [signature] Date: 9/10/2012 20:16

Verified & Approved By: [signature] Date: 9-11-12 0817

QC Approval: [signature] Date: 9-11-12 0817

S-0279		
H-3	Verified	*9/10/12*
SL	**Expires**	**9/10/13**
Manufactuer	**NIST SRM 4927F**	
Sol Matrix	H2O	
Ref No	NIST SRM 4927F	
Tech	Unknown	
Parent ID	S-0237	

ARS INTERNATIONAL

RADIOACTIVE STANDARDS -- BATON ROUGE LABORATORY

H-3 Standard Verification

Verifier's Name: Brian Steffens **Date:** 9/7/2012

Pipettor ID: FJ40469
Pipettor ID: Auto-pipettor
Pipettor ID: na
Standard ID: S-0279
Standard ID: N/A

Standards brought up to ~5g with distilled dead water.
Standards made in glass vials.

15mL of Ultima Gold added to standard

	Weight of Standard
S-0279-V1	5.019 **g**
S-0279-V2	5.018 **g**
S-0279-V3	5.018 **g**
S-0279-V4	5.008 **g**
S-0279-V5	5.018 **g**

Balance ID: H1331122173560P

Assay Definition-

Assay Description:
H3 Normal Lvl

Assay Type: DPM (Single)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931
Raw Results Path: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\20120910_0931.results
RTF File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\ARS\H-3 Normal 3\20120910_0931\H3 Results.csv
Assay File Name: C:\Packard\TriCarb\Assays\H-3 Normal 3.lsa

Count Conditions-

Nuclide: H-3 Normal
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: UG STD H-3
Count Time (min): 120.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	2Sigma % Terminator
A	2.0	18.6	0.50
B	0.0	2000.0	0.00
C	0.0	2000.0	0.00

Count Corrections-

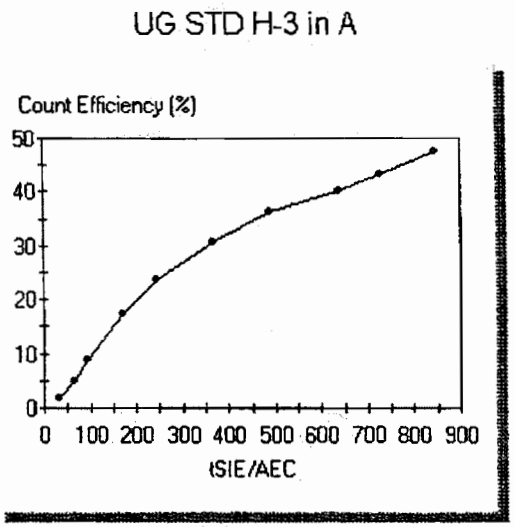
Static Controller: On Luminescence Correction: Off
Colored Samples: Off Heterogeneity Monitor: Off
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life

Half Life Correction: Off
Regions Half Life Units Reference Date Reference Time

A
B
C

Cycle 1 Results
Quench Curve Block Data



Date Acquired: 06/27/2012
Date Modified:
UG STD H-3 in A

tSIE/AEC	Count Efficiency (%)
846.90	47.58
730.85	43.21
639.47	40.08
487.78	36.36
365.41	30.73
244.81	23.69
169.28	17.31
95.01	8.79
64.60	4.97
34.32	.64

P#	S#	SMPL_ID	CPMA	DPM1	tSIE	Eff Nucl In A	Count Time	DATE	TIME	MESSAGES
54	1	BACKGROUND	6.49	19.81	409.74	32.77	120.00	9/10/2012	9:36:46 AM	
54	2	S-0279-V1	15.91	48.18	415.20	33.02	120.00	9/10/2012	11:44:40 AM	
54	3	S-0279-V2	16.21	49.25	412.72	32.91	120.00	9/10/2012	1:52:36 PM	
54	4	S-0279-V3	15.76	47.89	412.56	32.90	120.00	9/10/2012	4:00:32 PM	
54	5	S-0279-V4	15.62	47.44	413.22	32.93	120.00	9/10/2012	6:08:27 PM	
54	6	S-0279-V5	15.76	48.04	410.40	32.80	120.00	9/10/2012	8:16:20 PM	

STD ID: S-0279

ARS INTERNATIONAL

Add/Edit *Secondary Stds*

Planning

Planning Comments	Create a H3 LCS standard.
Target dpm/g (on dil. date)	5.5
Target Final volume mL	2000
Appx mass g of Parent Sol'n	3.606433954
Appx vol ml of Parent Sol'n	3.612937241
Expected Addition for Analysis g	5

Standards Preparation / Dilution

Secondary Solution #	S-0279
Dilution Date (New Ref Date)	09/07/2012 10:40
Ampoule, Empty (g)	
Ampoule /Solution Gross (g)	
Net Wt Removed (g)	
Transfer Container, empty (g)	13.144
Container Plus Solution (g)	16.89
Net Wt Transferred (g)	3.746
DPM Xferred on 09/07/2012 10:40	11425.69101
Diluent/matrix	DI H2O
Diluent Density Cont, empty (g)	
Test Mass of 5 ml of Diluent (g)	
Diluent Density Test - (g/mL)	
Dilution Empty Container Mass (g)	473.93
Dilution Full Cont g (if measured)	2469.52
Dilution Final Volume ml (if measured)	2000
Final Dilution Density (g/mL)	0.997795
Final Dilution Measured Mass g	1995.59
Comments	H3 LCS standard. Dilution performed as stated above by B Steffens. -BJS 9/7/12
Final Dilution dpm/g	5.725470166
Final Dil New Ref Date/Time	09/07/2012 10:40

Parent Standard Data

Parent Solution Reference #	NIST SRM 4927F			
Parent Solution #	S-0237			
Parent Principal Radionuclide	H-3	Half Life (Days)	4499.8000000	
Parent Reference Date	03/22/2010 10:10			
Parent Certified Act	3503.682716	Certi Act/Vol Units	dpm	g
Parent Cert Act Uncert 1 Sigma	0.0036			
Parent Sp. Gravity G/Ml	0.9982			
Parent Supplier	NIST SRM 4927F			
Parent Date Recvd	01/02/00			
Parent Received By	Unknown			
Parent Cert Exp Date				
Parent Matrix	H2O			
Certified dpm/g At Ref Date	3503.682716			
Certified dpm/g on 09/07/2012 10:40	3050.10438			
Parent Comments	Intermediate level H-3 standard for creating LCS solutions and matrix spikes. Dilution performed as stated above by B Steffens. -BJS 3/22/10			
Parent Tech	Unknown			
Is_Primary	FALSE			
Is_LCS	TRUE			
Is_Tracer	FALSE			
Is_Calib	FALSE			

2609 North River Road • Port Allen, Louisiana 70767
1 (800) 401-4277 • Fax (225) 381-2996

American Radiation Services Analytical Reports

for

Los Alamos National Laboratory

Folder Duplicate

Report Compilation Checklist

ARS SDG: 12-02261 **Client Name:** LANL **Sample Matrix:** AQ

LEVEL 1 COMPONENTS	1st Reviewer	
1) Cover Page Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
2) Technical Review Checklist(s) Complete and Accurate?	~~Yes~~ No N/A	
3) Case Narrative Complete and Accurate (see ARS-059)?	~~Yes~~ No N/A	
4) Form 1s Present for all Samples and Tests?	~~Yes~~ No N/A	
5) Client Specific Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 2 COMPONENTS	1st Reviewer	
6) Batch Quality Control Report is Present and Accurate?	~~Yes~~ No N/A	
7) DQO Report is Present and Accurate?	~~Yes~~ No N/A	
8) Client Specific Batch QC Components are Present and Complete?	Yes No ~~N/A~~	

LEVEL 3 COMPONENTS	1st Reviewer	
9) Efficiencies are Present?	~~Yes~~ No N/A	
10) Calibrations are Present?	~~Yes~~ No N/A	
11) Backgrounds are Present?	~~Yes~~ No N/A	
12) Spectrum Analysis is Present?	~~Yes~~ No N/A	
13) Spectral Plots are Present?	~~Yes~~ No N/A	
14) Plateaus are Present?	~~Yes~~ No N/A	
15) Control Charts are Present?	~~Yes~~ No N/A	
16) Other:	Yes No ~~N/A~~	

LEVEL 4 COMPONENTS	1st Reviewer	
17) Preparation Raw Data Present, Signed and Complete?	~~Yes~~ No N/A	
18) Instrument Raw Data Present and Complete?	~~Yes~~ No N/A	
19) Calibration Certificates Present?	~~Yes~~ No N/A	
20) Copies of Log Book Pages Present?	~~Yes~~ No N/A	
21) Sample Receiving Documentation Present?	~~Yes~~ No N/A	
22) LIMS Reports Present?	~~Yes~~ No N/A	
23) Applicable Correspondence Present?	~~Yes~~ No N/A	
24) Other:	Yes No ~~N/A~~	

Report Generator Signature 12-10-12 Date

Management Review Signature 12-10-12 Date

LSC
Technical Review Checklist

ARS SDG ARS1-12-02261

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-B12-02676 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-021 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) Sample Prep Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Chemist Signature 11-13-12 Date Verifier Review Signature 11-13-12 Date

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature 12-10-12 Date

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) Test/Sample Specific Parameters (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) Analysis Anomaly? ☑ No ☐ Yes (See Comments) NCR # (If initiated): _____

Analyst Signature 11-15-12 Date Technicial Reviewer Signature N/A Date

Batch A: ARS1-B12-02676

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes No ~~N/A~~	Yes No (N/A)
2) RDL Criteria are Met?	Yes No ~~N/A~~	Yes No (N/A)
3) Method Blank Criterion Met?	Yes No ~~N/A~~	Yes No (N/A)
4) LCS/LCD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
[signature]	12-10-12	[signature]	12-10-12

GENERAL COMMENTS

LSC
Technical Review Checklist

ARS SDG ARS1-12-02261

Sample Matrix: AQ **Aliquot** (Circle One) : Dry As Received Filtered Other: _____

Required QC Samples (Mark all that apply): Blank LCS LCSD Sample Dup MS MSD

ARS A. Batch ID(s): **Batch A:** ARS1-B12-02721 **Batch B:** N/A **Batch C:** N/A

Test Method(s): LSC-A-022 N/A N/A

A. RADIOCHEMICAL PREPARATION REVIEW

	Chemist Review	Verifier Review
1) 100% of Manual Transcriptions Verified?	Yes No N/A	Yes No N/A
2) 100% of Manual Calculations Verified?	Yes No N/A	Yes No N/A
3) Blank Composition/Configuration Matches Calibration?	Yes No N/A	Yes No N/A
4) Deviations from procedure are documented and verified?	Yes No N/A	Yes No N/A
5) Appropriate Cocktail Selected?	Yes No N/A	Yes No N/A

6) **Sample Prep Anomaly?** ☑ **No** ☐ **Yes** (See Tech Notes) **NCR #** (If initiated): _____

Chemist Signature 12-4-12 Date Verifier Review Signature 12-4-12 Date

B. ANALYSIS REVIEW

	Analyst Review	QA Officer Review
1) Calibrations Valid and Current?	Yes No N/A	Yes No N/A
2) Backgrounds Valid and Current?	Yes No N/A	Yes No N/A
3) Source Checks Completed and Acceptable?	Yes No N/A	Yes No N/A

QA Officer Signature 12-10-12 Date

	Analyst Review	Technicial Review
4) Background Checks Complete and Acceptable?	Yes No N/A	Yes No N/A
5) 100% of Manually Entered Parameters Verified Accurate?	Yes No N/A	Yes No N/A
6) Appropriate QC samples initiated at required frequency?	Yes No N/A	Yes No N/A
6) **Test/Sample Specific Parameters** (See ARS-059 for details)		
a) Analysis Parameters Checked and Correct and Peak Shapes are Acceptable?	Yes No N/A	Yes No N/A
b) Spectra show no Evidence of Interferences?	Yes No N/A	Yes No N/A
c) Sample Quench for All Samples within Range of Quench Curve?	Yes No N/A	Yes No N/A

7) **Analysis Anomaly?** ☑ **No** ☐ **Yes** (See Comments) **NCR #** (If initiated): _____

Analyst Signature 12-10-12 Date Technicial Reviewer Signature 12-10-12 Date

Batch A: ARS1-B12-02721

LSC
Technical Review Checklist

C. BATCH QC VALIDATION

	Proj. Mgr. Review	QA Officer Review
1) Activity + 3xCSU a Negative Number?	Yes ~~No~~ N/A	Yes (No) N/A
2) RDL Criteria are Met?	~~Yes~~ No N/A	(Yes) No N/A
3) Method Blank Criterion Met?	~~Yes~~ No N/A	(Yes) No N/A
4) LCS/LCD Criteria Met?	~~Yes~~ No N/A	(Yes) No N/A
5) Duplicate (Sample Duplicate, LCSD, MSD) Criteria Met?	~~Yes~~ No N/A	(Yes) No N/A
6) MS/MSD Criteria Met?	Yes No ~~N/A~~	Yes No (N/A)

7) Batch QC Anomaly? ☑ No ☐ Yes (See Tech Notes) NCR # (If initiated): _____

Project Manager Signature	Date	QA Officer Signature	Date
[signature]	12-10-12	[signature]	12-10-12

GENERAL COMMENTS

DQO Report for SDG
ARS1-12-02261

80 of 80

Analysis Code	Group	Isotope	Activity Units	Aliquot Units	ProcedureNo	RDL	LCS_LL	LCS_UL	MS_LL	MS_UL	RadY_LL	RadY_UL	GravY_LL	GravY_LL	RER	RPD	DiltionReq	RoughPrepReq	BlankCorrectionMDA	BlankCorrectionAll	CountTimeReq	AliquotRequired
LSC-A-021	STD	H-3	pCi	L	ARS-054	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		
LSC-A-022	STD	Enriched H-3	pCi	L	ARS-040	0.00E+00	75	125	60	140	30	110	40	110	1.00	25	FALSE	FALSE	FALSE	FALSE		

SDG Report - Samples and Containers

SDG Specific Data

SDG	ARS1-12-02261	TAT Days	28	Project Type	Environmental
Sample Count	1 Rpt Level 4	Date Received	11/9/2012	COC Number	2013-265
Client	Los Alamos National Laboratory	Client Deadline	12/2/2012	PO Number	63641-001-10
Client Code	114	Internal Deadline	12/1/2012	Job Number	
Profile Number	PN-00094	Lab Deadline	11/29/2012	Job Location	
Comments					

Samples and Containers (→) Checked In Thus Far

FR	ClientID	Matrix	SampleStartDate	SampleEndDate	Disp	Hold	Arch	Storage	X	Units	Y	Units	Z	Units	Comments
001	CAMA-13-24279	AQ	11/01/12 11:34 AM	11/01/12 11:34 AM	H	90	5	O1							
→	IC_ID	Cnt	Volume_mL	Wt_g	pH_Orig	pH_Final	CPM	uR_Hr	Storage	VOA	Head Sp	AF Units	AF Rate	AF Mins	AF Total Vol
	126359	1	1000.00				80	24		N	N/A				

SDG Report - Analysis Assignments

Temp SDG	ARS1-12-02261	Sample Count	1
Client	Los Alamos National Laboratory	Analysis Count	2-2

Samples Count Totals per Analysis

Analysis Code	Analysis Description	Samples Count
LSC-A-021	Low Level Tritium Screen in (Aqueous)	1
LSC-A-022	Low Level Tritium by Enrichment Process in (Aqueous [AQ])	1

Analyses Assigned Per Fraction

Fraction	Analysis Code	X = Assigned
001	LSC-A-021	X
001	LSC-A-022	X

Susan Leese

From: Greene, Keith R <kgreene@lanl.gov>
Sent: Thursday, November 29, 2012 11:22 AM
To: Susan Leese
Subject: 2013-265

Susan, we had a make a change for 2013-265 that I had to hand write some stuff on. Could you call the file name and in edd the field for coc as 2013-265ARS, txs

ARS1-12-02261
SDL
11-29-12

ARS FILE TRACKING SHEET

SDG: ARS1-12-02261

Task	Date / Time	Initials
Date & Time Samples Received	11/9/12 10:30	cad
ICOC Initiated / Storage Location: O1	11/9/12 12:21	cad
Technical Checks Performed	See Batch	
Report Written / EDD Generated: 12-10-12/ 1402 | SDR (Date/Time, Initials)	12-10-12/1357	SDR
Quality Assurance Checks Performed on Report	12-10-12 1505	JDF
Management Check Performed on Report		
Preliminary Report Sent		
Report E-mailed		
Report Faxed		
Report Reviewed		
Report Mailed		
Invoice Completed Invoice #:		
Report Imaged		

SPECIAL REQUIREMENTS

Requirement	Yes	No
3 Hour Rush		✓
24 Hour Rush		✓
48 Hour Rush		✓
3 Day TAT		✓
5 Day TAT		✓

NOTES:

ARS-062
08/08/2012

COMPANY NAME: LANL

SDG: ARS1-12-02261

SHIPPING CONTAINER

Good Condition	☑ Yes	☐ No
Radioactive	☐ Yes	☑ No
UN2910	☐ Yes	☑ No
Sec. Seals	☑ Yes	☐ No
Seals Intact	☑ Yes ☐ No	☑ N/A
Air Bill	☐ Yes	☑ No

COC PRESENT WITH SAMPLES

COC	☑ Yes	☐ No

SAMPLE CONTAINER(S)

Good Condition	☑ Yes	☐ No
Sec. Seals	☑ Yes	☐ No
Seal Intact	☑ Yes ☐ No	☑ N/A
Marked Radioactive	☐ Yes	☑ No

Samples Rcv 10

Matrix [AF , AQ , BI , FE , LT , SI , SO , UR , VG]

External and Internal Surveys

Exposure Rate Meter:	M3 242861	Serial No.:	PR 264264	Calibration Due Date:	4-18-13
Count Rate Meter:	M2 154859	Serial No.:	PR 184559	Calibration Due Date:	4-18-13

Background Exposure Rate (µR/hr)	24	Max. Exposure Rate on Shipping Containers Externals (Plus Bkgd)	28	µR/hr
Background Count Rate (cpm)	80	Max. Removable Count Rate on Shipping Containers Externals (Plus Bkgd)	80	cpm
		Max. Removable Count Rate on Shipping Containers Internals (Plus Bkgd)	80	cpm

Sample Label/Comments/Notes	pH Orig	pH Final (pH ≤ 2 is Acceptable)	Mark if Preserve	Acid Lot #	Weight(g) / Volume(mL)	µR/hr (Acceptance Limits <500 µR/hr)	cpm (Acceptance Limits <100 cpm/cm²)
* CAMO-13-24279			☐		1000mL	24	80
			☐				
CAMO-13-24241			☐		1000mL	24	80
-24242			☐			24	80
-24225			☐			24	80
-24247			☐			24	80
-24248			☐			24	80
			☐				
CAMO-13-24276			☐		1000mL	24	80
			☐				
CASA-13-24209			☐		1000mL	24	80
-24213			☐			24	80
-24214			☐			24	80
			☐				
			☐				
			☐				
			☐				
			☐				
			☐				

Surveyors' Name: [signature]

Date/Time Surveyed: 11/9/12 1045

* This sample only in this SDG.